

Minutes of the 84th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 3-4th June, 2015 at Brahmaputra Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3

The 84th meeting of the Expert Appraisal Committee (EAC) for River Valley and Hydroelectric Projects was held during 3-4th June, 2015 at Brahmaputra Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3. The meeting was chaired by Shri H. S. Kingra, Vice-Chairman. The EAC Members and officials/consultants associated with various projects and who attended the meeting is at **Appendix**.

The following Agenda items were taken-up in order for discussions:

1st Day (03.06.2015)

Agenda Item 2.1

Mago Chu Hydroelectric Project (96 MW) in Tawang District of Arunachal Pradesh by M/s Sew Mago Chu Power Corporation Pvt. Ltd - For consideration of Environmental Clearance (EC)

Mago Chu hydroelectric project is proposed on the Mago river (tributary of Tawang river) in Tawang District of Arunachal Pradesh. The project envisages construction of 20.5 m high barrage at 3.1 km upstream of the confluence of Mago Chu & Nyukcharong Chu. The project is a run-of-the-river scheme. The catchment area at barrage site is 830 Sq. km. Total land requirement is about 33.24 ha, which is unclassified State Forest (USF) land. Total submergence area is 2.42 ha which is riverbed. An underground powerhouse is proposed on the right bank of the river with 3 units of 32 MW capacity each. No family is directly affected by his project in terms of private land acquisition and loss of property. Surface land required for the project is 26.71 ha which unclassified state forest (USF) land belongs to Rho & Yuthembu Village communities. Land compensation will be as per Revenue Authority/District Administration. No family will lose their homestead. There is no wild life sanctuary, national park, eco-sensitive zone within 10 km radius study area. The estimated project is about Rs.879.12 crores and the project will be completed in 42 months.

2. The Scoping clearance was accorded on 23.2.2010. The validity of TOR was extended up-to 21.2.2014. The Forest land diversion proposal has been submitted to GOAP in January 2014. The public hearing for the project was conducted on 4.2.2015 at Indoor Stadium, Jang, Tawang District of Arunachal Pradesh and 190 people including ASM, GB, Lamas, affected villagers, political leaders and others attended the public hearing.

3. The committee noted that based on the approved 10 daily flow series for the 90% dependable year, the e-flows have been calculated. The project proponent informed that the 90% dependable year (1999-2000) monsoon run-off is 529.58 MCM, out of this 30% monsoon run-off is 158.87 MCM. The average non-monsoon/non-lean run-off is 34.93 cumec and 25% of non-monsoon run-off is 8.73 cumec and this will be ensured during operation of the project based on real-time observed data. The average lean season (December- March) run-off is 10.35 cumec and 20% of lean season release would be 2.07 cumec. The arrangement for E-flow release through the toe-generation units proposed to be installed on the left bank of the barrage. The committee mentioned that the units to be mentioned uniformly for e-flow and the approval for toe-generation units should be obtained due to increase in capacity.

Table: Environmental Flows for Mago Chu HEP

Season	Avg. inflow (m ³ /s)	% of Inflow	Avg. EF to the downstream(m ³ /s)
Lean (December – March)	10.35	20	2.07
Non-Monsoon/ Non-Lean (October, November– April, May)	34.93	25	8.73
Monsoon (June- September)	529.58 MCM	30	158.87 MCM

4. The 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 season data has been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested minimizing the anticipated impacts.

5. Other salient features of the project and the EIA/EMP were reported as under:-

(i) The main issues raised during the public hearing were job reservation to locals, local influx during construction phase, the workers should not stay more than 6 months & provision of rotation avoid long stay of outsiders should be made to reduce the negative impact on demography & socio-cultural pattern of the Monpa community, provision of toilet at Sela Pass & shelter for food facility at Jaswant Garh, grazing land for yarks etc. The project proponent has complied all the issues raised by the public pertaining to them.

(ii) The project is likely to generate 4.83 lakh m³ of muck due to excavation. Out of which 3.33 lakh m³ is to be utilized for construction purpose and remaining will be dumped in an area of 6.14 ha at 3 designated disposal sites. The muck disposal sites should be reclaimed/ restored with vegetation once capacity is utilized.

(iii) The compensatory afforestation programme is proposed in 53.42 ha of forests land which is double the forest land diverted for the project and will be implemented in consultation with State Forest Department.

(iv) Greenbelt will be developed around the reservoir rim along the right bank, road side plantation development of bunds and grass plantation. Selection of local plant species & its implementation will be done in consultation with the State Forest Department, Govt. of Arunachal Pradesh.

(v) Fishery development and management plan is proposed for the conservation fish in river. Under this programme development of trout hatchery at Nuranang in Tawang District and stocking of reservoir, upstream/ downstream of the river will be done. The plan will be implemented in consultation State Fisheries Department.

(vi) Biodiversity conservation measures habitat improvement programme for 8 faunal species recorded in the area, conservation of endangered plant species recorded in the area and development of Eco-Park in 1.62 ha are also proposed under the EMP.

(vii) The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as under:-

Sl. No.	Environmental Management Plan	Cost (Rs. Lakhs)
1	Catchment Area Treatment Plan	206.21
2	Compensatory Afforestation	417.09
3	Creation of green belt	11.15
4	Bio-diversity management plan	25.92
5	Fisheries Conservation and Management Plan	25.00
6	Rehabilitation and Resettlement Plan including Land Cost, Land Compensation and LADP/ TDP	1971.07
7	Muck Disposal Plan	126.05
8	Fuel Distribution Scheme	106.00
9	Disaster Management Plan	109.00
10	Restoration and Landscaping of Working Area	37.00
11	Public Health Delivery System	256.00
12	Sanitation and Solid Waste Management Plan	73.67
13	Water, Air quality & Noise Environment Management	29.40
14	Forest Protection Plan	99.24
15	Environment Monitoring Plan	112.39
Total		3605.20

6. After deliberations, the EAC observed the following:-

(i) Tawang sub-basin study has been completed, but the same is yet to be examined by the EAC and accepted by the Ministry. Further, the said project not being the first in the basin, the proposal for grant of EC needs to be looked into by the Ministry in terms of the OM dated 28th May, 2013.

