Minutes of the 69th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects constituted under the provisions of EIA Notification 2006, held on 11th -12th November, 2013 at SCOPE Complex, New Delhi.

The 69th Meeting of the Expert Appraisal Committee (EAC) for River Valley and Hydropower Projects was held during 11th – 12th November, 2013 at SCOPE Convention Centre, Opposite Jawaharlal Nehru Stadium, New Delhi. The meeting was chaired by Shri. AlokPerti, Chairman. Shri C. Achalender Reddy, Member, Dr. Mathur, member EACand S. Sathyakumar member could not attend the meeting due to pre-occupation/prior committment. The list of EAC Members and officials/consultants associated with various projects who attended the meeting is annexed.

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

1st Day (11.11.2013)

1. **Agenda Item No.1:** Welcome by Chairman and Confirmation of Minutes of the 68th EAC Meeting held on 23rd – 24th September, 2013.

The minutes of the meeting of the 68th EAC Meeting held on 11th – 12th November, 2013 was confirmed. 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 JiduHEP (92 MW) in the Upper Siang District of Arunachal Pradesh by M/s. Meenakshi North East Power Pvt. Limited, Department of Water Resources – For ToR

The project proponent made a detailed presentation on the project. The project envisages construction of a 22 m high barrage across Yangsang River (a tributary of Siang River) just downstream of the confluence of Yangsang River with ApongNala near KugingandNyaming village in Upper Siang District of Arunachal Pradesh to generate 92 MW of hydropower. This is a run-of-the-river scheme. Total land requirement is about 80 ha which is forest/community forest land. Total submergence area is 1 ha. The land ownership will be explored during detailed EIA study. Total catchment area is 1211 Sq.km. A surface powerhouse is proposed on the left bank of the river with 3 units of 30.66 MW each. The project area does not fall in the vicinity of any biosphere reserve or protected areas. Total estimated project cost is about Rs. 732.80 Crores. The project is proposed to be completed in a time frame of about 5 years.

The details of hydrology of the project were presented. The water availability series for Jidu HE project has been developed based on the 10 daily approved discharge series at Yamne-I HE project site for the period 1978-79 to 2008-09. The minimum and maximum elevations for the Jidu HE project catchment are almost similar to Yamne-I HE Project catchment. Therefore, the 10-daily discharge series of Yamne-I HE Project site has been transferred to Jidu HE Project diversion site by multiplying it with the catchment area ratio and yield correction.

The 10-daily discharge series thus obtained at Jidu HE project diversion site with average annual yield of 3448.42 MCM (2850 mm). The 10-daily discharge series for the period 1978-79 to 2008-09 has been used for Jidu HE Project diversion site. The CWC approved the hydrology vide letter no. 2/ARP/64/CEA/2013-PAC/5269-71 dated 5th September, 2013.

The net head available for the project is estimated at 105 m after accounting for all losses at different components. As per MoEF guidelines, a minimum discharge of 30% (42.5 cumec) during monsoon season and a minimum discharge of 20% (5.96 cumec) during lean season and 25% (19.18 cumec) during rest of the months from the barrage site for environmental purpose, the energy potential in 90% dependable year (which is the year 2004-2005) have been calculated and the capacity has been fixed at 92 MW. The project with a proposed installation of 92MW (3 x 30.66 MW) would afford an annual energy generation of 421 GWh in a 90% dependable year.

As per present status, other than Jidu HEP, no project is proposed in Yangsang River. In downstream on Main River, FRL of Siang Upper H.E. Project is EL 510 m accordingly TWL of Jidu HEP has been kept as 520 m.

The EAC after detailed scrutiny & examination recommended the project for granting scoping clearance and approved TOR with the following additional TORs:

(i) A table of 10 daily water discharges in 90% dependable year showing the intercepted discharge at the dam, the environmental and other flow releases downstream of the barrage and spill are to be provided in hydrology section of EIA.

(ii) The Muck disposal sites should be selected at-least 30 m away from the HFL of the river/stream and details shall be shown including location, quantity of muck to be disposed off vis-à-vis the total area for dumping.

(iii) A site-specific study to be carried-out for establishing the proper environmental flow release during monsoon, non-monsoon and lean months. Environmental flow must mimic the pre-dam flow pattern of the river for sustaining the aquatic bio-diversity together with downstream user need and accordingly, water withdrawal for power generation is to be regulated. Minimum environmental flow release would be 20% of average of four months of lean period and 25% of flows during non-lean non-monsoon period corresponding to 90% Dependable year. The cumulative flow releases including spillage during monsoon period should be 30% of the cumulative inflows during the monsoon period corresponding to 90% dependable year.

(iv) To include observed flow at G&D site, rainfall data and intermediate catchment mapping along with its contribution in EIA report.

(v) Biodiversity study is to be carried-out by associating a reputed organization to be recommended either by WII, Dehradun or by ICFRE, Dehradun.

(vi) Cumulative impact of upstream/downstream project is to be taken into account, if any.

(vii) North-Eastern region is very rich in Biodiversity. A detailed study needs to be undertaken and detailed Biodiversity Conservation & Management Plan should be framed in **EMP**

(viii) The Resettlement & Rehabilitation plan should as per the latest norms and R&R Plan, 2007 should be followed. The committee also suggested that the project proponent should also keep in mind the land reforms act of Government of India, if it is enacted in R&R Plan. Empowerment of local community in the project activities should be ensured.

