Minutes of the 71st Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects constituted under the provisions of EIA Notification 2006, held on 20th – 21st January, 2014 at SCOPE Complex, New Delhi.

The 71st Meeting of the Expert Appraisal Committee (EAC) for River Valley and Hydropower Projects was held during 20th – 21st January, 2014 at SCOPE Convention Centre, Opposite Jawaharlal Nehru Stadium, New Delhi. The meeting was chaired by Shri. Alok Perti, Chairman. Shri C. Achalender Reddy, Dr. Mathur, Shri P. K. Chaudhuri, Shri Vijay Kumar and Dr. K. D. Joshi, Members EAC could not attend the meeting due to pre-occupation. The list of EAC Members and officials/consultants associated with various projects who attended the meeting is at **Annexure-I**.

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

1st Day (20.01.2014)

1. **Agenda Item No.1 :** Welcome by Chairman and Confirmation of Minutes of the 70th EAC Meeting held on 10th – 11th December, 2013.

The minutes of the meeting of the 70th EAC Meeting held on 10th – 11th December, 2013 was confirmed, except the following amendment:

Agenda Item No.2.4- Bansujara Irrigation Project in Tikamgarh District of Madhya Pradesh by M/s. Department of Water Resources, Government of Madhya Pradesh

The figure of Rs. 234.89 Crores mentioned as cost of the environmental management plan at sl. No. (iv) under additional conditions to be read as Rs. 231. 755 Crores.

Thereafter, main agenda items were taken up for discussion.

2. **Agenda Item No.2 :** Consideration of Project proposals for Scoping and Environmental Clearance.

The following project proposals were considered:

Agenda Item No. 2.1 Mohanpura Major Irrigation Project in Rajgarh District of Madhya Pradesh by Water Resources Department, Government of Madhya Pradesh – For discussion on reply for reconsideration of Environmental Clearance.

The Mohanpura Major Multipurpose project is planned across Newaj River in Rajgarh District of M. P. intercepting 3825 km^2 of basin area. The project envisages construction of a 47.90 m high and 2640 m long composite dam across Newaj River near village Banskhedi in district Rajgarh, Madhya Pradesh. The total submergence area is 7056 ha of land. The Gross and live storage of the project is 539.42 MCM and 616.27 MCM.

The gross command area (GCA) is 92,860 ha and the culturable command (CCA) area is 65,000 ha. It is proposed to provide irrigation facility in 97,750 ha (Rabi Season – 60,750 ha + Kharif Season-35,000 + Perennial – 2000 ha). About 8,000 ha will be irrigated by pressurized irrigation.

The total land requirement for the project is 7353 ha, of which 1732 ha is revenue land and 5621 ha is private land. No forest land is involved.

The catchment area of the project is 3726 sq. km. About 2342 families are likely to lose land and 2732 homesteads are to be acquired.. Water requirement is assessed as under:

- For irrigation - 352.834 MCM
- For drinking water - 20 MCM

- For industrial use - 60 MCM

The total cost of the project is envisaged as Rs. 2827.34 crores

The project was earlier considered by the EAC in its 67th meeting held on 6th June, 2013, 68th meeting held on 23-24th September, 2013, 69th meeting held on 10-11 November 2013. During the earlier EAC meetings, the proposal was critically examined.

Based on the issues raised by EAC, the project proponent had submitted the following clarifications:

- Command Area Development Plan
- Rechecking of Animal/ faunal inventory
- Formulation of a proper conservation/ protection plan during submergence of reservoir.
- Livelihood Plan for PAFs losing land.
- Plan elated to fish diversity, migratory species and conservation of the fishery in the affected river.
- Fisheries management/enhancement plan for the newly constructed reservoir.
- Detailed response to Representation from SANDRP and Gharial Conservation Alliance.
- It was explained that applicable National Land Acquisition & R&R Policy would be followed for providing compensation for PAFs.
- In addition, livelihood plan is proposed for PAFs which include other activities namely (i) Reservoir fisheries (ii) Tank bed cultivation, livestock rearing, Skill up-gradation & (v) Eco-tourism.
- It was explained that the submergence area of the reservoir of the proposed project is 7056 ha. Therefore, the reservoir fisheries development plan has been proposed by engaging about 490 PAFs. Considering fish production @ 50 kg/ha/year, the total fish production from the reservoir shall be 350

tonnes/year. The fish price in local market is Rs. 70/kg. Thus, the total remuneration generation from reservoir fisheries shall be Rs. 2.45 crores. About 490 families can be provided employment through reservoir fisheries to bring them in the cooperative sector. Each family will have an annual income of Rs. 50,000 / year. PAFs will be provided proper training with regards to fish culture, fishing nets, boats, etc. This way, they also can draw livelihood from reservoir fisheries and the infrastructure facilities will be provided in the plan.

- About 4118 ha of area shall be dry or be available for use in due course to reservoir operation. Assuming that only 40% of such an area, i.e. 1650 ha, can be used for agriculture, it is proposed to allow 1000 PAFs to grow crops over these lands in Rabi Season. Thus, each PAF will get about 1.5 ha. of land for growing crops. The income from these lands shall be an additional source of income for the PAF. The water required for irrigation would be pumped from the reservoir. A pump of adequate capacity can be given to each farmer. For the first year, an amount of Rs.50,000 would be given to each farmer for purchase of agriculture inputs and pump sets.
- The livestock requirement is quite common in the project affected families. It is proposed that for about 600 PAFs, 4 cows/buffalos shall be given to each family. Thus, about 2400 cows / buffaloes shall be purchased. Cost of each cow/buffalo has been taken as Rs.40,000. Thus, amount spent on each PAFs should be Rs.1.6 lakh. In addition, an amount of Rs.20,000 can be given to each PAFs for construction of cattle shed and initial inputs. It is also proposed to provide training programmes on (i) Fodder Demonstration (ii) Demonstrations of use of mineral mixture in daily diet of milch animals (iii) Artificial Insemination and natural breeding in Cow and Buffalo (iv) Training and Exposure of PAFs& (v) Technical Training of Veterinarians instrumental in implementation of various activities.
- One member of each family shall be given training for skill development. This could be either male or female member of family. This will be in addition to

the income generating activities mentioned in this plan. A cooperative for each vocation will be formed. Activities supported by the cooperative shall include PAFs into cooperative.

- Training facility will be provided for groups for micro planning, financial management and carrying out different livelihoods activities in the area.

Based on the issues raised during the 69th meeting of meeting held on 10-11 November 2013, the EAC noted the response and clarifications of Government of Madhya Pradesh. The issue of interlinking of the project with PKC was to be clarified by CWC, EAC recommended that MoEF should write to CWC, MoWR seeking their views as to whether EC could be granted before the inter-linking project is formulated as PFR of the project has been cleared by CWC. The project would be re-considered along with revised EMP once clarification/response is received from the CWC.

During the 71st EAC meeting, the letter from CWC giving their consent to accord Environmental Clearance to the project was submitted. The project proponent gave a detailed presentation on the Revised EMP.

The Revised EMP covered the following aspects:

- Biodiversity Conservation Plan
- Environmental Management in Labour Camps
- Fisheries Conservation Plan
- Public Health Delivery System
- Restoration and Landscaping of Construction Sites
- Greenbelt Development Plan
- Water Pollution Control
- Control of Air and Noise Pollution
- Energy conservation measures

- Public Awareness Programme
- Agriculture Improvement Plan
- Resettlement and Rehabilitation Plan
- Livelihood Plan for PAFs losing land.
- Local Area Development Plan
- Catchment Area Treatment Plan
- Disaster Management Plan
- Environmental Monitoring Programme

The cost estimate for implementation of various Environmental Management Plan was also presented during the EAC meeting and cost has been upwardly revised from Rs. 903.05 crore to Rs. 928.35 crore.

The EAC reviewed the letter from CWC regarding their NOC for according Environmental Clearance for Mohanpura Major Multi-purpose project as a standalone project. The EAC also asked for a letter from appropriate authority State Government of Madhya Pradesh giving a confirming that If P-K-C. Link project comes up, then the Mohanpura Major Multipurpose project will be integrated into the P-K-C link project. Secretary, Department of Water Resources, State Government of Madhya Pradesh gave an undertaking in this regard, vide their letter 20.01.2014.

The EAC after critically examining the proposal, recommended Environmental Clearance subject to the following additional conditions:

- If P-K-C link project comes up, then the Mohanpura Major Multipurpose project will be integrated into the P-K-C link project. If there are changes in Mohanpura Multi-purpose project, and if and when it becomes part of PKC link, this will be considered as a part of the EIA study individually or/and for the integrated P-K-C link project.

- The project proponent has to prepare the R&R Plan for PAFs as per the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, which has come into effect since January 1, 2014. The R&R Plan is to be prepared within a period of 3 months from the date of issue of EC and will be presented before EAC. Otherwise, the EC will be kept in abeyance till the R & R plan is submitted and appraised by EAC.
- A multi disciplinary committee (MDC) under the Chairmanship of the Principal Secretary, Water Resources, State Government of Madhya Pradesh, for monitoring the implementation of Environmental Management Plan shall be set up. The District Magistrate and a representative from Ministry of Environment & Forests, shall also be members of the Multi-Disciplinary Committee. The Committee shall meet regularly. The Stat Government shall allocate necessary and assured funds for unhindered implementation of EMP.
- 30% of average monsoon flow is to be released towards environmental flow. As the river is seasonal, quantity during lean and non-lean season to be released to maintain pre-dam conditions at downstream of the project.

Agenda Item No. 2.2 Kundaliya Major Irrigation Project in Rajgarh District of Madhya Pradesh Water Resources Department, Government of Madhya Pradesh- For discussion on reply for consideration of Environment Clearance (EC).

The Kundalia project is a major multipurpose project proposed on river Kalisindh along with diversion of water from its tributary i.e. river Lakhundar by MPWRD which is also a left bank tributary of river Kalisindh.

The proposed Kundalia dam site is located in Balaheda village of Zirapur tehsil of Rajgarh district in Madhya Pradesh. Its latitudes and longitudes are $23^0$55'41''N and $76^0$18' 15''E respectively. The project envisages providing irrigation

downstream of the proposed Kundalia dam on left and right flank of Kalisindh river in approximately 58040 ha of CCA. The irrigation will be provided by a composite canal system over an area of 19000 ha in Kharif season and 54,500 in Rabi season. About 1500 ha will be irrigated under perennial crops. The proposed Kundalia dam is the last dam to be constructed on river Kalisindh in the state of Madhya Pradesh and its reservoir will have suitable absorption of incoming floods which will greatly help in reducing the magnitude of flood devastation on downstream of dam.

The dam will also meet the domestic and industrial water supply demand to the adjoining towns situated on the periphery of reservoir and just downstream of dam in Madhya Pradesh. About 18 Mm^3 of water is earmarked for drinking water purposes. Besides other fringe benefits of ground water recharge, flood control, pisciculture and tourism, construction of Kundalia dam is also essential for reducing the effect of likely flood damage in Kalisindh sub basin to a great extent.

The project envisages construction of 3100 m land dam including 2875 m of earthen portion and 275m of masonry portion. The Gross and Live Storage Capacities of the project are 582.75 MCM and 495.20 MCM respectively. 75% dependable yield for Kundaliya dam site is worked out as 679.128 MCM for the gross catchment area of 3850 sq.km and for Lakhundar Diversion Barrage it is worked out as 201.63 MCM for the gross catchment area of 1075 sq.km. To meet out the requirement at Kundalia dam site, 105 MCM is proposed to be diverted from Lakhundar sub-basin to Kundalia dam site through proposed lakhundar diversion barrage.

The land required for various project components is of about 8155 ha. About 5001 ha of private land and 2474 ha of Revenue land accounts is to be acquired. The quantum of forest land to be acquired is 680 ha.

The project will store water in the months of August to October to meet the irrigation water requirements from October to February and in the months of July and September. The river carries flow only during monsoon season. It is proposed to release 30% of flows in monsoon season in both Kalisindh and Lakhunder rivers as Environmental Flows to meet the downstream water requirements and sustenance of aquatic ecology.

A detailed Social Impact Assessment (SIA) report has been submitted as a separate volume. The report states that a total of 1780 families will be losing homesteads and 2861 families will be losing land. The SIA report presents a detailed R&R plan based on National Resettlement and Rehabilitation Policy 2007. During the presentation, details of R&R Plan and livelihood plan for PAFs were covered.

In addition to R&R Plan, the project proponents will implement *a* livelihood plan for PAFs losing lands. As a part of this plan, following Income generating activities are proposed:

- Reservoir fisheries
- Agriculture in fringe reservoir area
- Livestock rearing
- Training for skill development
- Eco-tourism

An amount of Rs. 35.0 crore has been earmarked for implementation of plan for income generating activities, which is in addition to the cost earmarked for implementation of Resettlement and Rehabilitation Plan.

The project developers have also presented a detailed Local Area Development Plan with an expenditure of 0.5% of project cost.

Various features of Environmental Management Plan (EMP) were presented during the 70th EAC meeting on December 101-11 2013. The issues covered in the EMP were biodiversity conservation and management plan, fisheries management plan, environmental management in labour camps, public health delivery system, restoration and landscaping of construction sites, greenbelt development plan, energy conservation measures, public awareness programme, agriculture improvement plan, etc. A Catchment Area Treatment Plan, using Silt Index (SYI) Method for prioritization of watersheds has also been prepared.

The EAC found the project to be generally satisfactory from environmental point of views and the safeguard/environment management plan as proposed including R&R plan. The EAC, however, sought response of the state government on a representation was received from SANDRP. The EAC also sought the clarification/views from the CWC on the issue of inter-linking projects whether the EC could be granted before the inter-linking project is formulated in its entirety.

During the 71st EAC meeting held on January 20-21, 2014, the project proponents gave a detailed response to the issues raised by SANDRP. The issues discussed and response of State Government were as below:

- The number of PAF is based on door-to-door survey of the PAFs by officers of the Water Resources Department. Land for R&R is provided for development of R&R colonies for which 120 Ha land reserved would suffice. Since the cash grant in lieu of developed residential plot is considered substantial and large number of PAFs prefer to construct houses on their own land elsewhere, as has been observed in other major and medium projects in Madhya Pradesh, we feel the land reserved for R&R is sufficient. The State Government is committed to ensure residential plots to all PAFs as per their choice, and would do everything needed in this respect.

- The Government of Madhya Pradesh has considered the option of providing land-for-land in Narmada Projects and found it not working. Even today more than 5,000 ha. Government land is kept in reserve pool for PAFs in Narmada basin. None of the PAFs has accepted even a single hectare land. In Narmada cases, the Hon'ble Supreme Court too has expressed the impracticability of land-for-land argument as it sets in motion a never ending chain action.
- The State Government has a time tested policy of giving cash grant to PAFs losing land and letting them buy land of their choice or invest in any other vocation that they prefer. The policy of giving cash has been found successful in Man and Jobat projects in the Narmada basin, and farmers procured more land from the cash they received than they lost in submergence area. This fact was noted by the Hon'ble High Court in Narmada cases and appreciated by the Hon'ble Supreme Court while giving above observation of land-for-land leading to a never ending and impractical chain.
- All requisite components of SIA have already been submitted as Volume-II of the EIA report.
- The benefits of the project for outweighs the cost. The Government is committed to balance the needs of development and interests of those who would get displaced. This balance is ensured through the National R&R Policy and comprehensive provisions in the proposed Land Bill. The National Policy/Law would be followed and R&R would be done in consultation with those affected.
- The idea behind the project is to harness rain water which flows down the Ganges and into the sea without benefitting the community/society. The possibility of minor and medium reservoirs has been explored. It is not in the public interest to let the geographical opportunity of huge benefits to the society be wasted by restricting the water reservoir within the banks of the

river and converting the major project into a minor project, as such a situation would imply perpetual waste of precious natural resource.

- The policy relating to allotment of land for seasonal cultivation on depletion of water in the tank bed makes it mandatory to allot land to PAFs on nominal charges. Only when PAFs are not interested in tank bed cultivation, seasonal lease is allowed to others.
- The State Government considers that the project is in the larger public interest. The State has observed the phenomenon of intense rains over a short duration leading to flash floods. The major reservoirs in the state have been a boon to manage floods and save huge population from loss of life and property.
- The storage capacity of the reservoir is keeping in view the water needs and benefits from the Project. The decision with regard to height and capacity cannot be taken arbitrarily. These features have been worked out based on the optimum cost-benefit ratio and submergence-command ratio. The submergence area of the project is about 11.5% of the command area (including command area equivalent to water reserved for industrial use) of the project. In medium and minor projects the submergence area is generally in range of 15% to 25% of the command area/
- The proposed project is different from the one conceived under the PKC. The present proposal is for irrigating 58,040 ha of CCA and catering to drinking and industrial water needs of the area. The live storage capacity of 495.2 MCM has been determined keeping in view water requirements for CCA of 58,040 ha, industrial and drinking water needs. The storage capacity is well within the water availability assessed by the CWC and BODHI, Bhopal both leaving enough water for PKC.
- PKC was conceived to transfer water from sub basins of Parvati, Kalisindh and Newaj rivers to Chambal river on the assumptions that neither command area nor appropriate sites for large reservoirs were available in the sub

basins of river Newaj and river Kalisindh. The PKC is still in an idea stage, as even the DPR could not be prepared after lapse of more than 30 years.