(ii) Due to provision/designing of dam toe power houses, actual power generation will be 1.2 MW more i.e. 97.2 MW. As such, the project proponents need to inform Central Electricity Authority (CEA) in this regard, and seek a clearance for the revised capacity.

(iii) There is no protected area in the form of National Park or Wild Life Sanctuary within 10 km radius of the said project, and as such, the project proponents have not made any request for grant of Wild Life clearance or the permission from Standing Committee of NBWL. However, it was suggested to obtain a clarification in this regard from the State Forest/Wild Life Department.

(iv) The required downstream releases (after meeting design discharges) of 30%, 25% & 20% during monsoon, non-monsoon and lean months are to be ensured. These would be further revised as per the recommendations and acceptance of Tawang sub-basin study in this regard.

(v) Public hearing needs to be conducted also to cover the area identified for compensatory afforestation programme to assess the environmental impacts.

(vi) The project proponents need to prepare a comprehensive plan for identification/mapping of skills in the project area in order to impart training to local population for their employment and thus to explain the positive impact of the project.

(vii) The project proponent must submit response to the various issues raised by SANDRP in their representation submitted to this Ministry. A copy was handed over to project proponent for compliance.

The EAC decided for redressal of the above issues first, and then to be discussed further in the next meeting EAC.

Agenda Item 2.2

Nyukcharong Chu HEP (96 MW) project in Tawang District of Arunachal Pradesh by M/s New Sew Nyukcharong Chu Power Corporation Pvt Ltd - For consideration of Environmental Clearance

Nyukcharong Chu hydroelectric project is proposed on the Nyukcharong river (tributary of Tawang river) in Tawang District of Arunachal Pradesh. The project envisages construction of 22 m high barrage at 2.3 km upstream of the confluence of Mago Chu & Nyukcharong Chu. The project is a run-of-the-river scheme. The catchment area at barrage site is 2040 Sq. km. Total land requirement is about 36.83 ha, which is unclassified State Forest (USF) land. Total submergence area is 1.71 ha which is riverbed. An underground powerhouse is proposed on the right bank of the river with 3 units of 32 MW capacity each. No family is directly affected by his project in terms of private land acquisition and loss of property. Surface land required for the project is 29.41 ha which unclassified state forest (USF) land belongs to Rho & Yuthembu Village communities. Land compensation will be as per Revenue Authority/District Administration. No family will lose their homestead. There is no wild life sanctuary, national park, eco-sensitive zone within 10 km radius study area. The estimated project is about Rs. 995.90 crores and the project will be completed in 42 months.

2. The Forest land diversion proposal has been submitted to GOAP in January 2014. The Scoping clearance was accorded on 23.2.2010. The validity of TOR was extended up to 21.2.2014. The Public hearing for the project was conducted on 2.2.2015 at Indoor Stadium, Jang, Tawang District of Arunachal Pradesh and 190 people including ASM, GB, Lamas, affected villagers, political leaders and others attended the public hearing.

3. The committee noted that based on the approved 10 daily flow series for the 90% dependable year, the e-flows have been calculated. The project proponent informed that the 90% dependable year (2005-2006) monsoon run-off is 665.91 MCM, out of this 30% monsoon run-off is 199.77 MCM. The average non-monsoon/non-lean run-off is 32.05 cumec and 25% of non-monsoon run-off is 8.01 cumec and this will be ensured during operation of the project based on real-time observed data. The average lean season (December- March) run-off is 20 cumec and 20% of lean season release would be 4 cumec. The arrangement for E-flow release through the toe-generation units proposed to be installed on the left bank of the barrage. The committee mentioned that the units to be mentioned uniformly for e-flow and the approval for toe-generation units should be obtained due to increase in capacity.

Table: Environmental Flows for Nyukcharong Chu HEP

Season	Avg. inflow (m³/s)	% of Inflow	Avg. EF to the downstream(m³/s)
Lean (December – March)	20	20	4
Non-Monsoon/ Non-Lean (October, November– April, May)	32.05	25	8.01
Monsoon (June- September)	665.91 MCM	30	199.77 MCM

4. The 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 season data has been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested minimizing the anticipated impacts.

5. Other salient features of the project and the EIA/EMP were reported as under:-

(i) The main issues raised during the public hearing were 1% free power to PAFs, job reservation to locals, land compensation should be as LARR Act, 2013, a hospital and ambulance facility, awareness workshops for PAFs, cumulative basin study of Tawang basin study project is in Seismic zone-V and a threat to safety, phased manner construction of the project, boundary dispute between Rho & Jangda village etc. The project proponent has complied all the issues raised by the public pertaining to them.

(ii) The project is likely to generate 6.95 lakh m³ of muck due to excavation. Out of which 3.22 lakh m³ is to be utilized for construction purpose and remaining will be dumped in an area of 4.86 ha at 3 designated disposal sites. The muck disposal sites should be reclaimed/ restored with vegetation once capacity is utilized.

(iii) The compensatory afforestation programme is proposed in 58.82 ha of forests land which is double of the forest land diverted for the project and will be implemented in consultation with State Forest Department.

(iv) Greenbelt will be developed around the reservoir rim along the right bank, road side plantation development of bunds and grass plantation. Selection of local plant species & its implementation will be done in consultation with the State Forest Department, Govt. of Arunachal Pradesh.

(v) Fishery development and management plan is proposed for the conservation fish in river. Under this programme development of trout hatchery at Nuranang in Tawang Districts and stocking of reservoir, upstream/ downstream of the river will be done. The plan will be implemented in consultation State Fisheries Department.

(vi) Biodiversity conservation measures habitat improvement programme for 8 faunal species recorded in the area, conservation of endangered plant species recorded in the area and development of Eco-Park in 1.48 ha are also proposed under the EMP.