(ix) Road construction outside the project, if any, wherein the forest land/private land/agricultural land involved, a separate clearance should be obtained from the authorities concerned as per the norms/rules.

(x) Realistic assessment of requirement of labour during the construction phase of the project should be done and local labour should be preferred. Mixing with local tribal community to be minimised and if need be, labour colony may be set up away from such inhabitants to avoid adverse impact on ethnic community.

(xi) Adequate housing and sanitation facilities should be provided to labours/ migratory labours during construction phase based on realistic assessment of labour force.

Housing facilities should also be equipped with proper Solid Waste Management (SWM) and sewage disposal facilities.

(xii) Staff projection during operation phase should be done as per actual requirement with break-up (locals/ outsiders; technical/ non-technical).

(xiii) Since, no direct impact on population has been envisaged, hence impact on land (private/ govt. / community) should be analyzed and compensation should be calculated as per new Land Acquisition Act, 2013. The provision should also be incorporated in the MoA(full form) with Arunachal Government.

(xiv) Since four *Tor* species have been reported from the river and there is no mention about availability of another important mahseer of the NE Region – *Neolissocheilushexagonolepis*, therefore, the fish species available in the Yangsang Chu should be studied with great care and provisions for fish pass/ladder should be kept, as the dam height is only 22 m.

(xv) River basin study for Siang River is under process. Therefore, the Jidu EIA & EMP report should be in line with the Siang basin study report.

(xvi) Dihang-Dibang Biosphere reserve seems to be in near vicinity from the Jidu Project location (should be confirmed from respective forest department). Therefore, the EIA is to assess flora and fauna in the project area particularly under endangered category as per IUCN Red list.

(xvii) Conservation and management plan for Rare Endangered and Threatened flora fauna should be provided.

(xviii) Adopt latest construction technology to ensure minimum impact on the environment due to blasting etc. Use of TBM may be explored.

(xix) Adequate rock cover in HRT shall be ensured at Nala crossing.

(xx) Diversion structure location has been shifted downstream from original location for better utilization of water. Though it remains within the allotted limits, concurrence in MoA(Pl give full form) may be taken from the State Government in this regard.

(xxi) Impact of peaking power generation to be assessed.

(xxii) Impact of mining of material to be assessed.

(xxiii) Impact of sedimentation of project to be assessed along with flushing out of sedimentation.

(xxiv) Disaster analysis to be carried out through modeling.

(xxv) Proper facilities to be ensured for movement of animals such as Mithun which is pre-dominant in the area.

(xxvi) Forests Clearance (FC) application to be submitted shortly and not later than six months from date of issue of ToR under intimation to IA- Division of the MoEF.

Agenda No. 2.2 Sip Kolar Medium Project in Sehore District of Madhya Pradesh by M/s. Water Resources Department, Government of Madhya Pradesh- For consideration of Environmental Clearance.

The Principal Secretary, Department of Water Resources, Government of Madhya Pradesh made a detailed presentation on the project. The Sip-Kolar Project site is located on Sip River near village Alipur in IchhawarTahsil of Sehore District of Madhya Pradesh. This is a medium Irrigation Project. The proposal was submitted to SEIAA, Madhya Pradesh. However, the SEIAA returned the proposal as the original proposal was cleared by the MoEF. Therefore, the Government of Madhya Pradesh has submitted the proposal to MoEF for consideration. The TOR was granted to this project on 26.2.2013 by MoEF.

The project was earlier considered by Environment Appraisal Committee (EAC) for River Valley and Hydroelectric Projects in its meeting held on 23-24th September, 2013. The committee observed that the project proponent (PP) should recast the EIA/EMP and submit the report to MoEF. Also the consultant was not found accredited. The State Government has clarified that the EIA-EMP reports have been prepared by the Water Resources Department, Government of Madhya Pradesh. In finalizing these reports, the expert services of WAPCOS, MPPCB and Barkatullah University, Bhopal have been taken by the State Government.

It was noted that the Sip Kolar project is proposed to augment existing Kolar reservoir. The Ministry granted environmental clearance to Kolar project on 10.6.2009 and the forest clearance was granted on 7.11.2012. The Kolar project was proposed to irrigate 45,078 ha of area but, only 31,000 ha is being irrigated presently due to water shortage. Therefore, Sip Kolar project is proposed to divert water into the existing Kolar project for augmenting water and irrigate an area of 6,100 ha, which is found to be a deficit area of existing command of Kolar project. The river Sip is seasonal in nature. Since, it is a small project EAC recommended that one season data (preferably monsoon season) should be

collected for the preparation of EIA/EMP for the project. The provision for setting up a Rain Gauge station has been made in the Project.

The Sip-Kolar link Project comprises of 3 weirs across Sip River, KaladevNalla and GhoraPachhadNalla to divert 34.36 Mm^3 monsoon flow. The project envisages construction of 22.2 m high Sip concrete solid weir, construction of a 17.6 m high Kaldev concrete solid weir with an earthen afflux bund on both flank and construction of a 6.69 m Gorapachhar concrete solid weir with an earthen afflux bund on right flank. It is also proposed to construct 5.64 Km D-type long tunnels with 3.3 m diameter and construction of a total canal of 6.66 km long with 19 no. structures. The total land requirement is 70.966 ha out of which 6.017 ha is government land, 25.029 ha private/agricultural land and 39.92 ha forest land. The forest clearance has been obtained on 7.11.2012 for this project. The total catchment area intercepted at the diversion sites of 3 weirs is 123 Sq. km. Total submergence area is 40.14 ha. About 48 families are likely to lose land due to this project. No family, however, shall lose homestead. The total cost of the project is about Rs. **14108.5 lakhs.**