- Under the present proposal, appropriate site has been identified wherein large fallow/barren land would come under submergence without affecting any town, and command area would fall in district Rajgarh and Shajapur which are water stressed. The Government of Madhya Pradesh has expressed its agreement to let the proposed Project be a part of PKC as and when PKC DPR is prepared, if at all. Based on this, the Central Water Commission has issued its in-principal consent on the PFR of the proposed project vide their letter No. MP/90/2011-PAC/236-240 dated 12.06.2012. The FTL for the proposed Project is kept at 400 M, which is the above the project conceived under PKC on river Kalisindh. The FTL is 22m higher that of PKC Project this eliminates risk or doubts of any future conflict if PKC ever crosses the stage of idea and becomes viable.
- The state governments of Rajasthan and Madhya Pradesh have repeatedly agreed to the projects in their territories. As per the agreement, Madhya Pradesh and Rajasthan both are free to construct projects in their respective territory so long as the catchment area and submergence in other state does not exceed 10% of the project catchment and submergence.
- The proposed Project would be located upstream of river Chambal at a distance of more than 220 km. of the Ghadiyal Sanctuary in river Chambal. The catchment area of Kalisindh upto project site is 4925 sq. km. The catchment area of Chambal at Ghadiyal Sanctuary is approximately 143,200 sq. km. Thus, Kalisindh contributes mere 3.4% of waters during monsoon to Chambal and that too during floods. Post monsoon Kalisindh gets dry. In view of the far away location of the Sanctuary and positive downstream impact of the reservoir, no clearance from the wild life authorities is warranted.
- A total of 5 volumes have been submitted to the MOEF and the same were put by MOEF on its website as per details below:

Volume-I: EIA Report

Volume-II : SIA Report

Volume-III: EMP Report

Volume-IV: CAD Plan Report

Volume V: Public Hearing Report

- Public hearing has been done according to the notification from Ministry of Environment & Forests, New Delhi, dated 14th Sept 2006. District Magistrate's office in view of its convenient location, easy connectivity , basic facilities and availability of infrastructure was considered an appropriate place by the District Collector and M.P. Pollution Control Board. The site for Public hearing was convenient to the public in view of transport connectivity and facilities available. None of those participating in the Public hearing questioned the place of public hearing either before, during or after public hearing. The notice of Public hearing was well published in print media as well as notices to concerned Panchayati Raj Institution.
- The land required for canal network has been arrived at after field survey. Canal network involves an area of 545 ha of land, which is 0.94% of CCA and is sufficient. Requirement of land cannot be compared with any other project, as each project has different topography and command requirements.

The correct figures regarding Pressure Irrigation and Flow irrigation are as under:

Crop	**Area under pressure irrigation (ha)**	**Area under flow irrigation (ha)**	**Total Annual irrigation (ha)**
Kharif	1900	17100	19000
Rabi	5450	49050	54500
Perennial	1500	Nil	1500
Total	**8850 .**	**66150**	**75000**

- As per standard practice land is acquired only upto FRL level. Only homestead is acquired between FRL and MWL. The same policy has been followed for the proposed Project.
- The project is going to have positive impact on mitigating climate change impacts by controlling impact of flash floods and droughts.
- The EIA study has been conducted as per the project layout and project features finalized at the time of TOR clearance.
- A part of the construction material is obtained from excavation of dam site. The quantity of material is drawn from submergence area with requisite permissions of appropriate authorities. Mining permission required, if any, would be obtained from appropriate authorities on need basis. Details of quantity of required material has been assessed and quarries have been identified within the submergence zone.
- Dam length is 3100m, including 2875 m of earthen portion and 225 m of masonry portion.
- It is confirmed that sloping profile upstream of dam has been considered in the Dam Break Analysis. Figure-14.1, namely, Combined Stage Hydrograph, was included in Volume-III of EIA report.
- The objections regarding composite section are not tenable, as large earthen dams are composite dams all over the world. It appears that the commentator seems to carry a misinformed impression regarding the causes of dam failure in respect of the Morbi Dam disaster. A detailed Disaster Management Plan is given in Volume-III of the EIA Report.
- While it is agreed that dam break analysis could be based on MWL, taking FRL as reference level for Dam Break Analysis does not make any material difference in view of difference in height of only 1.5 meters at dam site. The State Government would keep this in mind for future.

EAC after a lot of deliberations, asked the project proponent to provide the following documents and clarifications:

- A letter from CWC, exclusively for Kundalia Multi-purpose project, regarding their views for according Environmental Clearance for Kundalia Major Multi-purpose project as a standalone project is to be obtained. MoEF will also write to CWC to obtain their views in this regard.
- EAC also asked for a letter from appropriate authority of the State Government of Madhya Pradesh giving a commitment/ undertaking that if P-K-C. Link project comes up, then the Kundalia Major Multipurpose project will be integrated into the P-K-C link project and if need be, operating and design parameters of Kundalia project will be revised to suit to the requirement of Parwati Kalisingh and Chambal (PKC) link project in order to facilitate its integration.
- The project proponent shall prepare the R&R Plan for PAFs as per the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, which has come into effect since January 1, 2014.
- Dam Break analysis is to be done using an appropriate model like HEC-RAS or Mike 11.

The project proponent was asked to submit the above documents and clarifications for the re-appraisal and reconsideration of EAC.

Agenda Item No. 2.3 **Kynshi Stage-I (270 MW) Hydro Electric Project in West Khasi Hill District of Meghalaya being implemented by M/s. Athena Kynshi Power Private Limited (AKPPL)- For consideration of extension of validity period of ToR.**

The project proponent presented the details for the extension of the validity of TOR and requested the EAC for one-year extension.

The committee noted that initially the project was conceived as 450 MW Kynshi Stage I HEP as a storage scheme with FRL 1045 m. However based on

techno-economical considerations, the project has been converted into ROR scheme with FRL at 940 m and installed capacity of 300 MW.

Scoping approval along with ToR for pre-construction activities and preparation of EIA/EMP Reports was granted by MoEF on 13th January, 2011 for 300 MW Kynshi Stage I HEP in West Khasi Hill District, Meghalaya with a validity of 2 years i.e. till 12-01-2013. Thereafter, with the expiry of two years, MOEF granted extension of TOR validity for one year with a revised installed capacity of 270 MW as approved by CEA in August, 2013. The approved ToR was valid till 12th January, 2014.

The proponent informed that Survey and Investigation work is under progress along with EIA/EMP studies. Substantial progress has been made in last two years. The Detailed Project Report (DPR) had been submitted to CEA/CWC in Feb, 2013 with an installed capacity of 270 MW. CEA/CWC has approved Water Availability Series, Design Flood Studies & Sedimentation studies. Power Potential Studies has been approved for the installed capacity of 270 MW in May 2012. Clearance for geological aspects has been accorded by Geological Survey of India (GSI) in September, 2013. Central Soil & Materials Research Station (CSMRS) has approved clearance for the construction material in Dec, 2013. The Project layout and other technical details are at advanced stage of clearance from different directorates of CEA/CWC.

The proponent further informed that substantial progress has been made by Environmental Consultant in preparation of Comprehensive EIA/EMP Report. Three season baseline data collected for various environmental aspects like soil, air, water sampling, aquatic ecology flora, fauna etc. The Socio-economic profiling shall be taken up upon finalization of the Project Layout Plan by CEA/CWC as a part of Detailed Project Report.

The proponent requested that as the project layout is being finalized, the land acquisition details which are required for undertaking socio-economic surveys

of affected families, finalization of the EIA/EMP Reports and thereafter, holding of Public Hearing will take some more time; therefore, the TOR validity may kindly be extended further for a period of one more year.

The committee noted that Scoping clearance for revised scheme of 300 MW Kynshi Stage I HEP was accorded in year 2011 and as per MoEF's latest OM dated 19th November 2013, the ToR validity period would be extendable by one year over and above the initial 3 years. Therefore, another one year's extension is subject to following additional conditions:

- Rehabilitation and Resettlement plan should be drafted as per the latest Land Acquisition & Rehabilitation and Resettlement Act, 2013.
- Dam break analysis should be done with the help of latest software like HEC-RAS or Mike 11.
- There will be no further extension and the project proponent shall submit EIA/EMP report within the extended time period.

Agenda Item No. 2.4 Upper Demwe (1080 MW) HEP in Anjaw District of Arunachal Pradesh - for revalidation of ToR

The project proponent presented the details for the extension of the validity of TOR and requested the EAC for one-year extension.

The committee noted that initially, Demwe HE Project was conceived as a single scheme of 3000 MW. To avoid partial submergence of Kamlang WLS, the project was bifurcated in two stages namely Demwe Lower (1200 MW) HEP and Demwe Upper (1800 MW) HEP. Further, in order to avoid submergence of large areas including Hayuliang town, Demwe Upper (FRL at 584 m) was further bifurcated into two projects ; Demwe Upper (FRL 525m, IC of 1050 MW) HEP and Anjaw (FRL 580 m , IC of 270 MW) HEP.

Scoping clearance for Demwe Upper HEP for installed capacity of 1050 MW (FRL of 525 m) was accorded by MOEF on 22nd December, 2010 with a validity of two years i.e. till 22nd December, 2012. Thereafter with the expiry of two years, MOEF vide letter dated 5th June, 2013 had granted extension of TOR validity for amended installed capacity of 1080 MW as approved by CEA for a period of one more year i.e. till 22nd Dec, 2013.

The proponent informed that substantial progress has been made in Survey and Investigation work. The Detailed Project Report (DPR) had been submitted to CEA/CWC in July, 2012 with an installed capacity of 1080 MW. Water Availability Series, Design Flood Studies & GLOF studies had been approved by CEA/CWC. Power Potential Studies in respect of 1080 MW have been approved by CEA in September, 2013. Clearances from different directorates of CEA/CWC i.e. Hydro Planning (Standard Technical Committee), Hydro Project Appraisal (HPA), System Planning & Project Appraisal (SP&PA), Foundation Engg. & Special Analysis (FE&SA), Instrumentation Division, Central Soil & Materials Research Station (CSMRS), Legal Division and Hydel Civil Design (HCD) have been obtained. Presently finalization of design parameters and project layout is under progress.

The proponent further informed that substantial progress has been made by Environmental Consultant in preparation of Comprehensive EIA/EMP Report. Three season baseline data collected for various environmental aspects like soil, air, water sampling and aquatic ecology flora, fauna etc. The Socio-economic profiling shall be taken up upon finalization of the Project Layout Plan by CEA/CWC as a part of Detailed Project Report.

The proponent requested that as the project layout is being finalized, the land acquisition details which are required for undertaking socio-economic surveys of affected families, finalization of the EIA/EMP Reports and thereafter, holding of Public Hearing will take some more time; therefore, the TOR validity may kindly be extended further for a period of one more year.

The committee noted that Scoping clearance for revised scheme of Demwe Upper HEP (1050 MW) was accorded in December, 2010 and as per MoEF's latest OM dated 19th November 2013, the ToR validity period would be extendable by one year over and above the initial 3 years. Therefore, another one year's extension is subject to following additional conditions.

- Rehabilitation and Resettlement plan should be drafted as per the latest Land Acquisition & Rehabilitation and Resettlement Act, 2013.
- Dam break analysis should be done with the help of latest software like HEC-RAS or Mike 11.
- There will be no further extension and the project proponent shall submit EIA/EMP report within the extended time period.

Agenda Item No. 2.5 Lohit Basin Study in Arunachal Pradesh by M/s. WAPCOS Ltd- for discussions on Final Report.

The Lohit River Basin study was initiated at the instance of MoEF while according environment clearance to Demwe Lower and Demwe Upper Hydroelectric Power Projects of M/s Athena Demwe Power Limited. The TOR for the study was communicated by the Ministry on 26th March, 2009, after discussing the same in four EAC meetings held on 16th – 17th July, 2008, 15th – 16th December, 2008, 22nd January, 2009 and 16th – 17th February, 2009. The Interim report of the study was discussed by EAC in its meeting held on 23rd March, 2010.

During 71st EAC meeting held on 20-21January 2014, response to various comments raised during the meeting held on 22-23rd March 2013 were discussed. The replies to issues raised by Ms. Parineeta Dondakar were also discussed. The details are given as below:

The issue of Gradual Ramping up and down of the units from off peak i.e. 72 MW (environmental unit) to the peaking hours i.e. installed capacity of 1750 MW was studied considering the CEA/CWC approved 10- daily discharge series at Demwe Lower HEP for following scenarios:

- When the average river discharge is at the lowest 10-daily approved series of 17 yrs i.e. 263 cumec
- The minimum 10-daily discharge at 90% dependable year (2003-2004) i.e. 325.15 cumecs
- 4 month consecutive lean month average discharge of 90% dependable yrs (2003-2004); i.e. of November, December, January and February i.e. 377.87 cumecs.

Based on all the three scenarios, it is seen that during the lean season even for a gradual ramping of 15 minutes, there will be a peaking loss of about 30 minutes each day from the diurnal peaking of 3 hours during these lean months. Thus, if a 15 minutes ramping up and down from/to environmental flow to/from the installed capacity is resorted to, this effectively translates into a loss of about 90 hrs of 1750 MW peaking during the six months of lean period of a typical year. Thus for having a ramping up/down of just 15 minutes there will be a 13.33% peaking loss during six lean season months from Demwe Lower HE Project which has got a large Installed capacity of 1750 MW.

Even for a 15 minutes ramping when there is a substantial peaking loss of 30 minutes (out of 3 hours) every day, for undertaking a ramping duration of 1-2 hours will almost completely eliminate the peaking capabilities of the project, thus rendering it to base generating station during lean season. As such, it can be concluded that hydro projects should be kept as a peaking power stations, as they are designed to be.

Further, it is also important to mention here that in the non-monsoon period, the project even it resorts to gradual peaking of any duration of time interval (15 min or more) the effect on the downstream aquatic life will qualitatively not be any different for various durations of ramping because the species downstream of the project cannot be expected to adjust for a ramping of even 30 minutes or 1 hour for 6 units on a diurnal basis. As such, the notion of compromising the peaking capabilities of Project without getting any commensurate downstream benefits to aquatic life is not recommended.

It is recommended that a siren or hooter system which will be used for sufficient time at regular intervals, giving adequate time for any person in river Lohit to move out of river Lohit, prior to start of rise of water level in the river.

For checking the flow conditions at DSNP because of the peaking power operation flow modelling is carried out and the outcomes of the study were presented in the report which concludes that there will be no submergence of DSNP because of peaking as bank levels are on higher elevation than that of water level due to peaking. This is also confirmed with satellite images during the period of flow corresponding to results obtained in the modelling study. Regarding the variation in water level as stated in the report, Lohit river is adapted with much greater variation over the years as well as among different seasons in the year.

The Dibru Saikhowa National Park is located at a distance of about 105 km downstream of dam of Demwe Lower HEP. The study area of Lohit Basin Study as per approved TOR covers the catchment area of River Lohit (in Indian territory) upto last hydro project i.e. Demwe Lower HEP of Lohit basin. Therefore, the impacts on biodiversity of Dibrusaikhowa national Park is beyond the study area of the Lohit basin study and hence data on ecological features of Dibru Saikhowa National Park has not been collected as a part of study.

The downstream impacts regarding DSNP as prescribed by the MOEF under the TOR of said study shall be addressed in the Downstream Study Report. Presently, the study is under progress.

A site specific Fisheries Conservation and Management Plan has been prepared and approved as part of EIA/EMP study of individual project. For Demwe Lower HEP, Fisheries Conservation and Management Plan has already been approved by MOEF as a part of environmental clearance. However, the impact on downstream aquatic ecology and fisheries are being covered by WAPCOS as a part of another ongoing study i.e. Downstream Impact Assessment Study for Lohit River.

The manning's coefficient of n=0.04 has been taken from Chow. The 'n' value has been considered based on the literature/data for similar streams as is the normal practices.

The replies to the issues raised by Ms. Pareeneeta Dandekar were also discussed during the EAC meeting.