(vii) The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as under:-

Sl. No.	Environmental Management Plan	Cost (Rs. Lakhs)
1	Catchment Area Treatment Plan	239.68
2	Creation of green belt	22.71
3	Bio-diversity management plan	97.16
4	Fisheries Conservation and Management Plan	25.00
5	Rehabilitation and Resettlement Plan including Land Cost, Land Compensation and Local Area Development Plan (LADP) / Tribal Area Development Plan (TDP)	2172.69
6	Muck Disposal Plan	167.40
7	Fuel Distribution Scheme	88.80
8	Dam Break Analysis & Disaster Management Plan	104.75
9	Restoration and Landscaping of Working Area	45.00
10	Public Health Delivery System	273.10
11	Sanitation and Solid Waste Management Plan	70.07
12	Environment Management Plan for Water, Air quality & Noise	34.00
13	Forest Protection Plan	108.62
14	Compensatory Afforestation	445.94
15	Environment Monitoring Plan	148.48
Total		4043.39

6. After deliberations, the EAC observed the following:-

(i) Tawang sub-basin study has been completed, but the same is yet to be examined by the EAC and accepted by the Ministry. Further, the said project not being the first in the basin, the proposal for grant of EC needs to be looked into by the Ministry in terms of the OM dated 28th May, 2013.

(ii) Due to provision/designing of dam toe power houses, actual power generation will be 1.2 MW more i.e. 97.2 MW. As such, the project proponents need to inform Central Electricity Authority (CEA) in this regard, and seek a clearance for the revised capacity.

(iii) There is no protected area in the form of National Park or Wild Life Sanctuary within 10 km radius of the said project, and as such, the project proponents have not made any request for grant of Wild Life clearance or the permission from Standing Committee of NBWL. However, it was suggested to obtain a clarification in this regard from the State Forest/Wild Life Department.

(iv) The required downstream releases (after meeting design discharges) of 30%, 25% & 20% during monsoon, non-monsoon and lean months are to be ensured. These would be further revised as per the recommendations and acceptance of Tawang sub-basin study in this regard.

(v) Public hearing needs to be conducted also to cover the area identified for compensatory afforestation programme to assess the environmental impacts.

(vi) The project proponents need to prepare a comprehensive plan for identification/mapping of skills in the project area in order to impart training to local population for their employment and thus to explain the positive impact of the project.

(vii) The project proponent must submit response to the various issues raised by SANDRP in their representation submitted to this Ministry. A copy was handed over to project proponent for compliance.

The EAC decided for redressal of the above issues first, and then to be discussed further in the next meeting EAC.

Agenda Item 2.3

New Melling HEP (90 MW) project in Tawang District of Arunachal Pradesh by M/s Sew Energy Pvt Ltd - For consideration of Environmental Clearance

New Melling hydroelectric project is proposed on the Mago river (tributary of Tawang river) in Tawang District of Arunachal Pradesh. The project envisages construction of 20.5 m high barrage at 8.23 km upstream of the confluence of Mago Chu & Nyukcharong Chu. The project is a run-of-the-river scheme. The catchment area at barrage site is 805 Sq. km. Total land requirement is about 29.34 ha, which is unclassified State Forest (USF) land. Total submergence area is 4.56 ha which is riverbed. An underground powerhouse is proposed on the right bank of the river with 3 units of 30 MW capacity each. No family is directly affected by his project in terms of private land acquisition and loss of property. Surface land required for the project is 29.41 ha which unclassified state forest (USF) land belongs to Rho & Yuthembu Village communities. Land compensation will be as per Revenue Authority/District Administration. No family will lose their homestead. There is no wild life sanctuary, national park, eco-sensitive zone within 10 km radius study area. The estimated project is about Rs. 938.02 crores and the project will be completed in 42 months.

2. The Forest land diversion proposal has been submitted to GOAP in January 2014. The Scoping clearance was accorded on 23.2.2010. The validity of TOR was extended up to 21.2.2014. The public hearing for the project was conducted on 3.2.2015 at Indoor Stadium, Jang, Tawang District of Arunachal Pradesh and 190 people including ASM, GB, Lamas, affected villagers, political leaders and others attended the public hearing as per the EIA notification 2006 & its subsequent amendments.

3. The committee noted that based on the approved 10 daily flow series for the 90% dependable year, the e-flows have been calculated. The project proponent informed that the 90% dependable year (1999-2000) monsoon run-off is 513.64 MCM, out of this 30% monsoon run-off is 154.08 MCM. The average non-monsoon/non-lean run-off is 33.88 cumec and 25% of non-monsoon run-off is 8.47 cumec and this will be ensured during operation of the project based on real-time observed data. The average lean season (December- March) run-off is 10.05 cumec and 20% of lean season release would be 2.01 cumec. The arrangement for E-flow release through the toe-generation units proposed to be installed on the left bank of the barrage. The committee mentioned that the units to be mentioned uniformly for e-flow and the approval for toe-generation units should be obtained due to increase in capacity.

Table: Environmental Flows for New Melling HEP

Season	Avg. inflow (m ³ /s)	% of Inflow	Avg. EF to the downstream(m ³ /s)
Lean (December – March)	10.05	20	2.01
Non-Monsoon/ Non-Lean (October, November– April, May)	33.88	25	8.47
Monsoon (June- September)	513.64 MCM	30	154.08 MCM

4. The 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 season data has been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested minimizing the anticipated impacts.

5. Other salient features of the project and the EIA/EMP were reported as under:-

(i) The main issues raised during the public hearing were land compensation should be as LARR Act, 2013, tender works, provision of computer center and operator, supply material shall be from local villagers, free power share to LADF & 1% free power, provision of public health delivery system, playground, provision of school in 3 villages, road development, cumulative basin study of Tawang basin study report not made available, afforestation issue, quality of construction should be maintained etc. The project proponent has complied all the issues raised by the public pertaining to them.

(ii) The project is likely to generate 5.97 lakh m³ of muck due to excavation. Out of which 3.06 lakh m³ is to be utilized for construction purpose and remaining will be dumped in an area of 4.95 ha at 2 designated disposal sites. The muck disposal sites should be reclaimed/ restored with vegetation once capacity is utilized.