The Sip-Kolar Link project is a diversion project. Therefore all the diversion weirs do not have substantial live storage. As mentioned, the diverted water will meet the shortfall in designed irrigation requirement of Kolar Project. This proposal does not involve any expansion or alteration of the existing Kolar Project. The State Government informed that the water use will be restricted within its share of 18.25 MAF allocated under NWDT allocated to Madhya Pradesh. A 75% dependable yield of the project is estimated to be 34.36 Mm^3 in which 6100 ha is proposed to be irrigated in deficit irrigation command of Kolar project. The hydrology has been finalized by CWC vide letter no.1/78/2012-Jal Vigyan (M)/728 dated 21.12.2012. No direct irrigation is proposed from the project. Entire catchment up-to project site lies in Madhya Pradesh only.

The irrigation planning as proposed by the State Government is given as below:

Season	**Crop**	**Area (Ha.)**
Rabi	Wheat (ordinary) Gram	5200 900
	Sub Total	6100
Kharif	Soyabean	3050
Annual Irrigation		6100 ha
Irrigation Intensity		100 %
Cropping Intensity		150%

The relocation of human habitation is not required for the PAFs. The required land of 25 ha has already been acquired the by the project proponent and special package for land acquired has been announced and already been paid by Water Resources

Department, Government of Madhya Pradesh. The annual agricultural production value is estimated to be increased from Rs. 9.74 Crores to Rs. 20.37 Crores due to this project.

The committee observed that the Environmental Management Plan (EMP) with cost estimates was not made adequately for this project and asked the State Government to enhance the same during the meeting. The project proponent agreed for the following revised cost of the EMP (table 2):

1. **Details of the Project Cost estimates**

S. No.	Particulars	Total (Rupees in lakhs)
1	A- Preliminary	40.96
2	B- Land & R & R	616.94
3	C- Masonary	4634.45
4	L- Earth Work	7015.77
5	P-Maintenance	116.50
6	EMP	385
	Total Cost	**12809.62**
	Establishment Charges @ 11% of Works	**1298.64**
	Grand Total	**14108.46 (Say Rs. 14108.5 lakhs)**

2. Details of cost estimates of Environmental Management Plan (EMP)

S. No	Item	Cost (Rupees in lakhs)
1	Compensatory Afforestation	199.22
2	Wildlife Conservation	155
3	Plantation	5
4	Air, Water and Noise Pollution Control Measures	5
5	Labour welfare (camp, fuel, food, sewerage and waste disposal, etc.)	5
6	Environmental Monitoring	0.50
7	Meteorological data monitoring and gauge site	5
8	Other expenses	10
	Total	**384.72 (Say Rs.385 lakhs)**

The EAC, after detailed deliberations on the project has recommended the project for Environmental Clearance (EC) with the following additional conditions:

(i) Since Sip riverKaldev and GhoraPacharnallahs are seasonal in nature, 30% environmental flows in monsoon season will be relevant and should be released.

(ii) All the commitments made during Public Hearing should be fulfilled by the project proponent.

(iii) Livelihood plan to be prepared if found necessary. It is noted that R&R cost has not been included in EMP. The Government of Madhya Pradesh will submit compliance on this component also while submitting six monthly compliance report.

Agenda No. 2.3 - Mohanpura Major Irrigation Project in Sehore District of Madhya Pradesh by M/s. Water Resources Department, Government of Madhya Pradesh – For reconsideration of environmental clearance (EC)

The Principal Secretary, Department of Water Resources, Government of Madhya Pradesh made a detailed presentation on the project. The 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 NewajRiver near village Banskhedi in district Rajgarh, Madhya Pradesh to provide irrigation facility to 92,860 ha of area. 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 + Perenial – 2000 ha). Out of this, about 18,000 ha will be irrigated by pressurized irrigation. Total land requirement is 7353 ha. Out of which 1732 ha is revenue land and 5621 ha is private land. No forest land is involved. Total submergence area is 7057 ha of land. The land required for canals is estimated as 152 ha. The catchment area of the project is 3726 Sq. km. Total number of project affected families is 2340 as per 2012-13 survey. The National Land acquisition & latest R&R Policy will be followed for providing compensation for project affected families. The total cost of the project is envisaged as Rs. 282734.35 Lakhs.

As mentioned, the project with a Live Storage Capacity of 539.42 MCM envisages annual irrigation of 97750 ha. comprising of 35500 ha inKharif and 62250 ha in Rabi over a CCA of 65000 ha. Water requirement is assessed as under:

a) For irrigation - 352.834 MCM
b) For drinking water - 20 MCM
c) For industrial use - 60 MCM

The distribution network for pressure irrigation is shown through seven distributaries D-1 through D-7 totaling 122 km in length, all of them taking off from the delivery cistern and linked to tanks en-route a tank at Parliyakhedi serving as a balancing reservoir.

The project was earlier considered by the EAC in its 67th meeting held on 6th June, 2013 & 68th meeting on 23-24th September, 2013. During the 68th meeting, the proposal was critically examined again and the committee sought additional information and issues as follows:

(i) Very high submergence and related R & R problems which were alleged to be inadequately addressed in the M. P. Proposal and lack of a proper S. I. A. Study.