The EAC after a lot of deliberations recommended the following:

- Study area of the Basin study be extended upto Dibru Saikhowa National Park.
- Hydroelectric projects on the tributaries in the study area to be included in the study. The impacts on aquatic ecology, free flow stretch due to hydroelectric projects on the tributaries be also assessed. It was also decided that MOEF would request state government of Arunachal Pradesh to provide data of various hydroelectric projects on tributaries of Lohit Basin. This issue was raised by in earlier EAC meeting held in November 2011, but could not be compiled due to lack of date.
- WAPCOS was asked to prepare a revised term of reference (ToR) for the additional studies for approval of EAC. Emphasis is to be given on the clear river

length of uninterrupted flow between the reservoir tip at FRL of a downstream project and the tail water discharge point of the immediate upstream project, number of projects that can allowed to come up, appropriate scientific procedure to decide on the minimum lean season flow that must be maintained in the downstream of a dam/barrage, broad capacity of various projects to be allowed to come up etc to be reflected in the report.

- EAC also handed over a copy of the re-presentation received from Ms. Parineeta Dandekar and a NGO called Manthan Adhyayan Kendra, Badwani M.P to WAPCOS, and were asked WAPCOS to give a detailed response to the issues raised in the above representations.
- WAPCOS shall come back to EAC within 2 months time with a revised ToR and detailed response to the representations. The study should be in line with carrying capacity study on cumulative impact assessment principle.
- MoEF will write to Arunachal Pradesh, Assam and Ministry of Power to provide necessary details data to WAPCOS to facilitate early completion of the study. It was understood that protracted correspondences being exchanged to get access to vital information essential to complete the study.

Agenda Item No. 2.6 Attulni HEP (680 MW) in Dibang Valley District of Arunachal Pradesh by M/s. Attulni Hydro Electric Power Company Ltd – For consideration of ToR

Attunli Hydroelectric Project (HEP) is proposed for development on Tangon River in Dibang valley district of Arunachal Pradesh, being developed by the Attunli Hydro Electric Power Company Ltd. (AHEPCL). The project is allotted as run of the river scheme by Arunachal government with FRL and TWL as El. 1360 m and El. 1060 m. It was allotted by Arunachal Government as 500 MW initially and MoEF had accorded scoping vide letter no J12011/61/2006-IA.I dated 30.11.2009. Prescribed TOR was valid for four years i.e. up to 29.11.2013. As the investigation and EIA work could not be completed in 4 years, the proponent requested for extension of Scoping Clearance for another year and matter was discussed in 70th

meeting of EAC held during December 2013. EAC recommended that on expiry of four years period, no further extension can be granted therefore, developer should apply for fresh scoping clearance based on the present day status.

Keeping this in view, a fresh scoping clearance application was submitted for the revised capacity of 680 MW. Based upon water availability examined and concurred by Central Water Commission (CWC) in April 2011 and power potential examined and concurred by CEA in June 2012, it was suggested by CEA that installed capacity for Attunli HEP can be tentatively adopted as 680 MW comprising of four (4) units of 170 MW each, within the allotted reach.

Tangon River meets Dri River about 22 km downstream of Attunli HEP outfall; downstream of the confluence the river is named as Dibang. The project is proposed to be developed as a run-of-the-river scheme by constructing concrete gravity dam on Tangon river and diverting the water through an underground waterway system to utilize the available head in an underground powerhouse located upstream of Attu nallah confluence with Tangon river. The entire power (680MW) of the project is proposed to be evacuated through one double circuit, multi-conductor transmission system with proposed interconnection at 400kV to the nearest pooling station. The downstream project is Tangon limb of Etalin HEP (3097MW) with FRL as El. 1050m; free flowing river stretch with downstream project is 1.2 km. There is another project Malinye HEP (335 MW), which is proposed upstream of Attunli HEP, major components of which falls in Dibang wild life sanctuary. Malinye has not yet approached MoEF for scoping clearance and free flowing stretch will be examined on upstream side during scoping stage of Malinye HEP.

The proposed development envisages construction of a diversion structure/dam upstream of Apanli village, 130m downstream of the Kachi nallah confluence with Tangon river, underground desilting chambers, about 7915m long headrace tunnel, pressure shafts and underground powerhouse complex near Attunli village. The basic project parameters evaluated are:

- Diversion Structure — Concrete Gravity Dam
- Installed Capacity — 680 MW
- Net Head — 271.3m
- Powerhouse — Underground
- Design Energy — 2885 MU
- Project Cost — ₹ 6336 Crores

The water availability at the diversion site has been assessed by using the long term water series at Elopa and Munli, which is approved by Central Water Commission (CWC) vide their letter No. 2/ARP/27/CEA/10-PAC/2670-72 dated 16/05/2011. The studies on design flood for dam spillway have also been concurred by CWC vide their letter No 2/ARP/27/CEA/10-PAC/7063-65 dated 07.10.2011. The design flood at dam site is computed as 9927m^3/s, which corresponds to probable maximum flood (PMF). Apart from this, Glacial Lake Outburst Flood (GLOF) studies have also been carried out and subsequently received concurrence from CWC vide their letter No 2/ARP/27/CEA/10-PAC/8005-07 dated 24.11.2011. The tentative peak discharge of GLOF event at the proposed dam site has been estimated as 2227m^3/s. This corresponds to the condition that lake burst and 100-year flood occur simultaneously.

Considering the allotted levels and water availability as approved by CWC, the power potential studies for the scheme have been concurred by CEA vide their letter No 2/ARP/27/CEA/10-PAC/6449-51 dated 17.10.2012. The project is conceived as a run of river scheme having diurnal storage. The gross head of the project is estimated as 282.6m and considering the head losses in the water conductor system the net head as 271.33m. Based on the 23-year discharge series, the 90% and 50% dependable years are 2001-02 and 2000-01 respectively. On the basis of incremental analysis carried out on 90% dependable year, the installed capacity of the project is selected as 680MW to utilize the maximum potential within the allotted stretch of the river. The configuration of the units is envisaged as 4 x 170 MW. The design discharge of the system will be 274.4m^3/s.

The annual design energy at 95% machine availability as calculated in 90% dependable year is computed as 2885 GWh whereas the energy in 50% dependable year 3076 GWh.

The proposed Attunli HEP comprises of the following structures:

Dam: The selected dam site is located 1.2km upstream of Appanli village and 130m downstream of Kachi nallah, at 28º40'01"N, 96º07'01"E and found to be suitable for concrete gravity dam. The proposed dam is a 90m high concrete gravity dam with top level at El. 1362.0m, deepest foundation level at El. 1272.0m and existing riverbed level at El. 1289.0m.

Reservoir: The full reservoir level and minimum drawdown level of reservoir have been fixed at El. 1360.0m and El. 1349.0m, respectively to create a live storage volume of 2.711 x 10^6 m^3 for providing adequate diurnal peaking capabilities. The total area of submergence is 31.25 ha.

Intake: It is located on the left bank of the Tangon river, about 10m upstream of dam axis. Three number of inlet tunnels are envisaged with inlet invert level at El. 1336.0m.

Inlet Tunnels: The water from intake to each desilting chamber is conveyed through independent 3 inlet tunnels of 5.8m finished diameter.

Butterfly Valve Chamber: Butterfly valves have been envisaged downstream of surge shaft at the initial reach of pressure shaft.

Desilting Chamber: Three numbers of underground desilting chambers have been envisaged to render the water free from suspended particles having size greater than 0.2mm.

Headrace Tunnel (HRT): The HRT aligned on the left bank is having a length of 7915m and an internal diameter of 9.4m. Flow velocity for design discharge of 274.4m^3/s would be 3.96m/s.

Surge Shaft: A restricted orifice type vertical shaft of 22.5m internal diameter having and 89m height is envisaged.

Pressure Shaft: Two numbers of main pressure shafts of diameter 5.2m originates from surge shaft.

Power house: An underground Powerhouse is foreseen to house four units of 170MW in the present scheme. The size of powerhouse cavern is 132.0m (L) X 23.5m (W) x 52.0m (H).

Transformer Hall: A transformer hall is envisaged to house 13 numbers of single phase transformers.

Collection Gallery: A rectangular chamber of size 90m x 15m x 37m is envisaged to collect the turbined water from the upstream water conductor.

Tailrace Tunnel (TRT): From collection gallery the water is conveyed through a 10m wide D-shaped tailrace tunnel and is discharged back into the Tangon river. Total length of TRT is about 570m. The minimum, normal and maximum tail water levels in the river at outfall location is El. 1067.7m, El. 1070.6m and El. 1083.0m, respectively.

The requirement of raw material for coarse and fine aggregates has been estimated as 10.04 Lac and 5.75 Lac Cum respectively. To fulfil the requirement of construction material quarry locations have been identified, out of which 2 are shoal and sand query and 2 are Rock queries. For muck disposal, the total quantity of

excavation for various structures works out to 35.94 Lac Cum and the net quantity to be disposed to the muck dumping yards is works out to be 30.99 Lac Cum. Area of about 79 ha has been demarcated at various locations for muck disposal. The total land requirement for various project components is estimated about 250 ha.

EAC during presentation made various issues and recommended Attunli HEP (680 MW) for scoping clearance with the following additional observations/ condition to be incorporated in the TOR:

- EAC observed that during the four years of scoping clearance period, developer could not made sufficient progress in survey and investigation, could not finalize layout and hence could not complete EIA study. Developer explained that there were several disruptions such as heavy rains, road blockades, etc making site inaccessible for long periods due to which investigation work was stalled several times. EAC observed that these situations may prevail even if fresh ToR is granted and as State Govt. a joint venture partner in project, they must act proactively facilitating the progress of works. EAC also recommended that, a representative from State Govt. should also be invited during the EAC meetings. The developer confirmed that large part of investigation work has already been done, DPR is in advance stage and all the activities will be completed during the validity of fresh scoping clearance.
- EAC observed from the comparison of salient features of earlier 500 MW project with that of present 680 MW; that land requirement has been reduced substantially from 1061 ha to 250 ha. Developer explained that earlier scoping clearance accorded in 2009 was based on PFR prepared by NHPC. During the last four years, investigation and preparation of DPR, land requirement have been optimized leading to substantial reduction.
- Regarding the environment flow requirement, developer explained that earlier scoping clearance has stipulated that a separate reputed agency should undertake environment flow study. Therefore, developer has engaged Central

Inland Fisheries Research Institute (CIFRI), to undertake such study for Attunli HEP and assess the environment flow requirement in different seasons. The study is under progress and recommendations regarding release of environmental flow will be followed. EAC observed that basin study for Dibang basin is being initiated and apart from CIFRI study, basin study recommendations on environment flow release will be implemented for Attunli HEP. Till such time, 30%, 25% and 20% norms will be followed:

- EAC noted that as this is fresh scoping clearance, fresh baseline data needs to be collected so that at the time of finalization of EIA for Public Hearing, baseline data should not be more than three years old.
- EAC also mentioned that since this is a fresh TOR; biodiversity study, as per MoEF's OM dated May 28, 2013, to be undertaken by an expert institute. A list of such institutes is available on MoEF's website.
- EAC also discussed that in the proposed TOR it is mentioned that specimens will be collected for RET species, if found in the study area during baseline studies, whereas no samples should be collected of RET species.
- EAC mentioned that now "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" is in place and therefore, land acquisition process and R&R benefits should be in line with the new act and rules made there under.
- Also, provision of MoEF OM dated 28.05.2013 will be followed in preparing EIA/EMP reports such as effect of downstream and upstream project to be factored into EIA/EMP.

Agenda Item No. 2.7 Baglinga Minor Irrigation Project Taluka Chikalura District Amarawati, Maharashtra – for consideration of ToR

The Project proponent made a detailed presentation on the project. The project is planned across Datpadi River in Amaravathi District of Maharashtra.

The committee noted that the project is Minor Irrigation Project falls under Category-"**B". T**he Melghat Tiger Reserve is 8.5 Km away from the project site, Therefore, the Government of Maharashtra submitted the project to MoEF for consideration. Therefore, the committee considered the project at Central Level as Category-**A**. The proposal was considered as per EIA notification 2006 and its subsequent amendment 2009.

The project envisages construction of a 34.49 m high and 720 m long Rolled filled earthen dam across Datpadi River near (tributary of Chandrabhaga river which is a major tributary of Purna River) near village Balinga in District Amaravathi of Maharashtra to provide irrigation facility to 1,213 ha of area. The gross command area (GCA) is 1,498 ha and the culturable command (CCA) area is 1,348 ha. It is proposed to provide irrigation facility in 1,213 ha benefitting 10 villages. Out of this about 10% area will be irrigated by pressurized/drip irrigation. Total land requirement is 81.26 ha. Out of which 2.88 ha is government land, 63.63 ha is private land and 14.75 ha is forest land. Total submergence area is 57.83 ha of land. The catchment area of the project is 16.05 Sq. km. Total number of project affected families is 2340 as per 2012-13 survey. The total cost of the project is envisaged as Rs. 36.265 Crores.

The Datpadi River is seasonal and not a perennial river. As per norms of Government of Maharashtra, the project is based on 50% dependable yield of 7.285 M m^3 and the simulation study is based on the yield series for the years 1948 to 2005. Total number of years considered are 58, out of which 50 years are successful years and 8 years are failure years. The percentage of successful years is 86.2%. The inflow for 58 years is 4.527 M m^3 is lowest inflow, and 17.400 Mm^3 is the highest inflow. In order to maintain the ecological balance & aquatic life at the downstream side of the project riparian flow of 10% to the gross storage of tank i.e. 0.7285 Mm^3 will be maintained.

The Standing Committee of National Board for Wildlife (NBWL) committee recommended the project on restriction of height of dam as 34.49 M and not to change scope of the project. The Standing Committee of National Board for Wildlife (NBWL) also mentioned the following conditions while recommending the project:

(i) The proposal should be strictly treated as Minor Irrigation Project

(ii) 2% of the project cost should be provided for soil and moisture conservation works by the water resource department to the Melghat Tiger Conservation Foundation (Government Organization)

(iii) The water resource department should provide technical expertise to Melghat Tiger Reserve (MTR) to develop stream based water resource around villages in buffer area of MTR.

The EAC after detailed deliberations recommended scoping clearance for Balinga Minor Irrigation project with following conditions in addition to the standard ToR:

- Pressurized and water saving irrigation methods such as drip, sprinkler etc at least 10% of the command area should be introduced on five well-distributed locations in the command area at project cost and maintained under the project. For such areas, suitable crop plan may be evolved and described in the EIA/EMP.
- The Datpadi River is a seasonal and not a perennial river Therefore, the minimum environmental flow releases including spillage during monsoon period should be about 30% of the cumulative inflows during the monsoon period corresponding to 90% dependable year. For the remaining period i.e. non-monsoon/non-lean months, the environmental flow to the downstream of the river should be 20% corresponding to 90% dependable year. Efforts be made to maintain pre-dam condition in the downstream of dam.

- **Dam Break Analysis and Disaster Management Plan** The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario using latest models like HEC-RAS or Mike 11 etc. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
- Biodiversity study is to be carried-out by associating a reputed organization to be recommended by WII, Dehradun and ICFRE, Dehradun. A list of such Institutes is available in the MoEF's portal.
- **Environmental Management Plan** – Wildlife under Biodiversity Conservation Plan to be included.
- The Resettlement & Rehabilitation plan should as per the latest Act and of 2013 norms which came into force w.e.f. 1.1.2014.
- The provisions of MoEF OM dated 28.05.2013 are to be adhered to.

Agenda Item No. 2.8 **Kangtangshiri HEP Project (80 MW) in West Siang District of Arunachal Pradesh by M/s. Kangtangshiri HEP Ltd. – For reconsideration of Environment Clearance.**

The project proponent made a detailed presentation on the project. The project is located on Yargyap Chu river (a tributary of Siyom river) about 10 Km downstream of Mechuka town in West Siang District of Arunachal Pradesh. This is a run-of-the-river scheme. There are 7 hydropower projects planned on Yargyap Chu river. The upstream of Kangtangshiri HEP is Pemashelpu HEP and downstream is Rego HEP. The L-profile of the river flows for about 18.9 Km between TWL of Pemashelpu and FRL of Kangtangshiri and 500 m between TWL of Kangtangshiri HEP and FRL of Rego HEP. The river length between Kangtangshiri barrage and powerhouse is about 1.48 Km

The project envisages construction of a 22 m high barrage across river Yargyap Chu to generate 80 MW of hydropower. The catchment area of the project is 810 sq.km. The total land requirement is about 37.21 ha, out of which 18.56 ha (including 5 ha river bed) is forest land, 16.05 ha is non-forest land and about 2.7 ha for underground construction is also to be acquired for the project. Total submergence area is 9.5 ha. (Of which 3.8 ha is forest land + 4.5 ha is river bed + 1.2 ha is non-forest area). An underground powerhouse is proposed on the left bank of the river with 2 units of 40 MW each. 60 families are likely to be affected due to this project by losing their land. No family is likely to lose homestead. The NRRP, 2007 & R&R Policy, 2008, Government of Arunachal Pradesh will be followed for compensation of project affected families. There is no National Park/Wildlife Sanctuary/Historical place within 10 Km radius of the project area.