(iii) The compensatory afforestation programme is proposed in 48.32 ha of forests land which is double of the forest land diverted for the project and will be implemented in consultation with State Forest Department.

(iv) Greenbelt will be developed around the reservoir rim along the right bank, road side plantation development of bunds and grass plantation. Selection of local plant species & its implementation will be done in consultation with the State Forest Department, Govt. of Arunachal Pradesh

(v) Fishery development and management plan is proposed for the conservation fish in river. Under this programme development of trout hatchery at Nuranang in Tawang District and stocking of reservoir, upstream/ downstream of the river will be done. The plan will be implemented in consultation State Fisheries Department.

(vi) Biodiversity conservation measures habitat improvement programme for 8 faunal species recorded in the area, conservation of endangered plant species recorded in the area and development of Eco-Park in 2.82 ha are also proposed under the EMP.

(vii) The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as under:-

Sl. No.	Environmental Management Plan	Cost (Rs. Lakhs)
1	Catchment Area Treatment Plan	173.81
2	Creation of green belt	13.80
3	Bio-diversity management plan	23.37
4	Fisheries Conservation and Management Plan	25.00
5	Rehabilitation and Resettlement Plan including Land Cost, Land Compensation and LADP/ TDP	1708.49
6	Muck Disposal Plan	80.26
7	Fuel Distribution Scheme	106.00
8	Disaster Management Plan	103.00
9	Restoration and Landscaping of Working Area	38.64
10	Public Health Delivery System	248.00
11	Sanitation and Solid Waste Management Plan	75.14
12	Water, Air quality & Noise Environment Management.	31.58
13	Forest Protection Plan	96.14
14	Compensatory Afforestation	395.50
15	Environment Monitoring Plan	136.00
Total		3254.72

6. After deliberations, the EAC observed the following:-

(i) Tawang sub-basin study has been completed, but the same is yet to be examined by the EAC and accepted by the Ministry. Further, the said project not being the first in the basin, the proposal for grant of EC needs to be looked into by the Ministry in terms of the OM dated 28th May, 2013.

(ii) Due to provision/designing of dam toe power houses, actual power generation will be 1.2 MW more i.e. 91.2 MW. As such, the project proponents need to inform Central Electricity Authority (CEA) in this regard, and seek a clearance for the revised capacity.

(iii) There is no protected area in the form of National Park or Wild Life Sanctuary within 10 km radius of the said project, and as such, the project proponents have not made any request for grant of Wild Life clearance or the permission from Standing Committee of NBWL. However, it was suggested to obtain a clarification in this regard from the State Forest/Wild Life Department.

(iv) The required downstream releases (after meeting design discharges) of 30%, 25% & 20% during monsoon, non-monsoon and lean months are to be ensured. These would be further revised as per the recommendations and acceptance of Tawang sub-basin study in this regard.

(v) Public hearing needs to be conducted also to cover the area identified for compensatory afforestation programme to assess the environmental impacts.

(vi) The project proponents need to prepare a comprehensive plan for identification/mapping of skills in the project area in order to impart training to local population for their employment and thus to explain the positive impact of the project.

(vii) The project proponent must submit response to the various issues raised by SANDRP in their representation submitted to this Ministry. A copy was handed over to project proponent for compliance.

The EAC decided for redressal of the above issues first, and then to be discussed further in the next meeting EAC.

Agenda Item No. 2.4

Subansiri Upper HEP (2000 MW) in Upper Subansiri District of Arunachal Pradesh by M/s KSK Upper Subansiri Hydro Energy Ltd- Extension of the Validity Period ToR

Subansiri Upper HEP (2000 MW) project proposed on Subansiri River in Upper Subansiri District of Arunachal Pradesh by M/s KSK Upper Subansiri Hydro Energy Ltd. The project envisages construction of a 237m high concreted gravity dam across Subansiri river at upstream of village Menga in Upper Subansiri district, Arunachal Pradesh to generate 2000 MW of hydropower. This is a storage scheme. Total land requirement for the project is about 3155 ha. Total submergence is about 2220 ha. A dam-toe power house is proposed on the downstream of the river with 8 units of 250 MW capacity each. 21 villages consisting of 414 families are likely to be affected due to this project. No national park/ Archeological Monument is present in the project site. Total project cost is about Rs.11008.3 crores.

2. The ToR for conducting EIA/EMP studies of Subansiri Upper HEP (2000 MW) in Upper Subansiri District of Arunachal Pradesh was earlier accorded on 28.4.2011 and with its validity period of 2 years. Thereafter, based on the EAC recommendations, validity of the ToR was extended for 2 years i.e. from 28.04.2013 to 27.04.2015.

3. The project proponent has requested for 3rd extension of the validity of TOR due to the following:-

- i. Completion of land, property and socio-economic survey by December, 2015
- ii. Finalization of draft EIA/EMP report preparation and submitting it to Pollution Control Board for conducting public hearing by March, 2016 and thereafter final EIA/EMP submission to MoEF & CC for appraisal.

4. The committee noted that there was neither any change in project parameters nor scope of the project.

The EAC noted that the request made by the project proponent was reasonable and genuine. Keeping in view the pending works, EAC recommended one year extension of validity of TOR for Subansiri Upper (2000 MW) project i.e. from 28.4.2015 to 27.4.2016, as the last and final extension. If the project proponents were unable to conduct public hearing and finalize EIA/EMP reports, and submit it to MoEF & CC for appraisal within the stipulated extension period, a fresh request would have to be made for scoping/TOR clearance.

2nd Day (04.06.2015)

Agenda Item No. 2.5

Pemashelpu Hydroelectric Project (81 MW) in West Siang District of Arunachal Pradesh by M/s Mechuka Hydro Power Pvt Ltd - For consideration of Environmental Clearance

Pemashelpu Project is envisaged as a run-of-river scheme for utilizing the flow of Yargyap Chu, the right bank tributary of Siyom River, to harness the head created by constructing an 25 m high (above river bed level) barrage upstream of Mechuka town with FRL of EL 2236 m and the surface power house on the right bank of Yargyap Chu. The catchment area of the project is 366 Sq.km. Total land requirement is about 32.09 ha, out of which 4.12 Ha land is underground land. Total submergence area is 2.87 ha. A surface powerhouse is proposed on the Right bank of the river with 3 units of 27 MW each. 26 families are likely to be affected due to this project by losing their land. No family is likely to lose homestead. There is no National Park/Wildlife Sanctuary within 10 Km radius of the project area. Total cost of the project is about Rs. Rs. 708.75 Crores including 48.63 Cr Interest during Construction.