(ii) No Command Area Development Plan formulated and therefore introduction of irrigation may cause environmental degradation.

(iii) Animal/ faunal inventory may be rechecked and a proper conservation/ protection plan during submergence of reservoir may be made. Also, high irrigation may lead to dispersant of various species which have to be protected.

(iv) Arrangement to be made for livelihood of these PAFs who are likely to loose entire lands.

(v) Submit a plan related to fish diversity, migratory species and conservation of the fishery in the affected river. Also incorporate suitable fisheries management/enhancement plan for the newly constructed reservoir.

(vi) A definitive and robust R&R plan has to be prepared and submitted. As per the report, only housing facility has been provided in 132 ha of Government land for PAFs who would be losing their entire lands and livelihoods. Neither land for land nor alternate livelihood means have been proposed and elaborated. Therefore, this was found to be inadequate.

(vii) Representation has been received one each from Gharial Conservation Alliance, and SANDRP and was handed over to the State Government for reply. Major issues raised are about non response on SANDRP's earlier representation, source of data, inadequate faunal information and use of old data and methodology plagiarisation.

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 (iii) Livestock rearing (iv) Skill up-gradation & (v) Eco-tourism.

It was explained that the submergence area of the reservoir of the proposed project is 7057 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 4083 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.

The project proponent provided detailed response to the comments/ issues raised by SANDRP. The EAC did not find them to be adequate and asked for further details. The detailed response of Government of Madhya Pradesh is at**Appendix-I.**

The project proponent also submitted a detailed response to the issues raised by Gharial Conservation Alliance. These are at**Appendix-II.**

The EAC noted the response and clarifications of Government of Madhya Pradesh. The issue of interlinking of the project with PKC however, needs to be clarified and

clarification may have to be sought from the CWC, MoWR. Therefore, 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.

Agenda Item No. 2.4 **Bansujara Irrigation Project in Tikamgarh/Chhatarpur District of Madhya Pradesh. M/s. Department of Water Resources, Government of Madhya Pradesh -For Environment Clearance**

The Bansujara Dam Project is proposed on Dhasan river near village Ban in BadaMalhera tehsil of Chhatarpur district and village Sujara in Tikamgarh tehsil of Tikamgarh district of Madhya Pradesh. The coordinates of the dam site are 24^0-37'-32.87" N and 79^0-08'-22.91" E. The command area proposed to be irrigated for the project is 54,000 ha. The command area is plain and traversed by a number of small and big nallahs which form natural drainage of the area. Most of the stream and nallahs are non-perennial or seasonal in nature. Dhasanriver is also a seasonal river. The command has good slopes and drainage capacity.

The Bansujara Dam Project comprises of a masonry over flow gated structure located across Dhasan river flanked by earth dam in the main river Dhasan at Ban and Sujara village site. The maximum height of earthen dam is 21.33 m. The project comprises of the following main components:-

- Construction of a homogenous earth dam with concrete gated spillway of height 21.33 m.
- Length of dam shall be 1158.2 m
- Construction of a central gated spillway in 195 m length which will consist of 16 nos. of 12.2 m x 9.15 m size vertical gates.
- Water spread at FRL shall be 5201.71 ha with a gross storage capacity of 313.10 Mm^3.
- About 935.11 ha of cultivable area, 57.49 ha of forest land and 4209.118 ha of other land including road, streams, river, etc. will be affected.
- Construction of left bank canal of 90 km in length with 22.35 km of distributaries.

The total land required for various project components is of about 5886.97 ha. About 2935.11 ha of revenue/government land and 2894.37 ha of private land is to be

acquired. In addition, about 57.49 ha of forest land is also to be acquired. The cost of the project has been estimated as Rs. 980.23 crore.

The Gross and Live Storage Capacities of the project are 313.1042 MCM and 272.489 MCM respectively. The project envisages an annual irrigation of 54,000 ha including 37,000 ha in Rabi and 17,000 ha in Kharif seasons. Water required for irrigation is assessed as 225.77 MCM. The project has a 75% dependable yield estimated at 588.68 MCM for surface water and 58.868 MCM for ground water totaling to 647.54 MCM. The proposed cropping pattern is given as below:

Season	**Crop**	**Area (ha)**
Kharif	Rice – 1 HYVTP	6500
	Soyabean	1500
	Ground nut	1500
	Jowar	2000
	Pulses 2KH	5500
	Sub-Total	**17000**
Rabi	Wheat 0LV	25000
	Gram N1 RA	6000
	Oilseeds 2RA	3500
	Vegetables	2500
	Sub-Total	**37000**
	GRAND TOTAL	**54000**

The project will store water during the months of August, September and October to meet the water requirements for irrigation from October to February and also during the months of July and September. The river carries flow only during monsoon season. It is proposed to release 30% of flowduring monsoon season as environmental flow 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. 21 villages will be affected due to submergence. About 3770 families shall be losing land and 748 families will be losing homestead. The SIA report presents a detailed R&R plan based on National Resettlement and Rehabilitation Policy 2007. The project proponent also presented the livelihood plan for families losing entire land. This will be in addition to the norms of R&R plan based on National Resettlement and

Rehabilitation Policy 2007. The project proponent s also presented a detailed Local Area Development Plan with an expenditure of 0.5% of project cost.