The Arunachal Pradesh State Pollution Control Board conducted the public hearing for the project at General Ground, Menchuka Town, West Siang District of Arunachal Pradesh on 23.8.2013. The public raised main issues like compensation, , recruitment policy, contract to locals, property survey as per Government of Arunachal Pradesh, CSR in construction phase, Managing Committee during construction stage, submergence area etc.

The Scoping Clearance was accorded to this project on 20.10.2010 by MoEF, for 80 MW installed capacity and validity of TOR extended up to 19.10.2013. Both Hydrology & Power Potential of the Project have been approved by CWC vide letter No. 2/ARP/31/CEA/2010-PAC/4709-11 dated 21.6.2011 and CEA by vide letter No. 2- ARP/31/CEA/2010-PAC/620-21 dated 16.11.2011 respectively.

EIA and EMP reports were discussed for Environment Clearance in 69th meeting held on November 10-11,2011 and EAC after deliberating on various issues suggested certain modifications and desired additional

information/clarifications. The Project Proponent submitted the compliance of all suggestions and made a detailed presentation and clarifications as given below were covered.

- EAC has suggested to follow the existing norms of MOEF regarding release of Environmental Flows of 30% in monsoon months (June to September), 25% in non-monsoon months (April-May & October – November) and 20% in lean period (December to March) to ensure ecological integrity of the river. Considering the existing norms of Environmental Flows, the power potential study has been revised and optimum installed capacity has been assessed as 66 MW.
- The annual energy generation for the 90% of dependable year with 95% of machine availability, the corresponding plant load factor and other parameters for the old and revised installed capacity is tabulated below:

Sl. No.	Description	Installed capacity for 80 MW	Installed capacity for 66 MW
1	FRL	1900.00	1900.00
2	MDDL	1891.50	1894.00
3	TWL	1805.00	1805.00
4	Design Head (m)	92.94	92.75
5	Design Discharge (cumec)	94.86	78.42
6	Annual Energy Generation for 90% Dependable Year with 95% machine availability	353.81 Mu	288.32 Mu
7	Plant Load Factor	50.48%	49.87%

- Noise generated by blasting is instantaneous, site specific and depends on type, quantity of explosives, dimension of drill hole, degree of compaction of

explosives in the hole and rock. Recommended details of maximum charge /delay to minimise noise due to blasting is given in table below:

Noise generation due to blasting with maximum charge/delay

No. of holes	Maximum charge/delay (kg)	Total charge (kg)	Distance (m)	Noise level dB(A)
42	1	42	250	76-85
44	1	44	250	76-86
46	1	46	250	74-85
48	1	48	400	70-75

- With the above specifications, noise level due to blasting operations are expected to be of the order of 75-86 dB(A). Since, the nearest settlement are about 0.8 to 1.0 km away, the incremental noise due to blasting is expected to be 50-60 dB(A). As the blasting is likely to last for 4 to 5 seconds depending on the charge, noise levels over this time would be instantaneous and short in duration. Considering attenuation due to various sources, even the instantaneous increase in noise level is expected to be attenuated by at least 10-20 dB(A). Hence, noise level due to blasting is not expected to cause any significant adverse impact.

Other Measures

- The most critical blast design factor affecting ground vibration or sound is the amount of explosive detonated at any one instance during the blast. As a result, holes shall be detonated sequentially, a few milliseconds apart, in order to control the overall impact.

- A trained professional shall be hired to monitor the technical specifics of the blast, such as size and depth of drilled holes, and the type and amount of explosive used.
- Use of backfill cover which shall reduce air overpressure levels by 10 dB(A).
- Air overpressure levels may also be reduced by deck loading. In a blast with a significant vertical free face, this reduction may in some circumstances be obtained by deck loading the front row holes fired on the initial delays only, without needing to deck load all the front row holes**.**
- As desired by EAC in February 2011 meeting (approval from the Govt. of Arunachal Pradesh for the revised levels), Project Proponent (PP) submitted revised approved levels of Rapum HE Project by Government of Arunachal Pradesh through its letter ref no. PWRS/HPD/W-1831/2008/2137-41, dated 4th May, 2012 for FRL of 1650 m and TWL of 1555 m for Rapum project. Considering EAC's advice to keep a minimum of 500 m as clear river flow length between two consecutive HEPs, project was considered in 58th meeting of EAC (1st & 2nd June, 2012).
- *EAC recommended Scoping/ToR clearance for the project as below.*

Projects	**Proposed & Revised for maintaining the natural flow distance**	
	FRL	TWL
Rego 70 MW	1770	1685
Rapum 80 MW	1650	1555

- Distance between Pemashelpu PH to Kangtangshiri barrage = 18.93 KM. Level difference = 1955 – 1900 = 55 m. Bed slope = 18930/55 = **1 in 344.**
- Distance between Kangtangshiri FRL to TWL = 2410 m. Level difference = 1900 – 1805 = 95. Bed slope = 2410 / 95 = **1 in 25.**
- Distance between Kangtangshiri TWL to Rapum FRL = 1964m. Level difference = 1805 – 1650 = 155m. Bed slope = 1964 / 155 = **1 in 13**

- The fish diversity has been rechecked. It is confirmed that *Alvelinus fontinalis* (Arctic charr) is not reported in the project area.
- Greenbelt shall be implemented parallel to construction activity.
- Area considered for CAT plan is 442 Sq-km (intercepted catchment b/w PHEP & KHEP. A sum of Rs. 684.3 lakh has been allocated for CAT Plan. The area under high erosion category is 17976 ha. Allocation under CAT plan has increased by 15.7 lakhs. The total CAT plan will be 700.0 lakhs. Thus, average cost of catchment area treatment works out to Rs.3894 /ha.
- A team of one engineer and one support staff will always be posted at the dam site to oversee the implementation of disaster Management Plan. Considering 3 shifts eight hours each, it is proposed to engage a total of six engineers earmarked specifically for implementation of Disaster Management Plan. The recurring costs for the same shall be Rs. 33.0 lakh per year are given below:

In R&R plan – a grant of Rs.2000/month/ child from each PAF under training facilities to development of entrepreneurship should be increased to a grant of Rs.2000 + fees + staying cost on actual amount/month/ child from each PAF and accordingly has been revised.

- Revised Project cost for 66 MW is : Rs. 400.27 Cr. The Cost estimated for LADP is 0.75 % excluding 1 Cr provision in area development works under R&R. Total estimated cost for LADP is Rs. 404 Lakhs i.e @ 1% of the project cost.
- Fisheries management has been increased from Rs. 61.3 lakh to Rs. 97.32 lakh**.** The total cost required for development of fish seed farm is estimated as Rs. 97.32 lakh. The details are given as below:

S. No.	Particulars	Qty.	Rate (Rs.)	Amount (Rs. lakh)
A.	**Capital cost (Non-recurring expenditure)**			
1.	Hatchery (20 troughs and 80 trays)	1	Lumpsum (LS)	5.00
2.	Nursery ponds (3.0mx0.75mx0.5m)	9	30,000	2.70
3.	Rearing ponds (10mx1.50mx0.5m)	4	50,000	2.00
4.	Stocking ponds (30m x 6.0m x 1.5m)	2	15,000	3.00
5.	Office, store, hut with infrastructure	2	LS	2.00
6.	Laboratory	1	LS	2.00
7.	Water supply (lumpsum)	-	LS	0.50
8.	Other project cost (Drag nets, wide mouth earthen pots, miniature hapa, buckets, bamboo poles etc.) (lumpsum)	-	LS	1.00
	Total (A)			**18.12**
B.	**Working Capital /year (Recurring expenditure)**			
1.	Salaries			
i)	Farm Manager (one) @ 25000/month			3.00
ii)	Farm Assistants (one) @ Rs. 15000/ month			1.80
iii)	Farm Attendants (one) @ Rs. 8000/ month			0.96
iv)	Chowkidars (one) @ Rs. 6000/ month			0.72
2.	Fish food (rice bran, oil cake, etc.)		LS	1.00
3.	Brooders-Kg	200	150	0.30
4.	Ponds manuring			
i)	Cow dung-Tons	20	200	0.04
ii)	Urea-Kg	100	10	0.01
iii)	Potash, phosphate-Kg	100	100	0.10
5.	Lime-Kg	300	10	0.03
6.	Training and Research		LS	1.00

S. No.	Particulars	Qty.	Rate (Rs.)	Amount (Rs. lakh)
7.	Chemical	LS		1.00
8.	Maintenance	LS		1.00
9.	Travel	LS		1.00
10.	Miscellaneous	LS		1.00
	TOTAL (B) **Total recurring expenditure for five years including 10% escalation (B)**			**12.96** **79.12**
	Grand Total (A+B)			**97.32**

Compensatory afforestation & bio-diversity conservation cost has been increased from Rs. 100.7 lakh to Rs. 115.30 lakh. The details are given below:

S.No.	Particulars	Cost (Rs. lakh)
1	Compensatory afforestation	30.01
2	Afforestation-for habitate improvement	19.49
3	Conservation and cultivation of Medicinal Plants	10.00
3	Anti-poaching measures	65.80
	Total	**115.30**

It was explained that none of the species falls under the IUCN Red Data List category. However, only two species of herb *Aconitum ferox* and *Picrorhiza kurroa* fall in the vulnerable category as per the Botanical Survey of India. These two species are well-known herb in the Ayurvedic system of medicine. It is proposed to include these species as a part of species under afforestation programmes. It is also proposed to monitor the status of growth of these species as a part of monitoring of afforestation programmes.

The project proponent presented their replies to comments raised during 69th EAC meeting. Replies to issues raised by EAC as well as SANDRP were discussed during the meeting. The detailed response to issues raised by SANDRP were discussed. The proponent was asked to further elaborate their reply on which EAC expressed satisfactory. Detailed replies are enclosed as Annexure-II.

The EAC recommended the project for Environmental Clearance subject to the following conditions:

- The project proponent shall prepare the R&R Plan for PAFs as per the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, which has come into effect since January 1, 2014. The R&R Plan is to be prepared within a period of 3 months from date of issue of EC and will be presented before EAC, failing which the EC will be kept in abeyance till the issue of R & R is cleared.
- A multi disciplinary committee under the Chairmanship of Secretary Environment, State Government of Arunachal Pradesh, for monitoring the implementation of Environmental Management Plan will be set up. The District Magistrate and a representative from Ministry of Environment & Forests, Government of India shall also be part of this Multi-Disciplinary Committee. The Committee noted the revised EMP cost of Rs. 24.50 crore.
- Confirmation from CEA on revised installed capacity of 66 MW is required. The EC shall be issued only on receipt of confirmation from CEA.

Agenda Item No. 2.9 Pinjal project at Villege Khivse Tehsil Jawahar District of Thane, Maharashtra by Municipal Corporation of Brihan Mumbai, Government of Maharashtra- for consideration of ToR

This is a water supply project with irrigation and hydropower component. The EAC was not convinced as to why irrigation & HEP component has been added which will cause more submergence and environmental damage. This therefore, calls for a thorough review and re-consideration by the project proponent .

EAC suggested that proper techno-economic study and option analysis be carried out at the first place to 'zero in' on the most viable option. The project in its

present form has enormous potential to damage to environment and entail huge capital cost. Need for 65 km long tunnel may be reviewed critically and techno-economically most viable option be adopted.

Also a number of representations have been received against the project raising serious concerns such as from Saha Astitva Foundation, Thane, Conservation Action Trust, Nagpur etc. The project proponent needs to address and clarify these issues raised in their representations. Copies of representations received were made available to the Project Authorities during the meeting.

Agenda Item No. 2.10 Gargai project in District of Thane, Maharashtra by Municipal Corporation of Brihan Mumbai, Government of Maharashtra- for ToR

The EAC noted that this is also a water supply project to augment water supply in Mumbai and does not fall within the purview and mandate of the Committee. The project proponent needs to consult State Government Environment Department, State Pollution Control Board and SEIAA etc to devise mechanism for addressing associated environmental and R&R issues. The EAC however suggested the following:

- Alterative option analysis may be done as the proposed project involves huge cost and damage to environment is anticipated to be very high in its present form.
- Desalination of sea water may also be considered as a viable option in the line as adopted in Chennai, Tamil Nadu for potable water supply .
- Report on western Ghat may also be studied by the project proponent in this regard before considering the present option.
- Also, a number of representations have been received against the project expressing serious concerns on environmental and other issues. Copies of representation were handed over to the project proponent. These may be

factored into while formulating alternative feasible reports/options for water supply project.

Agenda Item No. 2.11 Tidong –II (60 MW) HEP, Kinnaur District, Himachal Pradesh – For Consideration of Final Report.

The developer made a detailed presentation and the following emerged:

Tidong-II Hydroelectric Project(3 x 20 MW),conceived in Kinnaur district of Himachal Pradesh, is a run-of- the river type development contemplated to harness a gross head potential of 490 m available in Tidongkhad (a left bank tributary of Satluj), between Kunnu and Lambar villages. The project envisages construction of a concrete weir on the Tidongkhad just downstream of confluence of Kunnukhad and Charangkhad for diversion of a design discharge of 14.86 cumec, surface desilting arrangement, a reservoir for 2.5 hour peaking, 8.13 km long 2.9 m modified horse-shoe shaped head race tunnel on the left bank of Tidongkhad. The waters of Lalantikhad shall also be utilised for generation of power by diverting the water through trench weir and drop shaft, during lean season. The tunnel terminates in a 5 m diameter underground surge shaft. The water from HRT and surge shaft shall be further conveyed through one no. 2.10 m diameter, 556 m long steel underground penstock trifurcating to feed three generating units in an underground power house upstream of village Lambar for annual energy generation of 237.87 MU in 90% dependable year.The total cost of the project at June 2012 price level has been assessed as Rs. 478 crore, which *inter-alia*incorporates the IDC and Financing charges besides LADA work.The project is proposed to be completed within a timeframe of 54 months. The main components of the project are:

- **Barrage** : 110m long barrage with two under sluices bays and rest ungated weir section

- **Intake**: An intake structure comprising of R.C.C well with three gates is proposed on the left bank of the river.
- **Desiltingarrangement** : The arrangement comprises two parallel compartments each consisting of 71 m long, 8 m wide each and 6.5 m high (excluding 3.75 m deep hopper portion) chambers
- **SurfaceReservoir**: A reservoir is proposed adjacent to the desilting tank to provide for about 2.5 hour of peaking. RCC counter-forts shall be provided to make a reservoir
- **HeadRaceTunnel** : 8.13 km long and 2.9 m diameter modified horse shoe shaped in section
- **SurgeShaft**: 5 m diameter circular shaft and 60 m high with a restricted orifice.
- **Penstock**/**Pressureshaft**: One underground penstock, 556 m long and 2.10 m diameter would take off from the surge shaft.
- **Powerhouse**: Underground Power house with cavern dimension 90x15x30m, 50x20x15 mtr.
- **Tailraceoutlet**: 168m long tail race tunnel with 4 m diameter horse shoe section will be provided.
- **Project Colony/ Officers/Colony**: Permanent colony at Kairbu / Thangi shall be developed with all infrastructure facilities including solid waste management and sewage disposal facilities.
- **Roads**: 10.0 km long.

The total land requirement under the project shall be about 21.2528 ha of which the forest, private and govt. land is of the order of 9.489 ha, 1.9293 ha and 9.8345 ha respectively. There shall be no displacement of any person and the private land to be acquired shall be meagre being less than 2 ha. The compensation for the private land/ asset to be acquired shall be made as per provision of Land Acquisition & Rehabilitation and Resettlement Act, 2013. Application for Part – I, Forest Land Transfer, under Forest Conservation Act, 1980 for Tidong – II HEP has

been submitted to PCCF, Shimla, Himachal Pradesh vide letter no. THPL/GoHP/HPFD/VK/2013/22 Dated: 26/04/2013

There are no protected areas notified under Wildlife (Protection) Act, 1972, critically polluted areas as notified by CPCB, notified eco-sensitive areas and interstate and international boundaries with 10 km radius of the project components. The international boundary with China is about 20 km away from the diversion site.