2. Scoping clearance was accorded to Pemashelpu Hydro-electric project vide MoEF letter No:J.12011/32/2009-IA.I dated 25.08.2009 for 96 MW installed capacity. CEA after studying the power potential report approved installed capacity of Pemashelpu HE project as 90 MW. This was informed to MoEF and MoEF has issued No Objection for reduction in installed capacity from 96 MW to 90 MW vide letter No. J-12011/32/2009-IA-I dated 12th Dec 2011. During extension of ToR for one year vide MoEF letter No:J.12011/32/2009-IA.I dated 06.08.2013, additional terms were recommended, which included among other things, environment flow release norms–20% in lean season, 30% in monsoon and 25% in non lean non monsoon period corresponding to 90% dependable year. This has resulted in reduction of installed capacity from 90 MW to 81 MW, for which approval was obtained from CEA and also from MoEF on 20th Dec 2013.

3. Pemashelpu HEP is in Siang sub-basin for which cumulative impact assessment study has recently been completed and accepted by MoEF. For Pemashelpu HE, the recommendations made for the environment flow release are as follows:

- Lean Season - Environment flow release in lean season should be based on average of four leanest months discharge in 90% dependable year. The report has recommended 25% release (1.48 cumec) in lean season as environment flow.
- Monsoon Season - Environment flow release in monsoon should be based on average monsoon discharge in 90% dependable year i.e. average of 12 - ten daily values in four monsoon months in 90% dependable year. The report has recommended 30% release in monsoon season as environment flow.

- Other Months- Environment flow release in other months should be based on average discharge in 90% dependable year in other months i.e. average of 12 - ten daily values in those four non monsoon months in 90% dependable year. The report has recommended 25% release in other months as environment flow.

4. Other salient features of the project and the EIA/EMP were reported as under:-

(i) Different activities are planned under Biodiversity Conservation & Management plan like conservation strategy for RET Species Biotechnology Based Conservation Habitat Improvement Programme/plantations, wildlife conservation, wildlife habitat improvement and anti-poaching measures. Number of mitigation measures and eco-development activities has also been planned. The total budgetary provisions of Rs. 275.30 lakhs have been allocated under EMP.

(ii) Catchment area treatment plan has been prepared for Yargyap Chu at barrage axis of the project, which is about 366 sq. km. For preparation of the CAT Plan, Yargyap Chu watershed has been divided into 10 sub-watersheds. Various engineering and biological treatment measures have been suggested under the CAT Plan, and a sum of Rs.4.68 lakhs has been allocated for that.

(iii) Under the Fisheries Development plan, reservoir area of 2.87 ha is proposed for fisheries development, with the provision of one hatchery for the indigenous species in consultation with Fishery department. An Amount of Rs. 69.68 lakhs has been allocated for this Plan.

(iv) Muck Dumping & Management plan has been prepared for dumping of excavated muck. Total quantity of muck to be generated during construction of the project is 5.00 lakh m³, out of which 3.35 lakh m³ is proposed to be utilized in project construction. The balance 3.89 lakh m³ (including swelling factor of 45%) will be disposed at 3 (three) designated dumping sites in 9 ha area. The distance of proposed sites from HFL of river is more than 35 m. A provision of Rs 4.57 Crores has been earmarked for muck management.

(v) R&R plan has been prepared as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 and Arunachal Pradesh, R&R Policy, 2008. There would be 26 PAFs whose land is likely to be acquired for the project construction. Rs. 282.26 lakhs has been allocated for this Plan. As a part of Local Area Development Plan, it is proposed to develop education, improvement of public health facility, Tribal Community Development, Skill Development Centers, Higher Secondary School with playground etc. Rs. 300.00 lakhs has been allocated for this plan, in addition to this Rs. 50.00 Lakhs has been allocated for monitoring and evaluation of LADP.

(vi) Other components of EMP were also discussed along with the budget provisions. Total amount proposed for implementation of Environmental Management Plan (EMP) is Rs.3219.2 lakhs with the details as under:-

Sl. No.	EMP component	Amount (Rs. in lakhs)
1	Biodiversity Conservation & Management Plan	275.30
2	Catchment Area Treatment	468.00
3	Fishery Conservation & Management Plan	69.68
4	Solid Waste Management Plan	100.80
5	Public Health Delivery System	208.06
6	Energy Conservation Measures/Fuel Management	107.00

Sl. No.	EMP component	Amount (Rs. in lakhs)
	measures	
7	Muck Disposal Plan	457.25
8	Landscaping and Restoration Plan	114.78
9	Air & Water Environment Management	87.00
10	Disaster Management Plan/Dam or Barrage Break modeling	138.00
11	Reservoir Rim Treatment	55.71
12	R& R Plan (Including LADP)	632.26
13	Environmental Monitoring Programme	119.55
A.	Total (1-13)	2833.39
1	Compensatory Afforestation	88.21
2	NPV	297.60
B.	Total (1-2)	385.81
Grand Total (A+B)		3219.20

EAC observed that total EMP budget of about Rs.32.20 crore is slightly lower than the 5% of total project cost, which works out to be Rs.35 crore. Therefore, EAC recommended that the EMP budget may be increased by Rs.3 crore.

(vii) Public Hearing for the Pemashelpu HEP was conducted by Arunachal Pradesh State Pollution Control Board (APSPCB) on August 11, 2014 at Multipurpose Community Hall, Yorni Village, Menchuka Circle, West Siang District (Arunachal Pradesh).