Acacia nilotica, Tectonagrandis, Buteamonosperma, Mangiferaindica were the dominant tree species. Amongst shrubs,*Vitexnugundo, Achyranthesaspera, Calotropisprocera*were the dominant species. The dominant herbaceous species in the submergence area were*Cassiatora, Evolvulusalstroides, Cymbopogon martini, Xanthium strumarium, Argemonemexicana*. The tree density in the dam site and submergence area ranged from 74 to 82 per ha, which is quite low. No Rare, Endangered or Threatened species are reported in the project area.

The introduction of irrigation in the area will increase the agriculture production of the area, leading to the increased availability of fodder as a result of increased agricultural by products and residues. The increased level of fodder availability would reduce the presence on existing pasture and vegetal cover, which is a significant positive impact.

A representation was received from SANDRP,a detailed response to various issues raised by SANDRP were placed before the EAC during the presentation. The clarifications given are described in the following paragraphs:

The information submitted regarding the origin and existence of the rivers and their paths are matters of fact. River Dhasan originates at village Jashrath in Raisen district of Madhya Pradesh at Latitude $23^0$29'50"N and Longitude $78^0$30'54"E and meets river Betwa after travelling a distance of 365 km at village Dhir in Hamirpur district of UP. River Betwa originates at village Jhiri in Raisen district of MP at Latitude $23^0$44'39"N and Longitude $77^0$23'06"E and meets river Yamuna after traversing 590 km at village Badagaon in Hamirpur in Uttar Pradesh.

The land required for the canal network is estimated at 664.16 ha based on Stage-I survey of the entire main canal and sample survey of distribution network based on 25% area of the total command. The estimated total length of main canal, distributaries and distribution network are 66.86 km, 152 km and 138.5 km. respectively. As a considered policy adopted by the Water Resources Department, Government Madhya Pradesh only the bare minimum land is acquired for the canal network and a maximum ceiling of 1.5% of the CCA(full form) has been prescribed for land requirement for canals in major projects.

The details of land required for the project, based on revenue records and FTL line, are as below:

Component	Forest	Govt.	Private	Total (Ha)
Submergence area	57.49	2870.01	2274.21	5201.71
Dam	-	9.10	-	9.10

Canal network	-	44.00	620.16	664.16
Other works	-	12.00		12.00
Total	57.49	2935.11	2894.37	

After issue of the TOR by the MoEF, door-to-door survey was carried out by officers of the Water Resources Department in May-June 2013. Based on primary data collected in the survey the details of households likely to come under submergence are as below:

S. No.	**Village\District**	**Affected No. of Families**				**Total No. of Persons**
		SC	ST	Others	Total	
1	Dongarpur, Tikamgarh	7	-	76	83	398
2	Sujara, Tikamgarh	4	-	152	156	749
3	Purainiya, Tikamgarh	4	-	-	4	20
4	Barela, Chhatarpur	23	30	92	145	696
5	Acchelankhera, Chhatarpur	20	-	65	85	408
6	Sarakana, Chhatarpur	31	-	99	130	632
7	Sorkhi, Chhatarpur	78	-	67	145	690
	Total	**167**	**30**	**551**	**748**	**3593**

The cost estimates of R & R are based on existing National R & R policy. As and when the Law/Policy changes, it would be complied with by the State Government, and cost estimates will get suitably revised. With the present cost estimates, the BC(is this benefit cost, if so indicate it as B/C ratio) ratio (calculation scrutinized and finalized by BODHI) stands at 2.929. Keeping in view of high BC ratio the project would continue to be viable in the event of any upward revision of R & R costs arising out of changes in Law/Policy or variations in the number of PAFs at the time of giving their entitlement.

The pre and post project yields of various crops are given below (Table 4.3 SIA Report refers), and the same have been used for arriving at BC ratio of the Project:

S. No.	**Crop**	**Before irrigation (Quintal/Ha)**	**After irrigation (Quintal/Ha)**
	Kharif		
1.	Paddy	7	12
2.	Ground Nut	10	20
3.	Soybean	8	15
4.	Jowar	6	10
5.	Pulses	6	10
	Rabi		
1.	Wheat	18	30

S. No.	Crop	Before irrigation (Quintal/Ha)	After irrigation (Quintal/Ha)
	Kharif		
2.	Gram	10	20
3.	Vegetables	5	8
4.	Oil seeds	3	6

After issue of the TOR, the following procedure was adopted for arriving at the proposed command area:

- Tentative alignment of main canal was arrived at on the basis of toposheet studies.
- Thereafter, strip survey of main canal was done and first stage alignment of main canal was arrived at.
- The contours were delineated based on toposheet studies and command area was identified. The same was verified and corrected after preliminary field surveys.

A statement indicating village wise information of the proposed command area is given in Table 1.4 of SIA Report. Modifications in initial canal alignments and consequent changes are routine at the time of construction as the agency is allowed freedom to provide better designs and alignments for attaining cost and irrigation efficiency. However, the State Government ensures that change allowed is only for betterment and increasing benefits of the Project only.

The salient features of the proposed reservoir are as below:

Top of dam level	316.50 m
Maximum Water Level (MWL)	313.20 m
Full Reservoir Level (FRL)	311.80 m
Minimum Drawdown Level (MDDL)	303.30 m
Dead Storage Level	302.65 m
River bed level (RBL)	289.86 m
Water spread at FRL	5201.71 ha
Water spread at MWL	5662.35 ha
Gross storage at FRL	313.10 MCM
Dead storage at MDDL	40.311 MCM

Live storage	272.789 MCM
Submergence area at FRL	5201.71 ha

It is observed that beneficiary farmers dismantle and cultivate the area of field channels within a short span of construction. They prefer to make fresh water ways every year using tractor mounted mechanized plough, and thus, minimize diversion of land from agriculture. While carrying out seeding operations they normally spare one row for water way. In this backdrop money invested in construction of earthen field channels becomes infructuous after a while. Therefore, the Water Resources Department of MP has taken a policy decision to construct only pucca field channels and reduce the length of field channels to minimize land diversion from cultivation to construction.