The project area lies in Greater Himalayas and is located in Zone – IV in close proximity with Zone – V as per Seismic Map of India (IS-1893: Part – I, 2002). The Project area lies in Rakcham Granite with interbeds of quartzite & subordinate carbonaceous Slate of Batal formation of Haimanta Group, age belongs to lower Cambrian. The entire project area, from power house to diversion weir site, is occupied with Granite with some bands of Grey Quartzite with patches of green Silimanite Foliation. Rock belongs to grade II-IV. Due to foliation joint, right bank of Tidong Khad is occupied with colluvium and left bank of Tidong Khad is stable and have high angle slope. Left bank of Tidongkhad is suitable for locating intake, HRT, Surge Shaft, power house & other components of Project.

The total catchment area at the diversion site is 445 sq. km of which 418.36 sq. km lies above permanent snow line (EL. 4200 masl). The minimum and maximum elevation in the catchment area intercepted at diversion site are EL. 3424 masl at weir site and EL. 5935 masl.

Precipitation in the Tidong Khad catchment area occurs mostly in the form of snow, which can be described as moderate to heavy depending upon the altitude.Average annual precipitation is of the order of 630 to 700 mm, most of which is received in the form of snow during winter months (November – March).

The nearest IMD Station is at Kalpa (EL. 2770 masl) in district Kinnaur. There are no rainfall and snowfall measurement station in the catchment area of the project.

Discharge measurement of Tidong site at Lambarhas been started from June 1995 and data is available with effect from June, 1995 to Dec, 1998 only and later on from Jan 2003 onwards being observed by HPSEB and Neziveedu Seeds Limited. Hence, the discharge data for the power studies has to be co-related from that available in the similar catchments nearby. Fortunately long term discharge measurement records from January 1978 to December 2011 are available at G&D site Sangla on Baspariver whose catchment is contiguous to the catchment of Tidong-II HEP. The 10 daily water availability series for the Tidong II project has been derived on the basis of observed discharges of Baspariver by using the co-relation and further deduction on the proportionate catchment area basis. The 10 daily water flow series, which was earlier approved by Hydrology (N) Directorate, CWC vide letter no. 149 dated 7.5.2004 (HPSEB PFR), has been further updated for period upto December 2011.

From surface and underground excavation of project components and roads about 2.82 lac cum muck shall be generated of which 50% shall be put to consumptive use in non-wearing concrete surface, masonry works and back filling. The balance muck with 42% swell factor shall workout to about 2.0 lac cum which shall be properly dumped and stacked with retaining structure from the bottom of the muck pile, proposed at three different locations, which itself shall be laid about 30 m away from the point of intersection of the HFL with ground.

The EAC after critically examining the proposal, recommended the following:

- An appropriate institute may be associated to carry out Bio-diversity study.

- EAC noted that option analysis was done by the proponent and the present option was found to be most viable both techno-economically and environmentally.
- Rajkam Chitkul sanctuary is reported to be about 15 km away from the project site. Project proponent is to ascertain clear distance with the adjacent Dam site also.
- Point wise response to be submitted on the representation of Him-Dhara Em Research & Action Group. A copy of representation was handed over to the proponent.
- Dam break analysis to be carried out with Modeling tools like HEC-RAS or Mike 11.
- R & R plan to be formulated as per new Act, 2013 which came into force w.e.f.1.1.2014.

Agenda Item No. 2.12 Simang–I HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Lower Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private – For discussion on reply for consideration of Environment Clearance (EC).

Simang-I HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Upper Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private had been considered by the Expert Appraisal Committee during the 70th Meeting held on 10th-11th December 2013. After critically examining all environmental aspects and taking into consideration the discussions and clarification given by the project developer during the 70th Meeting, EAC had recommended the project for grant of environmental clearance subject to the fulfillment / compliance of the following conditions:

- ✓ As the overall cost earmarked towards Environmental Management Plan is found to be on lower side, revised estimated cost of EMP with adequate

provisions is to be prepared and submitted. Detailed break-up of costs may also be provided

- ✓ Environmental flows release is to be as per the recommendations of Siang Basin Study Report for winter/lean, monsoon and non-lean and non-monsoon seasons
- ✓ Point-wise response to various other comments and representation received be submitted
- ✓ Free riverine free flow stretch between TWL of Simang II HEP and tip of Reservoir of Simang I HEP, the downstream project, is to be minimum one kilometer
- ✓ Distance of Mouling National Park is to be ascertained to decide if NBWL permission would be necessary
- ✓ Whether there are habitations along the proposed alignment of HRT and in that case the PAFs to be reworked out accordingly

The project proponent, through their consultants made a detailed presentation about the background and clarified each and every point in detail. Point wise response of Project Developer to each condition / observation is as under:

The developer explained that they have reviewed the EMP cost and revised it in line with the requirement of EAC. As required costs towards CAT plans implementation and Fisheries Management have been increased substantially; for other components also cost have been reviewed and revised appropriately. Overall EMP budget has been revised from earlier proposed Rs. 1708.10 lakhs to Rs. 2041.60 lakhs. EAC found the revised budget in order. However, EAC mentioned that budget for R&R plan implementation should be in line with the requirements of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013". The developer confirmed that Land Acquisition for the land required for Simang-II HEP has already been initiated and Section – 4 & Section-6 of Land Acquisition Act 1894 has been already published

by Govt of Arunachal Pradesh. As per Clause no. 24 (1) of the new act, "Notwithstanding anything contained in this Act, in any case of Land Acquisition proceedings initiated under the Land Acquisition Act 1894, Where no award under Section 11 of Land Acquisition has been made, then, all provisions of this Act relating to the determination of compensation shall apply". Accordingly all provisions of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" relating to the determination of compensation shall apply for Simang – I HEP as Land Acquisition proceedings have already been initiated by GoAP, whereas R & R Plan is yet to be implemented. The Committee therefore directed the project proponent to follow the directions stated in the new Act of 2013.

The developer confirmed that Environment Flow release requirement will be in line with the Siang basin study for all the three seasons viz. lean, pre/post monsoon and monsoon.

Point-wise response by the developer to various other comments and representation received were presented and discussed in the 70th EAC meeting. Further, written point-wise response was submitted by the developer to the MOEF on January 10th, 2013. These were generally found to be satisfactory. But, based on further deliberations, the developer explained them in more details. These are at **Annexure-III.**

On the issue of, free flowing riverine stretch between TWL of Simang II HEP and tip of Reservoir of Simang I HEP, Project proponent explained that it has been kept as 1 Km,as per the EAC requirement. EIA study mentions it as 950m as it was calculated based on the toposheet, however, physical surveys conducted during the preparation of the DPR, the distance between TWL of Simang-II and FRL of Simang-I (worked out to be 1,050m. EAC reiterated that a minimum 1 Km of free

flowing stretch should be maintained between the TWL of Simang-II and FRL of Simang-I and this is non-negotiable in this case.

On the issue of distance of Mouling National Park from the project components, developer confirmed that they fall outside the 10 Km radius of Mouling National Park. Committee noted that, in a such a case, wildlife clearance from Standing Committee of NBWL is not required for Simang-I project.

On the issue of habitations along the proposed alignment of HRT, Project proponent clarified that there are no habitations along the alignment of the Head Race Tunnel. They also presented topographic sheets and maps of the local area by clearly marking the alignment of the head race tunnel and habitations in the area.

After critically examining all environmental aspects and taking into consideration the discussions and clarifications given by the project developer, the EAC recommended the project for grant of environmental clearance for the Simang-I project as per the following additional conditions:

- ✓ Environmental flow release is to be as per the outcome of Siang Basin Study Report for winter/lean, monsoon and non-lean and non-monsoon seasons. The final report of Siang basin has been submitted for acceptance.
- ✓ Free riverine free flow stretch between TWL of Simang II HEP and tip of Reservoir at FRL of Simang I HEP, the downstream project, is to be one kilometer (1.0 km) minimum.
- ✓ Budget for R & R and acquisition of land is to be in line with new Act, of 2013 as applicable and which came into force w.e.f 1.1.2014 as land acquisition already been initiated.
- ✓ A multi-disciplinary committee (MDC) under the chairmanship of Secretary (Environment) / Power is to be constituted to monitor implementation of EMP.

MDC should meet regularly. DM concerned and one representative from MoEF shall be included in the MDC.

Agenda Item No. 2.13 Simang-II HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Upper Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private – For discussion on reply for consideration of Environment Clearance (EC).

Simang-II HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Upper Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private had been considered by the Expert Appraisal Committee during the 70th Meeting held on 10th-11th December 2013. After critically examining all environmental aspects and taking into consideration the discussions and clarification given by the project developer during the 70th Meeting, EAC had recommended the project for grant of environmental clearance subject to the fulfillment / compliance of the following conditions:

- ✓ As the overall cost earmarked towards Environmental Management Plan is found to be on lower side, revised estimated cost of EMP with adequate provisions is to be prepared and submitted. Detailed break-up of costs may also be provided
- ✓ Environmental flows release is to be as per the recommendations of Siang Basin Study Report for winter/lean, monsoon and non-lean and non-monsoon seasons
- ✓ Point-wise response to various other comments and representation received be submitted
- ✓ Free riverine free flow stretch between TWL of Simang II HEP and tip of Reservoir of Simang I HEP, the downstream project, is to be minimum one kilometer
- ✓ Distance of Mouling National Park is to be ascertained to decide if NBWL permission would be necessary

- ✓ Whether there are habitations along the proposed alignment of HRT and in that case the PAFs to be reworked out accordingly

The project proponent, through their consultants, made a detailed presentation about the background and clarified each and every point in detail. Point wise response of Project Developer to each condition / observation is as under:

The developer explained that they have reviewed the EMP cost and revised it in line with the requirement of EAC. As required, costs towards CAT plans implementation and Fisheries Management have been increased substantially; for other components also, cost have been reviewed and revised appropriately. Overall EMP budget has been revised from earlier proposed Rs. 1869.40 lakhs to Rs. 2033.10 lakhs. EAC found the revised budget in order. However, EAC mentioned that budget for R&R plan implementation should be in line with the requirements of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013". The developer confirmed that Land Acquisition for the land required for Simang-II HEP has already been initiated and Section – 4 & Section-6 of Land Acquisition Act 1894 has been already published by Govt of Arunachal Pradesh. As per Clause no. 24 (1) of the new act, "Notwithstanding anything contained in this Act, in any case of Land Acquisition proceedings initiated under the Land Acquisition Act 1894, Where no award under Section 11 of Land Acquisition has been made, then, all provisions of this Act relating to the determination of compensation shall apply". Accordingly all provisions of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" relating to the determination of compensation shall apply for Simang – II HEP as Land Acquisition proceedings have already been initiated by GoAP, whereas R & R Plan is yet to be implemented. The Committee therefore, directed the project proponent to follow the directions stated in the new Act of 2013.

The developer confirmed that Environment Flow release requirement will be in line with the Siang basin study for all the three seasons viz. lean, pre/post monsoon and monsoon.

Point-wise response by the developer to various other comments and representation received were presented and discussed in the 70th EAC meeting. Further, written point-wise response was submitted by the developer to the MOEF on January 10th, 2013. These were generally found to be satisfactory. But, based on further deliberations, the developer explained them in more details. These are at **Annexure-IV.**

On the issue of free flowing riverine stretch between TWL of Simang-II HEP and tip of Reservoir of Simang I HEP, Project proponent explained that it has been kept as 1 Km,as per the EAC requirement. EIA study mentions it as 950m as it was calculated based on the toposheet. However, physical surveys conducted during the preparation of the DPR, the distance between TWL of Simang-II and FRL of Simang-I (worked out to be 1,050m. EAC reiterated that a minimum 1 Km of free flowing stretch should be maintained between the TWL of Simang-II and FRL of Simang-I and this is non-negotiable in this case.

On the issue of distance of Mouling National Park from the project components, developer confirmed that they fall within 10 Km radius of Mouling National Park. Committee recommended that in the absence of any notified Eco-sensitive Zone, Simang II will require wildlife clearance from Standing Committee of NBWL.

On the issue of habitations along the proposed alignment of HRT, Project proponent clarified that there are no habitations along the alignment of the Head Race Tunnel. They also presented topographic sheets and maps of the local area by clearly marking the alignment of the head race tunnel and habitations in the area.

After critically examining all environmental aspects and taking into consideration the discussions and clarifications given by the project developer, the EAC recommended the project for grant of environmental clearance for the Simang-II project as per the following additional conditions:

- ✓ Environmental flow release is to be as per the outcome of Siang Basin Study Report for winter/lean, monsoon and non-lean and non-monsoon seasons. The final report of Siang basin has been submitted for acceptance.
- ✓ Free riverine free flow stretch between TWL of Simang-II HEP and tip of Reservoir at FRL of Simang-I HEP, the downstream project, is to be one kilometer (1.0 km) minimum.
- ✓ Budget for R & R and acquisition of land is to be in line with new Act, of 2013 as applicable and which came into force w.e.f 1.1.2014 as land acquisition already been initiated.
- ✓ A multi-disciplinary committee (MDC) under the chairmanship of Secretary (Environment) / Power is to be constituted to monitor implementation of EMP. MDC should meet regularly. DM concerned and one representative from MoEF shall be included in the MDC.

Agenda Item No. 2.14 Discussion on environmental flow (e-flow) with INTERNATIONAL RIVERS & Others.

An interactive discussion was held with Shri Himanshu Thakkar, Dr. Latha Anantha and Shri Samir Mehta of SANDRAP & International River. The EAC heard the views of these members on assessment of environmental flow and various techniques & methodologies used in a number of other countries to assess e-flow in their rivers. They would share detailed literature/documents on this issue with the EAC.

It was explained by the EAC that the concept of e-flow is still evolving in Indian context and the EAC has been now recommending three different quantum of e-flow for 3 different seasons in place of a single quantity as was done earlier. The NGO members appreciated this and suggested this may be further improved

through experience and knowledge sharing. They suggested holding of a workshop on the subject.

The issue of carrying out cumulative impact & basin studies also came up. They emphasized that cascade development projects should be based on carrying capacity studies. They were informed that such studies were already underway for a number of river basins while Bichom river basin study is complete by now. Their attention to MoEF's OM dated 28.05.2013 was also drawn in this regard.

On Lohit basin study, they opined that tributaries of the Lohit river should be also included in the scope and downstream impact of Demwe Lower HEP be studied in details. They also submitted that their project-wise views and comments should be examined by EAC before granting ToR/EC. It was explained to them that their views and comments are duly considered by EAC and project proponents are asked to furnish clarification & explanations wherever felt necessary. Response of project proponents is also examined and only on satisfactory response, the EAC recommends to clear the projects. Their response also from part of Minutes whenever EAC so feels. On Lohit basin study, it was explained that EAC decided to re-examine ToR and if need be, will issue additional ToR for the study. Representatives of the NGO also emphasized the need to have a post approval monitoring mechanism for ensuring implementation of the EMP. EAC felt that there was deficiency in monitoring of EMP implementation and would take up the matter with MOEF

On the proposal of organizing a workshop on e-flow in collaboration with MoEF, the EAC suggested that MoEF may consider organizing such workshop where experts/stakeholder from different and relevant organizations may be invited. The NGO members also requested that there may be regular interaction between EAC & NGOs.

On the issue of quality of EIA/EMP reports, it was informed that accredited firms are only appointed to conduct EIA/EMP.

The meeting ended with vote of thanks to Chair

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Annexure-I

List of EAC members and Project Proponents who attended 71st Meeting of Expert Appraisal Committee for River Valley & Hydro Electric Power Projects held on 20th – 21st January, 2014 in New Delhi

A. Members of EAC

1.	Shri Alok Perthi	-	Chairman
2.	Dr. S. Sathya Kumar	-	Member
3.	Shri Hardip Singh Kingra	-	Member
4.	Shri N. N. Rai	-	Member
5.	Shri B. B. Barman	-	Member Secretary & Director, MoEF
6.	Dr. P. V. Subba Rao	-	MoEF

B. Mohanpura Major Irrigation Project in Rajgarh District of Madhya Pradesh by Water Resources Department, Government of Madhya Pradesh – For discussion on reply for reconsideration of Environmental Clearance.

C. Kundaliya Major Irrigation Project in Rajgarh District of Madhya Pradesh Water Resources Department, Government of Madhya Pradesh- For discussion on reply for consideration of Environment Clearance (EC).

1.	Shri M. S. Dhakad	-	CADA, Commissioner
2.	Shri M. G. Choubey	-	Engineer-in-Chief
3.	Dr. Aman Sharma	-	General Manager (Env.)
4.	Shri S. K. Nigam	-	Superintending Engineer
5.	Shri Sushil Parmar	-	SDO
6.	Shri Anil Singh	-	Executive Engineer

D. Kynshi Stage-I (270 MW) Hydro Electric Project in West Khasi Hill District of Meghalaya being implemented by M/s. Athena Kynshi Power Private Limited (AKPPL)- For consideration of extension of validity period of ToR

1.	Shri Sudhakar Raj	-	General Manager
2.	Shri K. Seethayya	-	Director
3.	Shri Gagan Agarwal	-	Chief Operation Officer
4.	Dr. Aman Sharma	-	General Manager (Env.)
5.	Shri Jaychandra	-	Additional General Manager
6.	Shri Rajendra Singh	-	Consultant
7.	Shri S. C. Sud	-	Consultant

E. Yamne Stage-I HEP (90 MW) Project in Upper Siang District of Arunachal Pradesh by M/s. SS Yamne Power Pvt. Ltd – For reconsideration of TOR.