6. After deliberations, the EAC observed the following:-

(i) There is no protected area in the form of National Park or Wild Life Sanctuary within 10 km radius of the said project, and as such, the project proponents have not made any request for grant of Wild Life clearance or the permission from Standing Committee of NBWL. However, it was suggested to obtain a clarification in this regard from the State Forest/Wild Life Department.

(ii) The required downstream releases (after meeting design discharges) during monsoon, non-monsoon and lean months are to be ensured. These would be further revised as per the recommendations and acceptance of Siang sub-basin study in this regard.

(iii) Public hearing needs to be conducted also to cover the area identified for compensatory afforestation programme to assess the environmental impacts.

(iv) The project proponents need to prepare a comprehensive plan for identification/mapping of skills in the project area in order to impart training to local population for their employment and thus to explain the positive impact of the project.

(v) The proposed budgetary provisions for LADP needs as well as solid waste management plan needs to be suitably increased and revised plans to be submitted.

The EAC decided for redressal of the above issues first, and then to be discussed further in the next meeting EAC.

Agenda Item No. 2.6

Rahi Kyoung Hydroelectric Project (25 MW) in North Sikkim District of Sikkim by M/s - For consideration of ToR

Rahi Kyoung Hydroelectric project is located on Rahi Chu in North Sikkim district of Sikkim and is a Run-of-the-River scheme envisaging utilization of about 375 m of gross head available in the Rahi Chu River which is a tributary of Tolung Chu River, which is a left bank tributary of Teesta river. The project is located 42 km from Mangan via Tung Bridge on the Teesta River.

2. The project envisages construction of a trench weir, underground de-silting chamber, 2.462 km long HRT, Underground Powerhouse etc on the left bank of Rahi River. The land required for the project has been estimated is about 16.88 Ha, which includes about 1.8 Ha for underground work. No displacement of local population in the project area is foreseen due to project construction.

3. Rahi Kyoung HEP is in proximity to Khanchendzonga National Park and as such, needs appraisal at central level for grant of scoping clearance in terms of EIA Notification, 2006 and subsequent amendments.

4. Regarding the environment flow, the project proponents explained that at the time of PFR preparation, 20% of the lean season average in 90% dependable year has been kept as environment flow. EAC recommended a site-specific study for realistic assessment of environment flow and same shall be discussed at the time of appraisal.

5. After the elaborated discussions, EAC recommended the project for scoping clearance with the following additional conditions:-

(i) Environmental flow will be 20% of average of four consecutive lean months of 90% dependable year, 25% of the average monsoon flow. The flow for remaining months will be in between 20%, depending on the site specific requirements.

(ii) Muck disposal sites should be selected at least 30 m away from the bank corresponding to HFL of river/stream and shall be shown including location, quantity of muck to be deposited off vis-à-vis the total area for dumping in a clear map.

(iii) Biodiversity study shall be carried-out by associating a reputed organization as recommended by WII, Dehradun or by ICFRE, Dehradun. The list of Institutes is available on MoEF & CC portal.

(iv) FC application form has to be submitted to appropriate authority and a copy sent to MoEF not later than 6 months from the date of issue of the TOR for this project. IA Division of MoEF&CC shall be informed when such Application is submitted.

(v) Compensation for land acquisition, R & R plan and other benefits shall be in accordance with the relevant Act in this regard, as applicable.

(vi) Daily discharge data should be collected at the proposed weir location of the project, and realistic assessment of water availability study should be revised accordingly.

(vii) Impact on KNP w.r.t the proposed project should be studied in detail due to its proximity to KNP and proposal to be placed before the Standing Committee of NBWL for their consideration.

Agenda Item No. 2.7

Construction of new dam at Mullaperiyar to replace the existing old Mullaperiyar based on safety consideration by Government of Kerala - For consideration of TOR

The existing Mullaperiyar dam on Periyar river in Idduki District of Kerala is about 120 years old. It is a composite gravity structure with an inner hearting portion of about 62% of the total volume constructed of lime surkhi concrete. To check continuous seepage of water, grouting the body of the dam were resorted during 1935 and 1961, but continuous leaching out of lime from the structure was not stopped. In spite of strengthening measures, dam did not gain the adequate strength to function further. The project proponents were having the apprehension that collapse of Mullaperiyar dam would trigger a cascading failure of the Idukki group of dams resulting in submergence of populated districts of Central Kerala.

2. In view of the definite conclusions of the scientific studies State of Kerala has taken a decision to build a new dam to protect the lives and properties of people downstream of present Mullaperiyar dam to achieve ensuring continued supply of water to Tamil Nadu.

3. The proposed new Mullaperiyar dam across Periyar river would be a straight gravity structure, 366 m downstream of the existing dam. The project envisages construction of 45.50 m high dam. Total land requirement is about 50 ha, all forest land. Total submergence area is about 22.23 ha. The existing project as well as proposed new project is within the Periyar Tiger Reserve. One village is likely to be affected by this project. The total estimated cost of the project is about Rs. 663 crores and will be completed in 4 years.

4. The project proponent informed that since the proposed project is located within 10 km radial distance of Periyar Tiger Reserve area and interstate boundary with Tamil Nadu, the project falls under Category 'A', and as such needs appraisal at Central Level as per General Conditions of EIA Notification, 2006. The Administrative sanction has been accorded by the Government of Kerala for the conduction of EIA study of the new dam site area.

5. The proposal for permission to carry out EIA study in 10 km radius area around the project site for construction of a new Mullaperiyar dam in Kerala was earlier submitted to Standing Committee of NBWL, which was considered by the Committee in its 31st Meeting held on 12-13th August, 2014. The project proponents informed the Committee that the proposed EIA study would neither entail any diversion nor erosion of forest land. The Standing Committee recommended the proposal, as it was only for conducting the EIA study. However, the Standing Committee was of the opinion that carrying out EIA studies should not be construed as recommendations for diversion. The Committee also decided that all such conditions, as stipulated by the State Board for Wildlife and State Chief Wildlife Warden shall be complied with by the project proponents. Further, the recommendation(s) were subject to the existing directives of Hon'ble Supreme Court and provisions of Forest (Conservation) Act, 1980.