Estimates for drainage requirements are based on field conditions and experiences in other major and medium projects in the Bundelkhand Region.

The command area is reported not prone to water logging, and in fact, has been suffering from excessive exploitation of ground water. The area has suffered severe droughts in 7 years in the last decade leading to a special Package for long term drought mitigating measures for the Bundelkhand Region from the Union Government. The ground water profile (as obtained from the studies commissioned by the Central Ground Water Board in collaboration with the State Government) given below corroborates the assumption regarding water logging:

- Baldeogarh and Jatara Blocks of Tikamgarh district are classified as “Semi Critical” blocks in 2009 by CGWB (Full form). The dynamic ground water exploitation reached up to 87%.
- The total dynamic ground water availability in these blocks reduced from 236.36 Mm^3 in 2004 to 158.57 Mm^3 in 2011.

The assumptions regarding irrigation efficiency are based on empirical evidence in major projects in MP. Increasing irrigation efficiency has been one of the core and salient objectives of the National Water Policy and the National Water Mission. The State Government has been successful in achieving and exceeding the designed irrigation potential in all existing major projects and most medium projects, and has full confidence for attaining the assumed irrigation efficiency of 54%.

Provision for drinking water and industrial water is kept in all major and medium projects keeping in view future demands and prospects. No departure is felt justified from this practice for the proposed Projects

The Fisheries Plan was presented before the EAC indicating the number of estimatedbeneficiaries, cost and production estimates, etc.

Hydrology of the Project has been approved at PFR stage by the CWC vide their letter No. MP/78/2009-PAC/230-233 dated 02.06.2010. BODHI, Bhopal has approved the hydrology at the DPR stage of the Project.

As per the standard practice being followed for river valley projects, the Social Impact Assessment is done for the representative sample area. There was on deviation from this standard practice.

The Project impounds only partial quantity of water available in the river stream during the rains. The 10 daily rain fall data confirms the fact that the river gets dry from January to July every year. Release of water from the reservoir for environmental flow for downstream and regeneration of water from irrigation would make the river flow conditions better. After the completion of the project, it is expected that the river would continue to flow up to March-April every year as against upto December at present.

It was explained that the command area of the Project has no linkages with the proposed Ken Betwa Link Project. Therefore, there is no overlapping of the command area of the Bansujara Project with any other project.

The State Government further informed that there are a few typographic mistakes in the EIA-EMP reports submitted by the Government. These mistakes occurred inadvertently and by oversight, and the same are regretted. The data and facts narrated above should be taken as final and settle all issues arising from inadvertent and typographic mistakes.

The EAC recommended Bansujara Major Multi-purpose Project for according Environmental Clearance subject to the following additional conditions:

(i) All promises and assurances made by State Government during public hearing to be fulfilled in letter & spirit.
(ii) R&R plan to be closely monitored and is to be ensured that all PAFs get adequate& timely compensation.

(iii) 30% flow in monsoon to be released towards environmental flow. State Government informed that there would be practically no flow during lean and other seasons.

(iv) The cost of Rs. 234.89 Crores proposed in the environmental management plan (EMP) has to be revised. This is in addition to the cost proposed in CSR activities. A detailed budget break-up has to be given.

(v) A grievance redressal mechanism is to be devised and put in place so that aggrieved PAFs and other stake holder may approach the Authority easily for resolution of any dispute/conflict.

Agenda Item No. 2.5 Ghogra Minor (Upper Ghogra) Irrigation Project in Sehore District of Madhya Pradesh.M/s. Department of Water Resources, Government of Madhya Pradesh – For Environment Clearance.

The Principal Secretary, Department of Water Resources, Government of Madhya Pradesh made a detailed presentation on the project The Upper Ghoghra Minor Irrigation Projectis located on river Ajnal near village Fandkipani (Piplani) in Nasrullaganj tehsil of Sehore District of Madhya Pradesh. The project envisages construction of a 17 m high & 1380 m long earthen dam across Anjal River to irrigate 1650 ha of farm land. The water spread area at FRL will be 140.10 ha with a gross storage capacity of 7.36 Mm^3. About 88.859 ha of cultivable area, 25.976 ha of forest land and 25.265 ha other land will be affected due to this project. The gross and live storage capacities of the project are 7.36 Mm^3 and 6.43 Mm^3 respectively. About 69 families are losing land. No PAF is losing homestead. The estimated cost of the project is Rs. 1891.12 lakhs.

The project is located at a distance of 8.75 Km from Kheoni Wildlife Sanctuary. Though the command area is less than 10,000 ha, since the project area falls within 10 km radius of a sanctuary, it was considered by EAC for River Valley projects at Central level. The clearance from NBWL has already been accorded to the project.

The total land required for the project is 140.10 ha. About 25.265 ha is revenue/ government land, 88.859 ha is private land and 25.976 ha is forest land. The stage -II clearance for 25.976 ha of forest land has been obtained (vide letter No. 6-MPC-029/201 I-BHO/817 dated 13.05.13).