F. Upper Demwe (1080 MW) HEP in Anjaw District of Arunachal Pradesh - for revalidation of ToR

1.	Shri Nipun Tayal	-	Project Manager
2.	Shri G. S. Raju	-	Sr. Vice President
3.	Dr. Aman Sharma	-	General Manager (Env.)
4.	Dr. S. S. Garhia	-	Sr. Vice President
5.	Shri Rajender Singh	-	Advisor
6.	Dr. K. K. M Menon	-	Expert Civil Defence

G. Lohit Basin Study in Arunachal Pradesh by M/s. WAPCOS Ltd- for discussions on Final Report.

1.	Dr. Aman Sharma	-	General Manager (Env.)

H. Attulni HEP (680 MW) in Dibang Valley District of Arunachal Pradesh by M/s. Attulni Hydro Electric Power Company Ltd – For consideration of ToR

1.	Shri Jayant Kawle	-	Managing Director
2.	Shri Satish C. Sharma	-	President & CEO (Hydro)
3.	Shri Gajendra Sharma	-	Deputy Manager (Hydro)
4.	Shri Vinod Chilkoti	-	Manager
5.	Shri Rajesh Kumar Mahana	-	Assistant Manager
6.	Shri Ravinder Bhatia	-	Director
7.	Shri Arun Bhaskar	-	Director

I. Baglinga Minor Irrigation Project Taluka Chikalura District Amarawati, Maharashtra – for consideration of ToR

1.	Shri R. P. Landekar	-	Superintending Engineer
2.	Shri A. N. Ladole	-	Engineer
3.	Shri A. S. Ghive	-	Superintending Engineer
4.	Dr. C. P. Vibhute	-	Consultant
5.	Shri R. P. Landekar	-	Superintending Engineer
6.	Shri Rohidas Pisal	-	Consultant

J. Kangtangshiri HEP Project (80 MW) in West Siang District of Arunachal Pradesh by M/s. Kangtangshiri HEP Ltd. – For reconsideration of Environment Clearance.

1.	Shri Ramesh Chandra	-	President
2.	Shri Gopi Krushna Nikku	-	Manager
3.	Shri Tarun Rajvanshi	-	Engineer
4.	Shri Jitendra Chaubey	-	Managing Consultant
5.	Shri Praveen Kumar	-	Consultant
6.	Shri P. V. Padmanabham	-	Consultant

K. Pinjal project at Villege Khivse Tehsil Jawahar District of Thane, Maharashtra by Municipal Corporation of Brihan Mumbai, Government of Maharashtra- for consideration of ToR

L. Gargai project in District of Thane, Maharashtra by Municipal Corporation of Brihan Mumbai, Government of Maharashtra- for ToR

1.	Shri Shirish Umagaonkar	-	Executive Engineer
2.	Shri Rajesh A. Patil	-	Assistant Engineer
3.	Shri Pawan Labhasetwar	-	Scientist
4.	Ms. Shivani Dhage	-	Scientist
5.	Shri Deepak R. Arjunwadkar	-	Director
6.	Ms. Nandini	-	CEO
7.	Mr. Nilanjan Das	-	Director

M. Tidong –II (60 MW) HEP, Kinnaur District, Himachal Pradesh – For Consideration of Final Report.

1.	Shri Yamesh Sharma	-	Coordinator
2.	Shri Kaleem Ahmad	-	Deputy Specialist
3.	Shri O. P. Singhal	-	Designer
4.	Dr. Vinay Kumar Pandey	-	Sr. Geologist

N. Simang–I HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Lower Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private – For discussion on reply for consideration of Environment Clearance (EC).

O. Simang-II HEP in East Siang District of Arunachal Pradesh being implemented by M/s. Upper Simang Power Pvt. Ltd. an SPV of M/s Adishankar Power Private – For discussion on reply for consideration of Environment Clearance (EC).

1.	Shri Kalyan Korimeria	-	Director
2.	Shri Manoj Kumar Gupta	-	President
3.	Shri Ravinder P.S. Bhatia	-	Director

P. Discussion on environmental flow (e-flow) with INTERNATIONAL RIVERS & Others

1.	Shri Himanshu Thakkar	-	Coordinator/SANDRP
2.	Dr. Latha Anantha	-	Director
3.	Shri Samir Mehta	-	Director

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Annexure-II

Reply to observation of South Asian Network on Dams, Rivers & People (SANDRAP)

<table>
<tr><th>S. No</th><th>Observation of SANDRAP</th><th>Response</th></tr>
<tr><td>1</td><td>The first sentence of the EIA says a lot “Hydro Power is a renewal economic, non-polluting source of energy. Hydro stations are the best choice for meeting the peak demand.” An EIA agency is supposed to be independent, non biased entity since EIA is supposed to be an unbiased assessment of impacts of a project. The EIA starts with such biased statement that is also irrelevant. This is along the lines of its business model and in terms of it being an agency of Govt. of India’s Ministry of Water Resources. Such an agency should not be accredited to do EIAs.</td><td>First sentence of EIA report is a general statement about the nature of hydropower.
This sentence has in no way affected the findings of EIA study.</td></tr>
<tr><td>2</td><td>The Yargyap Chu River already has Seven large proposed projects all of which have given ToR ok by EAC, even when the project parameters were contrary to even the weak norms of EAC of at least 1 Km distance between projects. In addition, there is Tato II project is also submerges part of this River. In addition there are at least two more projects of 12.5 and 15 MW on</td><td>EAC recommended Scoping/ToR clearance for the Rapum project as below.
<table>
<tr><th rowspan="2">Projects</th><th colspan="2">Proposed & Revised for maintaining the natural flow distance</th></tr>
<tr><th>FRL</th><th>TWL</th></tr>
<tr><td>Rego HEP</td><td>1770</td><td>1685</td></tr>
<tr><td>Kangtangshiri HEP</td><td>1900</td><td>1805</td></tr>
</table></td></tr>
</table>

S. No	Observation of SANDRAP	Response
	tributary of Yargyap Chu, also having substantial impacts. As things stand now, there is zero distance between several of these adjacent projects. Even between Kangtangshiri and next downstream project, namely Rego, there is just 70 m of river as shown in L section from CWC report. This is clearly not adhering to even the bare minimum norms of EAC. The EC for Kangtangshiri project should not be considered till the distance is increased to at least 1 Km as per the norms followed by EAC now (these norms too need to change to increase this distance and also adopt other necessary norms).	• Wide above mentioned levels the distance between TWL of Kangtangshiri HEP and FRL of Rego HEP shall be 500 m. • EAC was of the opinion that if gradient of the river is high, then 1 Km free flow requirement may not be required. • Bed slope between Kangtangshiri TWL of Kangtangshiri HEP and FRL of to Rego HEP is **1 in 13.**
3	The CWC study of Siang basin says about the Yargyap Chu River that the EAC had earlier recommended, "Cumulative Environmental Impact Assessment Study of Yargyap Chu river to ensure environmental sustainability of seven projects". This is yet to happen and considering EC for any of the project in the basin before that would not be proper.	ToRs of the Projects planned on Yargyap Chu River are already been approved and some of the projects are in advanced stages to get clearance, etc. Siang Basin Study Report has been submitted by the consultant and is under consideration with CWC and subsiquently with MoEF. Kangtangshiri HE Project will abide the accepted recommendations of Siang Basin Report. So EC can be accorded by EAC as has been done for Lohit and Bichom basin projects.
4	The EIA of Kangtangshiri project does not cover following very important aspects: i. Option assessment ii. Climate Change impact iii. Impact of project on climate change adaptation capacity of the people and area iv. Impact of mining of material for the project v. Impact of peaking operation of the project.	**Option assessment** The EIA study has been conducted as per the project layout and project features finalized at the time of TOR clearance. **Climate Change impact** The impacts on climate change are expected on micro-meteorological level. As part of the monitoring programme, a micro-meteorological observatory shall be set up, which shall monitor change in micro-meteorology. This will also serve as a data base for future projects in

S. No	Observation of SANDRAP	Response
	vi. Impact of changes in sedimentation dynamics and impacts thereof on the river and people.	similar settings as well. **Impact of project on climate change adaptation capacity of the people and area** Since the TOR did not include any specific reference relating to climate change, adaptation, hence, it was not included in the CEIA report. **Impact of mining of material for the project** Covered in section -9.5 of Volume-I **Impact of peaking operation of the project.** Covered in section -9.2.3 of Volume-I **Impact of changes in sedimentation dynamics and impacts thereof on the river and people.** a. The diversion structure is a Barrage structure thereby reducing the submergence to a great extent. b. The Barrage structure very much contributes to maintain natural course of sediment flows towards downstream though temporary obstruction is caused due to Barrage structure. c. Whenever sediment concentration increases during monsoon the river discharge will be released downstream to facilitate flushing of sediments if any settled in the small reservoir area caused due to Barrage and thereby not accounting for continuous accumulation. d. Major changes in river flow and sedimentation dynamics is caused due to barrage construction, as Barrage sill level is almost matching with the river bed level and Hydro Electric project is proposed as run-of-river scheme. The flow in the intervening stretch from dam site of Kantangshri HEP to FRL of Rego HEP is very steep, i.e., ranging

S. No	Observation of SANDRAP	Response
		from 1 in 25 to 1 in 13. In such a scenario , there will be no change in sedimentation dynamics due to project operation.
5	In terms of the impact of the project on water resources, the EIA project ignores the stretch of the river between the dam site and power house. Impact of the dam in stretch will very significant since that area will have very reduced flow of water and sediments.	As per the requirement of MoEF, the present prevalent norms of environment flow release of 20% of average of 4 leanest months in lean season, 30% of releases in monsoon months and 25% of releases in other months are have been followed for this project as well. By considering latest norms, capacity of the HEP come downgraded to 66 MW against proposed 80 MW.
6	Regarding the impact of extraction of boulders and gravel from the river bed the EIA states "The pits at sites after extraction of construction material will be constant action on account of erosion in high flows and deposition under low flows." But the EIA does not explain what means by 'constant action' and impact thereof. The contention of EIA consultants. "Thus, no major impacts are anticipated to this account" cannot be accepted. Hence WAPCOS completely ignores the case of false floods in Gai River in Dhemaji district on 15th August 2011. People from Dhemaji and Lakhimpur have been saying that the extraction of bounders from river for construction of Lower Subansiri HEP and Bogibeel bridge are a prime reason for these flash floods. WAPCOS was also the EIA consultant for lower Subansiri project and the impact of their shoddy job is now being felt all concerned, including consultants.	The pits at sites after extraction of construction material do get filled up in due course of time because of constant action on account of erosion in high flows and deposition under low flows. It is a standard practice in river valley projects to extract construction material from river bed quarries. The reasons for flash floods cannot be attributed to solely extraction of sand from pits in the river bed. There could be various seasons for the same. Flash floods occur due to sudden and abnormal precipitation. Cloudbursts are mainly responsible for Flash floods. In the Indian subcontinent, a cloudburst usually occurs when a pregnant monsoon (cumulo nimbus) cloud drifts northwards, from the Bay of Bengal or Arabian Sea across the plains, then onto the Himalaya and bursts, bringing rainfall as high as 75 millimeters per hour. The cloud burst is not a regular feature of monsoon. The reasons for and consequent flash floods are far more

S. No	Observation of SANDRAP	Response
		complex than mere removal of boulders from the river as said by the people of Dhimaji and Lakhimpur. Hence, the comparison of previous floods to project under consideration is un warranted.
7	Landslides in hill ranges of Arunachal Pradesh are very common and blasting operation for dam and tunnel construction will surely intensify that. But the EIA of Kangtangshiri makes no mention of that while the upstream Pemashelpu HEP had to change the location of the dam because of the heavy landslide during investigations, as recorded by the EAC in its minutes of May 2013. "During the process of further investigation, a landslide occurred on left bank of proposed barrage axis, which after investigation, resulted in shift of barrage axis about 300 m upstream". In view of the project on landslide potential such impacts, but has not done that.	Landslides are common in Himalayas due to the geological formation and high rain fall. Increase in soil moisture is the main reason for landslides. The permanent establishment at the Disaster management facility in the project area will monitor the soil moisture on a regular basis. This will guide the construction personal to take up the blasting only when the soil moisture is below the safe level. Further the blasting will be regulated.
8	The impact on soil erosion of a upstream dam can intensify sedimentation of downstream dam but this aspect was completely ignored by the EIA while discussing soil erosion impact in section 9.5 in page number 9-17. The impact of soil erosion need to be assessed more thoroughly since there are several projects on this river with very short distance between them.	The upstream project i.e. Pemashelpu HEP is located about 19 km from Kangtangshiri HEP. A detailed CAT Plan for intermediate catchment of 442 km^2 has been formulated. The flow in the intervening stretch from dam site of Kantangshri HEP to FRL of Rego HEP is very steep, i.e., ranging from 1 in 25 to 1 in 13. Thus no impact of sedimentation on downstream project is anticipated.
9	The EIA report very surprisingly undermines the role muck disposal from project in increasing sedimentation. It states "The muck disposal sites cause increased sedimentation in the rivers (through insignificant compact to natural	A detailed Muck Disposal Plan has been included as Chapter-6 in the EMP Volume.

S. No	Observation of SANDRAP	Response
	sedimentation) and totally spoils the visual aesthetics of the area." The sedimentation from muck disposal is not insignificant; rather it has catastrophic impacts on river. It has already been proved that in the recent Uttarakhand flood disaster the muck disposal from upstream projects like Phata Byung, Singoli Bhatwari and Srinagar had intensified the disaster impact in the dopwn stream. Even after such glaring examples, statement from state owned EIA consultant clearly shows pro-project bias.	
10	The height of the dam above the riverbed levels is 20 m. This is appropriate height for a fish ladder, but no provision has made for a fish ladder.	Fish ladder is provided for Kangtangshiri HEP.
11	The EIA mentioned about fishing in the river, but has not assessed who all will be affected due to the project and how such impact people will be compensated.	The river flows through a terrain with steep slope, with high velocity. Normally, fisheries are not well developed in such areas. Hence, the impact on local fishermen is not expected.
12	Yargyap Chu is pristine river and this dam will have huge impact on the aquatic and terrestical biodiversity. However, the EIA does not do proper study of the impact of the project on such biodiversity. For example, page 64 of EIA says:' The presence of wildlife was also confirmed from the local inhabitants depending on the animal sightings and frequency of their visits in the catchment area". However the rest of the document says there is no wildlife in the area.	The total land required for the project is 37.31 ha of which 9.5 ha comes under submergence, (including river bed). The balance (27.81 ha) land is required for other project appurtenances. Based on the field survey and interaction with locals, it was confirmed that no major wildlife is reported in the proposed submergence area. Most of the submergence lies within the gorge portion. Thus, creation of a reservoir due to the proposed project is not expected to cause any significant adverse impact on wildlife movement. The project area and its surroundings

S. No	Observation of SANDRAP	Response
		are not reported to serve as habitat for wildlife nor do they lie on any known migratory route. During the construction period siting of construction plants, workshops, stores, labour camps etc. could also lead to adverse impact on fauna of the area. During the construction phase, accessibility to area will lead to influx of workers and the people associated with the allied activities from outside will also increase. To minimize any harm due to poaching activities from immigrant labour population, strict anti-poaching surveillance measures need to be implemented, especially during project construction phase. The same have been suggested as a part of the Environmental Management Plan (EMP), Volume-II of the Report.
13	The lack of understanding of hydrology on the part of EIA consultant is reflected when they say (p 9-9): "In Kangtangshiri HEP, the discharge for 90% dependable year is higher than the rated discharge (94.86 cumec) for a period about 90 days from 11th June to September (barring second and third 10 daily of August). The project envisages generation of 80 MW of hydropower using 2 turbines of 40 MW capacity each. Thus, in monsoon months, both the turbines can be operated and pre-project level of discharge will be maintained between barrage of Pemashelpu HEP and Rego HEP. This is clearly not possible with the turbines running since running turbines will be diverting the water	During monsoon months In Kangtangshiri HEP, the discharge for 90% dependable year is higher than the rated discharge (94.86 cumec) for a period about 90 days from 11th June to September (barring second and third 10 daily of August). The spills would range from 24 cumec (EF for 90% Dependable Year) to about 125 cumec. The HRT length is about 1116 m. Thus, the affected stretch from the end of backwater from plunge pool to dam body will be minimal. Thus, during monsoon season the river downstream from the barrage will have sufficient flows