6. Based on the scrutiny and examination, EAC observed as under:

- As per the orders dated 7th May, 2014 of Hon'ble Supreme Court, it has been granted liberty to the parties to apply to the Court if they are unable to arrive at some amicable solution regarding the new dam.
- A WP (MD) No.14190/2001 case filed by TNPWD Senior Engineer Association v/s Home Secretary, Ministry of Home Affairs in the High Court of Judicature at Madras (Special Original Jurisdiction), at Madurai Bench is pending in this regard.

- After the clearance from Standing Committee of NBWL for conducting EIA studies, the State Government of Tamil Nadu Government has filed an IA in Original Suite No.3/2006 in Hon'ble Supreme Court. Hon'ble Court vide their order dated 12th May, 2015 has directed that the application be listed before an appropriate Bench in July, 2015.

The EAC noted that the matter in complete perspective is sub-judice, and decided to defer the proposal for grant of scoping clearance to the project till any directions of Hon'ble Supreme Court.

Agenda Item No. 2.8

Bursar Hydroelectric Project in Kishtwar District of Jammu & Kashmir by NHPC- For consideration of extension of validity of ToR

Bursar hydroelectric is proposed on Marusudar River (a tributary of Chenab river) near village Pakal in Kishtwar District of Jammu & Kashmir to be implemented by NHPC. Concrete Gravity Dam of 265 m height from the river bed level with one HRT of 8 km is proposed. This is a storage scheme. An underground power house near village Drangdhuran with installed capacity of 1200 MW having 6 X 200 MW is proposed. Land requirement for this alternative is 1665 ha out of which 1077 ha is forest land involving 500 ha inside Kishtwar High Altitude National Park (KHANP) and 577 ha outside KHANP. Total submergence area shall be 1563 ha and total affected families shall be 495. Forest clearance for forest land of 577 ha which is outside KHANP has been accorded by J&K Government on 16.06.2005 under J&K Forest (Conservation) Act, 1997.

2. The MoEF &CC had accorded scoping/ToR clearance for pre-construction activities and preparation of EIA/EMP reports for two alternatives of the proposed Bursar HEP i.e. Alternative-I, dam site at Pakal village (1200 MW) and Alternative-II, dam site at Hanzal (1500 MW) on 5.10.2012 with a validity period of years. After investigations of the project, the Alternative-II was not considered keeping in view of shifting of families and other socio-economic aspects and geological conditions.

3. The project proponent has submitted the proposal for extension of the validity period of Bursar project at Pakal site for 800 MW capacity for a period of 3 years, with the new location of powerhouse shifted from Drangdhuran to Lopara to maintain a minimum 1 km distance between upstream and downstream projects. An additional dam-toe powerhouse has been proposed to maintain e-flow stipulated by MoEF & CC. Due to e-flow requirement, the installed capacity has been revised to 800 MW from original 1200 MW.

4. The committee noted that in order to keep a minimum 1 km distance between upstream and downstream projects and adhering to e-flow norms of the Ministry, the project capacity was reduced from 1200 MW to 800 MW, which is welcoming exercise. The committee also observed that the project parameters (dam height, design flood, live storage) remain unchanged except shifting of powerhouse and providing dam-toe powerhouse for maintaining environmental flow at the downstream.

5. The project proponent informed that the progress in respect of topographical and geological survey, and drilling works is about 52%. Drifting works and construction material surveys are in progress. S&I works inside KHANP will be undertaken after obtaining NOC from NBWL/MoEF & CC. EIA/EMP studies are under progress. In view of this, project proponent requested for 3 years extension for scoping clearance to complete the remaining activities, finalize EIA/EMP studies, conduct public hearing and approach MoEF & CC for appraisal.

The EAC noted that the request made by the project proponent was quite reasonable and genuine. Keeping in view the pending works, EAC recommended 2 years extension of validity of TOR for Bursar HEP (800 MW) capacity i.e. from 5.10.2014 to 5.10.2016.

Agenda Item No. 2.9

Etalin hydroelectric project (3097MW) in Dibang District of Arunachal Pradesh by M/s Etalin Hydro Electric Power Company Ltd - For reconsideration of Environment Clearance (EC)

Etalin hydroelectric project (3097 MW) is proposed in Dibang Valley District of Arunachal Pradesh. The project envisages two independent head-works and water conductor systems (one each on Dri & Tangon Rivers) with a common underground powerhouse complex. Project envisages two dams of 101.50 m & 80 m height on Dri & Tangon Rivers respectively from deepest foundation level. HRT on Dri limb is 10.722 Km long with 11.30 m diameter and HRT on Tangon limb is 13.045 Km long with 9.70 m diameter.

2. The common underground powerhouse is proposed near the confluence of Dri and Tangon rivers with 6 units of 307 MW capacity each and 4 units of 307 MW capacities each respectively. The riparian releases are ensured through 2 dam-toe powerhouses, one each in Dri and Tangon limbs with capacity of 19.60 and 7.40 MW respectively. Thus, the total Installed Capacity (IC) of Etalin HEP works out to 3097MW $\{(6 \times 307) + (4 \times 307) + 19.60 + 7.40\}$.

3. The project was considered by EAC in the 82nd meeting held in February, 2015, the project proponent was handed over a number of representations received in the Ministry for an adequate response. They were also required to ensure the following:-

(i) To submit the breakup of Rs.250 lakhs allocated against preparation of Disaster Management Action Plan.

(ii) The cost of land against land acquisition of the project as included in the DPR should be reflected in the EMP and submitted.

(iii) Project proponent in consultation with District Administration should resolve the pending issues raised during public hearing of the project and inform to this Ministry.

(iv) Project proponent must follow the recommendations of CIFRI on minimum environmental flow and also obtain approval of CEA for any increase in IC from the two dam toe powerhouses.

(v) The project proponent to submit response to the various issues raised by SANDRP in their representation to this Ministry.