The EIA-EMP reports have been prepared in-house by the Water Resources Department, Government of Madhya Pradesh. In finalizing these reports, the expert services of WAPCOS, MPPCB and Barkatullah University, Bhopal have been taken. The provision for setting up a Rain Gauge station has been made in the Project.

Details of the Costs estimates, including EMP costs given as below:

Sl. No.	Items	Total (Rupees in lakhs)
1	A- Preliminary	15.01
2	B- Land & R & R	286.08
3	C- Masonary	485.66
4	L- Earth Work	744
5	O-Mislenious	19.4
6	M- Plantation	23.36
7	P-Maintenance	12.3
8	**EMP**	325
9	**Total Cost**	1910.81
10	Establishment Charges @ 11% of Works	187.41
	Grand Total	**2098.22**

Details of cost estimates of Environmental Management Plan (EMP):

Sl. No.	Items	Cost (Rupees in lakhs)
1	Compensatory Afforestation	117.90
2	Plantation	23.36
3	Fisheries Development/Management	10
4	Air, Water and Noise Pollution Control Measures	2
5	Labour welfare (camp, fuel, food, sewerage and waste disposal, etc.)	3
6	Environmental Monitoring	0.50
7	Rain Gauge installation	2
8	Catchment Area Treatment Plan	160.50

9	Other expenses	5
	Total	**324.26**

RECOMMENDATIONS:

A representation was received from SANDRP, stating that 3 PAFs have not received compensation for their land. The committee mentioned that the project proponent to look into the matter and if the compensation has not been paid, then the same be made within three months. The action taken in this regard is to be intimated to the MoEF/EAC.

The committee also mentioned that the project proponent shall fulfill the commitments made during public hearing and with these conditions the committee recommended the environmental clearance (EC) to the project.

Agenda Item No. 2.6 Nyamjungchu Stage-I HEP, Arunachal Pradesh– For discussions on Environmental Flow.

The MoEF granted Environmental Clearance (EC) to NyamjangChhu HEP (780 MW) project on 19.4.2012 as per the provisions of EIA Notification, 2006 and its amendment in 2009 subject to specific and general conditions. A specific condition mentioned in the EC on environment flow is as follows:

- Minimum flow of 3.5 cumec or 20% of the average of 4 leanest months of 90% dependable year, whichever is higher shall be released from the barrage as environmental flow for sustenance of riverine ecology and downstream use. Average release during the monsoon shall be at least 30% of the total monsoon discharge.

The Project Proponent (PP) vide letter dated 11.2.2013 and subsequently Government of Arunachal Pradesh have requested/represented MoEF regarding the stipulation of 30% ecological release during monsoon period. The matter has been placed before EAC for reconsideration release of downstream ecological flow during monsoon period.

The PP intimated that the Nyamjang Chu River originates from Tibet and enters India about 10 Km upstream of the proposed location of barrage. The diverted flow is released back in to the river after power generation upstream of the confluence of NyamjangChhu and TawangChhu. About 500 meters downstream of tailrace outfall,

combined flow from NyamjangChhu and TawangChhu enters in Bhutan. Between the diversion barrage and tail race outfall, 8 tributaries (four on each banks) join NyamjangChhu River and contribute significantly towards its flow downstream of Barrage up to tailrace outfall.

The PP clarified that replies to the observation of the committee raised in the meeting held on 26th March, 2011 in respect of release of 30% monsoon flow, EAC in its minutes of meeting held on 17th September, 2011 recorded the following:

- *regarding drying up of river due to long Head Race Tunnel and diverting the flow of TaksangChhu, the PP informed that even after diverting 87 cumec water from NyamjangChhu river including maximum 5 cumec water from TaksangChhu, there will be sufficient discharge available in the main NyamjangChhu river as there are eight perennial streams joining NyamjangChhu between Barrage and TRT outfall. The detail of all these streams along with distances and available discharge during lean season and monsoon season was presented. The river is expected to have the flows along its length ranging from 5.4 cumec to 11.90 cumec during lean season and about 161.59 cumec during the monsoon season.*

- *on the observations of the Committee for release of the monsoon flow below the barrier required to be released, the project proponent clarified that based on the simulation study of power generation for 20 years on restricted drawl of 87m³/s, there is adequate availability of the monsoon releases downstream of the barrage for an average period of 90 days out of 120 days. During the 90% dependable year (1994-95), downstream release from barrage will be for about 60 days out of 120 days. Apart from this, contribution will also be there from the intermediate catchment downstream of barrage.*

- *as desired by the Committee, report of CIFRI was presented. The PP clarified that three season study report by CIFRI has indicated the critical reach for sustenance of aquatic life downstream of the barrier is located in a length of 300m immediately downstream of Barrage, where SumtaChhu from right bank joins the NyamjangChhu. Accordingly CIFRI has recommended the requirement of minimum flow of 3.5 cumec immediately downstream of barrage. The ecological flow suggested by CIFRI is higher than the threshold value of 15% of average lean flow season (November to March) flow. The PP clarified that they will also provide fish ladder for adequate and smooth migration of the fish upstream and downstream of the barrage and it shall be designed by an expert agency. The flow shall be monitored by providing sensing system to operate all the barrage gates for water regulation.*

It was also stated by the PP that location of Barrage was finalized to ensure availability of sufficient flows, water depth and velocity in the river downstream of barrage. Accordingly, flow of SumtaChhu stream located 300 m downstream of the barrage axis was not utilized thus ensuring sufficient environmental flow in the river, in addition to the flows to be released from the barrage. The contribution of SumtaChhu towards environmental flow varies from 1.90 cumec to 26 cumec during various seasons. The effect of back water due to water flow available downstream of barrage ensures adequate water depth and flow velocity for maintaining aquatic life. As such PP informed that they have catered to availability during monsoon of 38% towards the environmental flow as against the requirement of 30%.The committee therefore observed that adequate downstream flows are available in NyamjangChhu satisfying the ecological flow requirement.