S. No	Observation of SANDRAP	Response
	and thus the river downstream from the barrage will not have pre project discharge.	
14	In fact in the entire EIA document, there is no mention of the situation small length of the free flowing river downstream from the project or how the upstream project operation would affect the operation of Kangtangshiri HEP. The EIA also does not provide a map of the area they have included in the assessment. There is no mention how far from the project are the protected area. The 256 page EMP document put on the MoEF website is clearly far from adequate document.	GOAP allotted Kangtangshiri, Rego, Rapum and Pauk projects as cascading development having no natural free flow distance between projects. EAC advised to keep minimum natural free flow distance between two projects. Accordingly the proposal of minimum 500 m natural river flow distance among above projects was agreed by EAC of MoEF subject to approval of GoAP for revised FRL and TWL of the projects. GOAP approved the revised FRL and TWL for maintaining minimum 500 m natural river flow distance. As projects are being conceived as run off the river projects on Yargyap Chu, the flow utilised by the u/s project for power generation will be sent back in to the river to reach d/s project. The Kangtangshiri HEP has its own diurnal storage. Hence, the operation of Kangtangshiri HEP will not be affected by the operation of upstream project. The requisite map is available in the EIA report. The proposed project area is neither potential site for Wildlife Sanctuary nor offers any migratory route to any major animal species. No National Park/ Wildlife Sanctuary within 10km of the Project area. Nearest Yardi Rabe Wild Life

S. No	Observation of SANDRAP	Response
		Sanctuary is about 31 km from the proposed project site.
15	The 256 page document with EMP on the title page does not seem to be full EIA-EMP since the document keeps saying the mitigation plans will be given in EMP, but we find no full mitigation plan. Thus for example, in the section 9.5 (a) (iv) on muck disposal on page 9-17 to 9-20, there is no mention of the specific 5 Ha of land where this muck will be disposed off with the map showing the location of muck disposal plan.	Separate Muck Management plan is provided under in Chapter-6 of EMP Volume. All the relevant details are available in the above said chapter.
16	The EIA document uploaded on the MoEF website also does not contain the catchment area treatment plan, compensatory afforestation, rehabilitation plan, dam break analysis, disaster management plan, public hearing report, mention of how the issues at public hearing were responded to, and so on. None of the aspects of the EMP seem to be included in this document. If this is the whole of EIA-EMP than this is shockingly inadequate and should be rejected in toto and appropriate punitive recommendation made against the consultants. If the fill EIA-EMP document is not uploaded than this project should not be considered in this meeting and should be considered only after the full documents are uploaded in full.	Chapters mentioned like catchment area treatment plan, compensatory afforestation, rehabilitation plan, dam break analysis, and disaster management plan, public hearing proceedings etc are mentioned in EMP report of the Kangtangshiri HEP and same is available on the website of MoEF.

Annexure-III

OBSERVATION & CLARIFICATIONS SOUGHTED BY EAC BASED ON SANDRP REPRESENTATION

1. **Has Public Hearing been conducted as per the procedures detailed in EIA notification of 2006? Have the Public been properly informed well in advance?**

   Developer Response: Carrying out Public Consultation process is the responsibility of the Arunachal Pradesh State Pollution Control Board (APSPCB), GoAP. Public Hearing for Simang-I Hydro Electric Project was conducted by Arunachal Pradesh State Pollution Control Board (APSPCB), Govt of Arunachal Pradesh on Thursday, the 19th of September, 2013 as per EIA notification of 2006 and amended notification in 2009. This was the only Public Hearing conducted for Simang-I project.

   Accordingly, all the relevant documents such as the draft EIA report, draft EMP report, Executive Summary, etc., were submitted to all the designated places as per the EIA notification. Further, APSPCB also uploaded an electronic copy of the draft EIA report, draft EMP Report and Executive Summary on its official website (www.apspcb.com) as per provisions of EIA notification. In addition, the five Public Hearing notifications were issued at least 30 days prior to the Public Hearing by APSPCB in three newspapers as per the EIA notification. The following newspapers published the notifications:

   a. Echo of Arunachal: (English) — Wednesday 14th, August, 2013
   b. Times of India: (English) — Wednesday 14th, August, 2013
   c. The Arunachal Times: (English) — Wednesday 14th, August, 2013
   d. Echo of Arunachal: Language) — Wednesday 14th, August, 2013 (Adi
   e. The Arunachal Times: (Adi Language) — Wednesday 14th, August, 2013

Copies of the public hearing notifications in the newspapers have already been submitted to the Ministry of Environment & Forest (MoEF).

Furthermore, Pubic Hearing notices were displayed at designated public places and were circulated among the villages as per the EIA notification. In addition, copies of draft EIA and EMP reports were made available along with the copies of Executive Summary of the Project. Personal invitations were distributed to all the Project Affected Families (PAFs), local leaders and village elders. These measures led to a successful public hearing with attendance of over 350 people.

The Public Hearing was chaired by Ms.Nidhi Srivasthava, Deputy Commissioner of East Siang District, Arunachal Pradesh and was moderated by Mr.N. Tam, Member Secretary, Arunachal Pradesh State Pollution Control Board. Members of the community were well represented at the Public Hearing through local leaders, village elders, Gaon Burrahs and various other people from the community, who spoke at the Hearing. A few representations in the form of letters were submitted directly to the Deputy Commissioner and also to the Project Developer, who in-turn submitted the representations to the District Administration. These representations were read out loud, discussed and documented in the proceedings. The Arunachal Pradesh State Pollution Control Board recorded and submitted the minutes to the Ministry of Environment and Forests as per the procedures outlined in the EIA notification.

2. **Has the Socio Economic Study been conducted? –** "The minutes of public hearing indicates that Detailed property survey is yet to be undertaken by the District Administration, GoAP which means that Socio-Economic study for the project might not have been properly completed.

   Developer Response: As per the TOR, the Developer must undertake socio-economic survey as a part of EIA/EMP studies. Hence it was done as per the methodology is described in Chapter 2: Section 2.2.6.1. Socio-Economic

Environment of the area is described in Chapter 7 of the EIA. As a part of this exercise a preliminary property survey was done with the involvement of District Administration & Village representatives to ascertain the potential land owners of the land to be acquired for the project for the purpose of R&R Plan. The District Administration would carry out a detailed property survey under Land Acquisition Act to ascertain the compensation & type of land.

3. **River origin elevation changed from altitude of 2,950m to 2,900m and river length changes from 44km to 43km**

   Developer Response: It is customary to update and amend the EIA with latest information as it comes available. It is to be noted that the Draft EIA was prepared in October, 2012 and filed with Arunachal Pollution Control Board in November, 2012. When the final EIA report was submitted to the EAC in November 2013, minor updates to the report with the latest information.

   It is normal to see minor revisions to river lengths in topographic sheets and satellite imagery. This is due to the following reasons: a) it is sometimes difficult to ascertain the exact origin of the tributaries to major rivers and smaller streams that join them b) rivers undergo minor course corrections over time. A more detailed break up of river length up to the confluence with Siang River is shown in response to item (4).

4. "**Incorrect assessment of the River use for the Project** – The EIA reports of both Simang I and II projects gives incorrect figure for the stretch of river used for the projects.

   Developer Response: The question seems to mix up the river stretch used by the project with the river length between the diversion structure and the TWL. The river stretch used by the project is usually defined as the distance between the tip of the reservoir and the end of the TWL. In order to clarify questions regarding the river stretch used by the projects, the following is

detailed break up of river length including detailed distances between various key project features along the river stretch:

The total length of Simang River is approximately 43km, the river stretch between FRL and TWL of Simang-II project is 8.75km and the river stretch between FRL and TWL of Simang-I project is approximately 7.0km. A more detailed breakdown is as follows, which is also available in the EIA Report:

- Approximate distance from origin to the top of the reservoir at FRL of Simang-II project is 23km
- Approximate length of reservoir along the riverbed at FRL to the barrage site of Simang-II is 1,050m (It is to be noted that since the barrage site is located downstream of the confluence of Simang river and Subung nala. The reservoir extends approximately 325m along Subung nala above the confluence point)
- Distance along the river between Simang-II barrage and TWL of Simang-II is approximately 7.7km. Hence the river stretch used by Simang-II project is approximately 8.75km
- Distance between TWL of Simang-II and tip of the reservoir of Simang-I at FRL is approximately 1.05 km and the length of the Simang-I reservoir along the river at FRL is 1.5 km. Hence the total distance between TWL of Simang-II and barrage of Simang-I is approximately 2.5km
- The distance between barrage and TWL of Simang-I is approximately 5.5km. Hence the river stretch used by Simang-I project is approximately 7.0km.
- The distance between TWL of Simang-I and FRL of proposed Lower Siang project is approximately 1.4km. The reservoir of proposed Lower Siang project extends approximately 1.9km into Simang River from the confluence of Simang and Siang Rivers. Hence the distance between

TWL of Simang-I and confluence of Simang with Siang is approximately 3.3km

5. **Environment flow assessment as per EAC recommendations**

   Developer Response: A relevant study was conducted and submitted along with the EIA/EMP Report as per the TOR issued by EAC. After detailed discussions & deliberations during the 70th EAC Meeting it was suggested by the EAC that the Environmental flows release is to be maintained as per the recommendations of Siang Basin study, which has already been submitted and is in the approval process. Since the EAC has directed the Developer to adhere to the environmental flows release recommendations made in the Siang Basin Study for the sustenance of aquatic life, the recommendations made in the Siang Basin Study shall override the any study submitted by the Developer in regards to the environmental flows release for maintenance of aquatic life.

6. **Seismic Studies, Slope Stabilization measures and Reservoir Rim Treatment as per TOR- "**The EAC in its 36th meeting has asked "Seismic studies slope stabilization measures Reservoir Rim Treatment should be included in the EIA/EMP studies." The EIA/EMP studies of the Simang I project do not have any details of Seismic studies done in the project area. Seismic study is very important concern for Arunachal Pradesh since are comes under Zone V of Earthquake. Therefore not doing a proper seismic study is a major lacuna on the part of EIA consultant"

   Developer Response: Relevant studies were conducted as per the TOR and submitted to the EAC. Chapter 4 of the EIA report and Chapter 8 of the EMP report address these topics. In addition, it is to be noted that the project is a run-of-the-river scheme with a 18m barrage (no gravity dam) and without significant storage behind the barrage. The total live storage in the reservoir is only 0.53 MCM and stretches over an area of only 15.49 Ha, which is predominantly along the existing riverbed. Adequate reservoir rim treatment in

terms of Green Belt Development Plan and slope stabilization measures have been suggested. In regard to the Seismic Studies, relevant studies on Seismotectonics have been conducted and these studies are part of the Detailed Project Report of the project. These studies are referenced and briefly discussed in Chapter 4 of the EIA. Furthermore, since the project site is located in Earthquake Zone V, the design of the structures takes into account the past and potential Seismic activity in the region. It is also a normal practice to conduct a detailed Seismic study and update the designs of key structures during the detailed design engineering phase of the project. These designs would be continuously updated as per the site-specific geological conditions and site-specific knowledge that would be acquired during the construction phase of the project.

7. **Does the EIA address the Impact of migration of Outside workers on Local Communities?**

   Developer Response: This topic of impacts due to immigration of construction workers has been discussed in detail in Chapter 8 of the EIA report. In addition, in order to mitigate the social impact of transient workers in a sparsely populated project area, company will work with the district administration, local law enforcement authorities and local leaders to create specific appropriate programs and implement specific measures.

8. **Is there a minimum length of 1km between the two projects?**

   Developer Response: As per EIA report, the free-flow stretch between TWL of Simang-II and FRL of Simang-I is approximately 950m. This was ascertained using satellite and topography sheets. However, as per the physical surveys conducted during the preparation of the DPR and subsequent studies the distance between TWL of Simang-II (TWL) and FRL of Simang-I (FRL) is approximately 1,050m. It may be noted that the difference in the length of river stretch ascertained using satellite imagery, topography

sheets and the actual physical surveys conducted on the ground is not unusual and falls within the margin of error.

9. **Options assessment for the Project – "**The EIA study of project has not done any option assessment study."

   Developer Response: The developer followed all the guidelines and procedures of the Central Electricity Authority (CEA) in conducting studies to study various options of the project during the development of Detailed Project Report (DPR). DPR of the project discusses these options in detail. The Government of Arunachal Pradesh (GoAP) and IIT, Roorkee have evaluated this DPR in detail and accordingly Techno Economic Clearance has been issued by GoAP. This options study is also a useful tool for the Developer to study economic, environmental and social impacts of various options and choose the best option that balances the environmental, techno-economic and socio-economic aspects. Alternative Studies have also been discussed in Section 1.10, Chapter-1 of the EIA Report. This option was presented to the EAC and scoping clearance was obtained for this option.

10. **Socio- Economic Impacts of Reduced flow – "**The Final EIA report of Simang I does not mention the socio economic impacts of reduced flow in the intermediate stretch between the barrage axis and power house."

    Developer Response: Impacts of the reduced flow have been discussed in the EIA Report (Refer Section 8.3 of Chapter -8 of EIA Report) Project developer has followed the guidelines and recommendations of the EAC in ensuring the minimum flows required to maintain aquatic life. Moreover, it may also be noted that there is neither any habitation nor any significant economic activity immediately along the river in the stretch between the barrage and the TWL. Furthermore, the EAC has recommended that the developer must follow the flows recommendations made in the Siang Basin Study, which takes socio-economic impacts and other environmental aspects into account in recommending the flows.

11. **Impact of non-monsoon peaking power generation -** "The EIA report of Simang II does not assess impact of peaking power generation during non-monsoon periods on the river downstream from power house and people"

    Developer Response: Non-monsoon peaking power generation is an essential part of a Hydro Power generation. The diurnal flow variation will only impact the 1.4 Km free flowing stretch between TWL of Simang-I & FRL of Lower Siang HEP. As per the standard operational procedure for the Hydro Electric Projects, adequate warnings will be issued to ensure public safety. Moreover, there is no habitation along the immediate 1.4 Km free flowing stretch between TWL of Simang-I & FRL of Lower Siang HEP.

12. **Impact assessment of changing sediment release - "**The EIA report of Simang II does not assess the impact of changes in the sediment flow in different stretches of the river. The EIA should have included detailed analysis of 1. Impact of changing silt flows downstream from desilting chamber and 2. Impacts of Silt flushing in monsoon season on the downstream area. The EIA report should also do a cumulative study of reservoir sedimentation because the sediment release from the upstream reservoirs will affect the reservoir downstream."

    Developer Response: It is to be noted that the project is a run-of-the-river scheme with a 18m barrage (no dam) and no significant storage behind the barrage. No sedimentation impacts are envisaged.

13. **Climate Change Assessment – "**The EIA report of Simang I has not done any climate changes impact assessment for the proposed project. It is essential for EIA studies to do an assessment of possible climate change impact on the project as well as impact of the project on local climate. In fact the word "Climate change" in nowhere to be found in the EIA or EMP of the project."

Developer Response: The project is a run-of-the-river scheme with a 18m barrage (no dam) and no significant storage behind the barrage. The total live storage in the reservoir is only 0.53 MCM which covers a total area of only 15.49 Ha. Since the volume of the reservoir is relatively small and it stretches mostly along the existing riverbed, the microclimate impact isn't material especially when compared to the carbon emissions saved through hydropower. Moreover, Climate Change Assessment is also not covered in the TOR issued by the MOEF.

14. **Impacts on Flora during construction and operation –** "The EIA report of Simang I makes a baseless claim that "There will be no negative impact on Flora of region during operation Phase." This cannot be accepted as truth since during the construction phase of Simang I, the forest areas diverted will be 29.86ha"

    Developer Response: Impacts of diversion of forest land required for the construction of the project have been discussed in details in Chapter 8 of EIA Report under construction phase of the project. To mitigate such impacts, Biodiversity Management Plan (Chapter -1) and Compensatory Afforestation Plan (Chapter -10) of EMP Report have been prepared. All the impacts due to diversion of forest and biodiversity of the region have been covered under the Construction Phase Impacts. In addition no impacts have been envisaged during operation phase of project is envisaged. However, the developer will ensure that the recommendations made in the EIA/EMP reports and the EAC recommendations will be followed during construction and operation phase of the project.

15. **Applicability of the new R&R law of 2013**

    Developer Response: In this regard, it has been submitted to the EAC that that land acquisition process for the land required for Simang-I project has already been initiated and Section-4 & Section-6 of Land Acquisition Act 1894 have been already published by Govt of Arunachal Pradesh.