4. The EAC, in the background of its observations during earlier meetings, noted the following:-

(i) The Ministry's OM dated 28th May, 2013 explains about the pre-requisite Dibang sub-basin study for considering grant of EC to all the subsequent projects proposed in the basin after approval of the first project namely, Dibang Multipurpose Project (3000 MW of NHPC). The Etalin HEP being the second project in the basin, the Ministry needs to take a decision in this regard and for revision in the said policy, if so required.

(ii) The committee was apprised about the Dibang sub-basin study awarded to M/s R. S. Envirolink Technologies Pvt Ltd on 25th March, 2015 by the Central Water Commission. Incidentally, the same consulting firm has been engaged by the project developer for preparation of EIA/EMP reports. As such, there seems to be conflict of interest, and the Ministry may take cognizance of the same for a holistic decision by the EAC.

(iii) There is no protected area in the form of National Park or Wild Life Sanctuary in 10 km radius of the said project, and as such, the project proponents have not made any request for grant of Wild Life clearance or the permission from Standing Committee of NBWL. However, it was suggested to obtain a clarification in this regard from the State Forest/Wild Life Department,

(iv) The EAC took note of more representations received in the mean time, requesting not to consider the project at this stage and in its present form. The Committee desired that the project proponents may clarify their stand and provide the factual status on such representations.

The EAC decided for redressal of the above issues first, and then to be discussed further in the next meeting EAC.

The meeting ended with a vote of thanks to the chair

List of EAC Members and Project Proponents who attended 84th Meeting of Expert Appraisal Committee for River Valley & Hydro Electric Power Projects held on 3-4th June, 2015 in New Delhi

Members of EAC

- | | | | |
|----|-----------------------|---|------------------|
| 1. | Shri H. S. Kingra | - | Vice Chairman |
| 2. | Shri Vinay Kumar | - | Member |
| 3. | Shri N.N. Rai | - | Member |
| 3. | Dr. G. M. Lingaraju | - | Member |
| 4. | Shri S. K. Srivastava | - | Member Secretary |
| 5. | Dr. P.V. Subba Rao | - | MoEF & CC |

Agenda No. 2.1 to 2.3

- | | | | |
|----|--------------------------|---|--------------------|
| 1. | Shri Y. Aditya Krishna | - | Director |
| 2. | Shri S. B. V. Somayajulu | - | Engineer |
| 3. | Shri V. R. Sharma | - | Liaison Officer |
| 4. | Shri D. K. Koushik | - | Consultant |
| 5. | Shri Amit Srivastava | - | Design Engineer |
| 6. | Ms. Chandrani Mitra | - | EIA Coordinator |
| 7. | Ms. Neeta Arora | - | Functional Manager |

Agenda No. 2.4

- | | | | |
|----|---------------------|---|----------------------|
| 1. | Shri S. K. Dutta | - | Asst. Vice President |
| 2. | Shri Tarakesh Swain | - | Deputy Manager |
| 5. | Shri C. S. Kasana | - | Dy. General Manager |

Agenda No. 2.5

- | | | | |
|----|-----------------------|---|-------------------------------|
| 1. | Shri JVSD Prasad Raju | - | Sr. Vice President |
| 2. | Shri N Gopi Krishna | - | Manager |
| 3. | Shri R Ganesh Babu | - | Senior Manager |
| 4. | Shri S. S. Gahria | - | Consultant |
| 5. | Shri Pradeep Kumar | - | Officer – Corporate Relations |
| 6. | Dr.Arun Bhaskar | - | Director |
| 7. | Shri Ravinder Bhatia | - | Director |
| 8. | Dr. D. C. Nautiyal | - | CISMHE |
| 9. | Dr. Dawa Dorje | - | CISMHE |

Agenda No. 2.6

- | | | | |
|----|-----------------------|---|-------------------------------|
| 1. | Shri JVSD Prasad Raju | - | Sr. Vice President |
| 2. | Shri N Gopi Krishna | - | Manager |
| 3. | Shri R Ganesh Babu | - | Senior Manager |
| 5. | Shri Pradeep Kumar | - | Officer – Corporate Relations |
| 6. | Dr.Arun Bhaskar | - | Director |
| 7. | Shri Ravinder Bhatia | - | Director |

Agenda No. 2.7

- | | | | |
|-----|--------------------------|---|---------------------------------|
| 1. | Shri V.K. Mahanudevan | - | Chief Engineer, IDR |
| 2. | Ms. Sarah George | - | Director, IDR |
| 3. | Ms. Leena George | - | Joint Director, IDR |
| 4. | Ms. Rema. K.P | - | AEE, IDR, |
| 5. | Shri James Wilson | - | AEE, Mullaperiyar Special Cell |
| 6. | Shri Ajithkumar.N | - | Assistant Engineer, IDR, |
| 7. | Shri George Daniel | - | Executive Engineer, MI Division |
| 8. | Shri Sivaprasedan Pillai | - | EE, Cauvery Special Cell |
| 9. | Ms.Suja Mathew | - | AEE, Cauvery Special Cell |
| 10. | Shri Vijayakumar.P.G | - | AE, Cauvery Special Cell |
| 11. | Dr. Ravi Kiran | - | Consultant |
| 12. | Dr. Ramakrishnan | - | Consultants |

Agenda No. 2.8

- | | | | |
|----|-----------------------|---|--------------------|
| 1. | Shri I. D. Dayal | - | Executive Director |
| 2. | Dr. Shahid Ali Khan | - | Chief (Env.) |
| 3. | Shri A. K. Mittal | - | Design |
| 4. | Shri Vipin Gupta | - | Chief Engineer |
| 5. | Shri Imaran Sayyed | - | Geologist |
| 6. | Dr. Vipin Kumar | - | Chief (Env.) |
| 7. | Dr. Anuradha Bajpayee | - | AM (Env.) |

Agenda No. 2.9

- | | | | |
|----|----------------------|---|------------|
| 1. | Shri M. M. Madan | - | President |
| 2. | Shri Anil Dhar | - | AVP |
| 3. | Shri J. K. Soni | - | Manager |
| 4. | Shri Gagendra Sharma | - | Dy Manager |
| 5. | Dr. Arun Bhaskar | - | Consultant |
| 6. | Mr. R S Bhatia | - | Consultant |