Clause no. 24 (1) of the new "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" published in The Gazette of India on 27th September 2013 states that –

"Notwithstanding anything contained in this Act, in any case of Land Acquisition proceedings initiated under the Land Acquisition Act 1894, -

(a) Where no award under Section 11 of Land Acquisition has been made, then, all provisions of this Act relating to the determination of compensation shall apply …."

Accordingly as per clause 24 of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" all provisions of relating to the determination of compensation shall apply for Simang – I HEP as Land Acquisition proceedings have already been initiated by GoAP.

Annexure-IV

OBSERVATION & CLARIFICATIONS SOUGHT BY EAC BASED ON SANDRP REPRESNATATION

16. Has Public Hearing been conducted as per the procedures detailed in EIA notification of 2006? Have the Public been properly informed well in advance?

Developer Response: Carrying out Public Consultation process is the responsibility of the Arunachal Pradesh State Pollution Control Board (APSPCB), GoAP. Public Hearing for Simang-II Hydro Electric Project was conducted by Arunachal Pradesh State Pollution Control Board (APSPCB), Govt of Arunachal Pradesh on Wednesday, the 18th of September, 2013 as per EIA notification of 2006 and amended notification in 2009. This was the only Public Hearing conducted for Simang-II project.

Accordingly, all the relevant documents such as the draft EIA report, draft EMP report, Executive Summary, etc., were submitted to all the designated places as per the EIA notification. Further, APSPCB also uploaded an electronic copy of the draft EIA report, draft EMP Report and Executive Summary on its official website (www.apspcb.com) as per provisions of EIA notification. In addition, the five Public Hearing notifications were issued at least 30 days prior to the Public Hearing by APSPCB in three newspapers as per the EIA notification. The following newspapers published the notifications:

f. Echo of Arunachal: (English) — Wednesday 14th, August, 2013
g. Times of India: (English) — Wednesday 14th, August, 2013
h. The Arunachal Times: (English) — Thursday 15th, August, 2013
i. Echo of Arunachal: Language) — Wednesday 14th, August, 2013 (Adi

j. The Arunachal Times: Wednesday 14th, August, 2013 (Adi Language)

Copies of the public hearing notifications in the newspapers have already been submitted to the Ministry of Environment & Forest (MoEF).

Furthermore, Pubic Hearing notices were displayed at designated public places and were circulated among the villages as per the EIA notification. In addition, copies of draft EIA and EMP reports were made available along with the copies of Executive Summary of the Project. Personal invitations were distributed to all the Project Affected Families (PAFs), local leaders and village elders. These measures led to a successful public hearing with attendance of over 330 people.

The Public Hearing was chaired by Ms.Nidhi Srivasthava, Deputy Commissioner of East Siang District, Arunachal Pradesh and was moderated by Mr.N. Tam, Member Secretary, Arunachal Pradesh State Pollution Control Board. Members of the community were well represented at the Public Hearing through local leaders, village elders, Gaon Burrahs and various other people from the community, who spoke at the Hearing. A few representations in the form of letters were submitted directly to the Deputy Commissioner and also to the Project Developer, who in-turn submitted the representations to the District Administration. These representations were read out loud, discussed and documented in the proceedings. The Arunachal Pradesh State Pollution Control Board recorded and submitted the minutes to the Ministry of Environment and Forests as per the procedures outlined in the EIA notification.

17. **Has the Socio Economic Study been conducted? –** "The minutes of public hearing indicates that Detailed property survey is yet to be undertaken by the District Administration, GoAP which means that Socio-Economic study for the project might not have been properly completed.

Developer Response: As per the TOR, the Developer must undertake socio-economic survey as a part of EIA/EMP studies. Hence it was done as per the methodology is described in Chapter 2: Section 2.2.6.1. Socio-Economic Environment of the area is described in Chapter 7 of the EIA. As a part of this exercise a preliminary property survey was done with the involvement of District Administration & Village representatives to ascertain the potential land owners of the land to be acquired for the project for the purpose of R&R Plan. The District Administration would carry out a detailed property survey under Land Acquisition Act to ascertain the compensation & type of land.

18. River origin elevation changed from altitude of 2,950m to 2,900m and river length changes from 44km to 43km

Developer Response: It is customary to update and amend the EIA with latest information as it comes available. It is to be noted that the Draft EIA was prepared in October, 2012 and filed with Arunachal Pollution Control Board in November, 2012. When the final EIA report was submitted to the EAC in November 2013, minor updates to the report with the latest information.

It is normal to see minor revisions to river lengths in topographic sheets and satellite imagery. This is due to the following reasons: a) it is sometimes difficult to ascertain the exact origin of the tributaries to major rivers and smaller streams that join them b) rivers undergo minor course corrections over time. A more detailed break up of river length up to the confluence with Siang River is shown in response to item (4).

19. "**Incorrect assessment of the River use for the Project** – The EIA reports of both Simang I and II projects gives incorrect figure for the stretch of river used for the projects.

Developer Response: The question seems to mix up the river stretch used by the project with the river length between the diversion structure and the TWL. The river stretch used by the project is usually defined as the distance

between the tip of the reservoir and the end of the TWL. In order to clarify questions regarding the river stretch used by the projects, the following is detailed break up of river length including detailed distances between various key project features along the river stretch:

The total length of Simang River is approximately 43km, the river stretch between FRL and TWL of Simang-II project is 8.75km and the river stretch between FRL and TWL of Simang-I project is approximately 7.0km. A more detailed breakdown is as follows, which is also available in the EIA Report:

- Approximate distance from origin to the top of the reservoir at FRL of Simang-II project is 23km
- Approximate length of reservoir along the riverbed at FRL to the barrage site of Simang-II is 1,050m (It is to be noted that since the barrage site is located downstream of the confluence of Simang river and Subung nala. The reservoir extends approximately 325m along Subung nala above the confluence point)
- Distance along the river between Simang-II barrage and TWL of Simang-II is approximately 7.7km. Hence the river stretch used by Simang-II project is approximately 8.75km
- Distance between TWL of Simang-II and tip of the reservoir of Simang-I at FRL is approximately 1.05 km and the length of the Simang-I reservoir along the river at FRL is 1.5 km. Hence the total distance between TWL of Simang-II and barrage of Simang-I is approximately 2.5km
- The distance between barrage and TWL of Simang-I is approximately 5.5km. Hence the river stretch used by Simang-I project is approximately 7.0km.
- The distance between TWL of Simang-I and FRL of proposed Lower Siang project is approximately 1.4km. The reservoir of proposed Lower

Siang project extends approximately 1.9km into Simang River from the confluence of Simang and Siang Rivers. Hence the distance between TWL of Simang-I and confluence of Simang with Siang is approximately 3.3km

20. Environment flow assessment as per EAC recommendations

Developer Response: A relevant study was conducted and submitted along with the EIA/EMP Report as per the TOR issued by EAC. After detailed discussions & deliberations during the 70th EAC Meeting it was suggested by the EAC that the Environmental flows release is to be maintained as per the recommendations of Siang Basin study, which has already been submitted and is in the approval process. Since the EAC has directed the Developer to adhere to the environmental flows release recommendations made in the Siang Basin Study for the sustenance of aquatic life, the recommendations made in the Siang Basin Study shall override the any study submitted by the Developer in regards to the environmental flows release for maintenance of aquatic life.

21. **Seismic Studies, Slope Stabilization measures and Reservoir Rim Treatment as per TOR- "**The EAC in its 36th meeting has asked "Seismic studies slope stabilization measures Reservoir Rim Treatment should be included in the EIA/EMP studies." The EIA/EMP studies of the Simang I project do not have any details of Seismic studies done in the project area. Seismic study is very important concern for Arunachal Pradesh since are comes under Zone V of Earthquake. Therefore not doing a proper seismic study is a major lacuna on the part of EIA consultant"

Developer Response: Relevant studies were conducted as per the TOR and submitted to the EAC. Chapter 4 of the EIA report and Chapter 8 of the EMP report address these topics. In addition, it is to be noted that the project is a run-of-the-river scheme with a 18m barrage (no gravity dam) and without

significant storage behind the barrage. The total live storage in the reservoir is only 0.41 MCM and stretches over an area of only 10.57 Ha, which is predominantly along the existing riverbed. Adequate reservoir rim treatment in terms of Green Belt Development Plan and slope stabilization measures have been suggested. In regard to the Seismic Studies, relevant studies on Seismotectonics have been conducted and these studies are part of the Detailed Project Report of the project. These studies are referenced and briefly discussed in Chapter 4 of the EIA. Furthermore, since the project site is located in Earthquake Zone V, the design of the structures takes into account the past and potential Seismic activity in the region. It is also a normal practice to conduct a detailed Seismic study and update the designs of key structures during the detailed design engineering phase of the project. These designs would be continuously updated as per the site-specific geological conditions and site-specific knowledge that would be acquired during the construction phase of the project.

22. Does the EIA address the Impact of migration of Outside workers on Local Communities?

Developer Response: This topic of impacts due to immigration of construction workers has been discussed in detail in Chapter 8 of the EIA report. In addition, in order to mitigate the social impact of transient workers in a sparsely populated project area, company will work with the district administration, local law enforcement authorities and local leaders to create specific appropriate programs and implement specific measures.

23. Is there a minimum length of 1km between the two projects?

Developer Response: As per EIA report, the free-flow stretch between TWL of Simang-II and FRL of Simang-I is approximately 950m. This was ascertained using satellite and topography sheets. However, as per the physical surveys conducted during the preparation of the DPR and subsequent studies the distance between TWL of Simang-II (TWL) and FRL of

Simang-I (FRL) is approximately 1,050m. It may be noted that the difference in the length of river stretch ascertained using satellite imagery, topography sheets and the actual physical surveys conducted on the ground is not unusual and falls with in the margin of error.

24. **Assessment of river length for diversion –** The diverted river length for Simang II HEP given as 7.75km in the EIA and the tunnel length mentioned in the same document for Simang II is 7.4 Km. In fact the bypassed length of the river is likely to be longer than this lengths of the various tunnel components since river do not flow in straight lines, unlike the tunnel

    Developer Response: While it is true in some cases that the tunnel takes a relatively straight path when compared to the river flow stretch, the length and direction of the HRT required depends upon the topography and geology of the project area. Hence the tunnel may not be a straight line in all the projects. In case of Simang-II project, the length of the river between Simang-II barrage and TWL is approximately 7.7km and length of the HRT is 7.4km. The tunnel is not a straight line since it navigates through three turns in order to maintain sufficient rock cover to go underneath a deep and wide major perennial nala (Kibung-Korong) at ch. 5.3km. However, the river takes a relatively straight path during this stretch, except for the turn it takes closer to the powerhouse. The Layout Plan of the project given as Figure 1.3 of the EIA Report and the presentation to the EAC shows the layout of the HRT and the river flow in this stretch.

25. **Simang II will require NBWL clearance** – "Mouling national park is about 6.4km from the barrage site of Simang II HEP and 5.6 & 5.7 km from the submergence tail at Subbung Nala and Simang River, respectively. The project will also require clearance form NBWL. The Project documents nowhere mentioned about this aspects or clearance**"**

    Developer Response: It is given in Section 1.3. of the EIA Report of the project that Mouling National Park is 6.4km from the barrage site and is 5.6km

& 5.7km from the submergence tail at Subung Nala and Simang River respectively. Figure 1.2 of EIA report also shows the distances from the Mouling National Park.. Furthermore, Section 6.8 of Chapter 6 titled “Protected Area” acknowledges the proximity to the protected area.

This topic has been discussed in detail during the EAC Meeting and it was clarified that clearance from NBWL is required for this project and the process for which has already been initiated.

26. **Options assessment for the Project – “**The EIA study of project has not done any option assessment study.”

    Developer Response: The developer followed all the guidelines and procedures of the Central Electricity Authority (CEA) in conducting studies to study various options of the project during the development of Detailed Project Report (DPR). DPR of the project discusses these options in detail. The Government of Arunachal Pradesh (GoAP) and IIT, Roorkee have evaluated this DPR in detail and accordingly Techno Economic Clearance has been issued by GoAP. This options study is also a useful tool for the Developer to study economic, environmental and social impacts of various options and choose the best option that balances the environmental, techno-economic and socio-economic aspects. Alternative Studies have also been discussed in Section 1.10, Chapter-1 of the EIA Report. This option was presented to the EAC and scoping clearance was obtained for this option.

27. **Socio- Economic Impacts of Reduced flow – “**The Final EIA report of Simang II does not mention the socio economic impacts of reduced flow in the intermediate stretch between the barrage axis and power house.”

    Developer Response: Impacts of the reduced flow have been discussed in the EIA Report (Refer Section 8.3 of Chapter -8 of EIA Report) Project developer has followed the guidelines and recommendations of the EAC in ensuring the minimum flows required to maintain aquatic life. Moreover, it may

also be noted that there is neither any habitation nor any significant economic activity immediately along the river in the stretch between the barrage and the TWL. Furthermore, the EAC has recommended that the developer must follow the flows recommendations made in the Siang Basin Study, which takes socio-economic impacts and other environmental aspects into account in recommending the flows.

28. **Impact of non-monsoon peaking power generation -** "The EIA report of Simang II does not assess impact of peaking power generation during non-monsoon periods on the river downstream from power house and people"

    Developer Response: Non-monsoon peaking power generation is an essential part of a Hydro Power generation. The diurnal flow variation will only impact the 1 Km free flowing stretch between Simang-I & Simang-II HEP. As per the standard operational procedure for the Hydro Electric Projects, adequate warnings will be issued to ensure public safety. Moreover, there is no habitation along the immediate 1 Km free flowing stretch between Simang-I & Simang-II HEP.

29. **Impact assessment of changing sediment release - "**The EIA report of Simang II does not assess the impact of changes in the sediment flow in different stretches of the river. The EIA should have included detailed analysis of 1. Impact of changing silt flows downstream from desilting chamber and 2. Impacts of Silt flushing in monsoon season on the downstream area. The EIA report should also do a cumulative study of reservoir sedimentation because the sediment release from the upstream reservoirs will affect the reservoir downstream."

    Developer Response: It is to be noted that the project is a run-of-the-river scheme with a 18m barrage (no dam) and no significant storage behind the barrage. No sedimentation impacts are envisaged.

30. **Climate Change Assessment – "**The EIA report of Simang II has not done any climate changes impact assessment for the proposed project. It is essential for EIA studies to do an assessment of possible climate change impact on the project as well as impact of the project on local climate. In fact the word "Climate change" in nowhere to be found in the EIA or EMP of the project."

    Developer Response: The project is a run-of-the-river scheme with a 18m barrage (no dam) and no significant storage behind the barrage. The total live storage in the reservoir is only 0.41 MCM which covers a total area of only 10.57 Ha. Since the volume of the reservoir is relatively small and it stretches mostly along the existing riverbed, the microclimate impact isn't material especially when compared to the carbon emissions saved through hydropower. Moreover, Climate Change Assessment is also not covered in the TOR issued by the MOEF.

31. **Impacts on Flora during construction and operation –** "The EIA report of Simang II makes a baseless claim that "There will be no negative impact on Flora of region during operation Phase." This cannot be accepted as truth since during the construction phase of Simang II, the forest areas diverted will be 22.02ha"

    Developer Response: Impacts of diversion of forest land required for the construction of the project have been discussed in details in Chapter 8 of EIA Report under construction phase of the project. To mitigate such impacts, Biodiversity Management Plan (Chapter -1) and Compensatory Afforestation Plan (Chapter -10) of EMP Report have been prepared. All the impacts due to diversion of forest and biodiversity of the region have been covered under the Construction Phase Impacts. In addition no impacts have been envisaged during operation phase of project is envisaged. However, the developer will ensure that the recommendations made in the EIA/EMP reports and the EAC

recommendations will be followed during construction and operation phase of the project.

32. **Applicability of the new R&R law of 2013**

Developer Response: In this regard, it has been submitted to the EAC that that land acquisition process for the land required for Simang-II project has already been initiated and Section-4 & Section-6 of Land Acquisition Act 1894 have been already published by Govt of Arunachal Pradesh.

Clause no. 24 (1) of the new "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" published in The Gazette of India on 27th September 2013 states that –

"Notwithstanding anything contained in this Act, in any case of Land Acquisition proceedings initiated under the Land Acquisition Act 1894, -

(b) Where no award under Section 11 of Land Acquisition has been made, then, all provisions of this Act relating to the determination of compensation shall apply …."

Accordingly as per clause 24 of "The Right To Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013" all provisions of relating to the determination of compensation shall apply for Simang – II HEP as Land Acquisition proceedings have already been initiated by GoAP.