The PP further submitted that the EAC after being satisfied with the replies of the PP on availability of water in the river, recommended in minutes of the meeting duly published on the web site of the Ministry, the environmental flow of 3.5 cumec during lean season. However no recommendation was given for release of ecological flow during monsoon period. The PP represented that imposing the additional condition for release of 30% of monsoon flow towards environmental flow appears to be an anomaly between the recommendations/ observations of the Committee during its meeting held on 17.9.2013 and the Environmental Clearance issued by MoEF. In view of this, PP requested for deletion of condition to release additional 30% of monsoon flow towards ecological flow.

The EAC, after hearing the submission of the PP observed that as far as possible the environmental flow releases should be adopted as per the latest recommendations of EAC. However, in view of the decision/ recommendation of earlier EAC, which was guided by relevant ToR and site specific conditions at that point of time, CIFRI may be requested to present the case again on Environmental Flow they have worked out for this project.

2nd Day (12.11.2013)

Agenda Item No. 2.7 Panyor H.E.P. (80 MW) on Panyor River (Ranganadi) in Lower Subansiri District Arunachal Pradesh–For ToR

During January - March 2002, NEEPCO commissioned three 135 MW units of Ranganadi Hydro Electric Project: Stage-I (RHEP-I) on the Panyor River, also known as the Ranganadi River. During the implementation of RHEP-I, NEEPCO envisaged the construction of another storage Project having installed capacity of (2x65) MW, about 5 km upstream of RHEP-I. The dam site of this Project was to be located at the downstream of the confluence of Kale River and Panyor River, near Yazali town.

During preliminary studies, it emerged that the storage type RHEP-II Project could involve considerable R&R issues resulting from large submergence of the reservoir proposed for the Project. With the objective of pre-empting the possibility of the R&R issues hindering the Project's implementation, an alternative site was identified on the upstream of Yazali town. The Project, thus relocated, was named as Panyor Hydro Electric Project (PaHEP) and was conceived as a RoR-type Scheme with provision of diurnal storage for Peak Power generation.

On February 25, 2009, Raajratna Energy Holdings Private Limited (REHPL), Hyderabad, signed a MoA with GoAP whereby REHPL was to undertake preliminary Investigation for preparation of Feasibility Report, Detailed investigation for DPR preparation and subsequent implementation of Panyor HEP on BOOT basis. Based on topographical survey and investigations, REHPL assessed the Power Potential of the Project as 80 MW.

To give additional benefit of increased firm power to downstream project Rangandi-1 of NEEPCO, it has been considered to implement Panyor project as a storage project

The proposed Panyor HEP site is situated in Lemma Village, 5 km from Yazali town and 90 km from North Lakhimpur in Arunachal Pradesh. The project has been envisage as a storage project (Peaking) by constructing a dam across River Panyor, a tributary of Brahmaputra.

The proposed Panyor Hydro Electric Project has been planned as a storage project (Peaking) by constructing a dam across River Panyor, a tributary of Brahmaputra.The project consists of a concrete gravity dam having height of 108 m from the River bed level. The Powerhouse is located near to the Toe of the dam with an installed capacity of 80MW (2x40). The catchment area of the project is 1315 sqkm and the Reservoir area at FRL is 312 Ha. There is a spillway proposed at the central portion of the dam having 5 bays of 12m clear opening, each controlled by radial gates of size 2x14 m.

The river bed level at the dam site is at El. 625 m, the optimal level of F.R.L has been fixed at El. 730 m. The top of dam is kept at El. 733 m with 3 m free board. The total length of dam at top is 335 m, whereas at bottom it is only 80 m wide. The river bed level near the outlet of Tail Race channel is 620 m. The tailrace is a channel having length of 120 m. The water released from the power house will join the river Panyor before the confluence of PepfiNalla.

The revised Panyor project layout consists of a concrete gravity dam having height of 108 m from the river bed level. The total length of dam at top is 335 m, whereas at bottom River bed side it is 80 m. The powerhouse is located near to the toe of the dam with an installed capacity of (2x40) 80 MW. The catchment area intercepted at the dam site is 1315 sq. km. The submergence area at FRL is 312 ha. A spillway is proposed at the

central portion of the dam having 5 bays of 12m clear opening, each controlled by radial gates of size 12x14 m.

The FRL is fixed at 730 m. The top of dam is kept 733 m with 3 m free board. The river bed at dam site is at 625 m and at the confluence point of Tail Race with river is 620 m.

The power intake is proposed from the left bank of the dam with suitable intake structure. One pressure shaft / penstock of 5 m dia with a length of 360 m, bifurcated into two near to powerhouse is proposed for water conductor system.

A surface power house will be located on the left bank of River Panyor. The capacity of the Power House is 80 MW with 2 units of 40 MW each with vertical Francis Turbine designed for varying head from +730 to 690 m (FRL to MDDL).

The tailrace is proposed by a channel having length of 120 m. The discharge water is allowed to join the existing river at Elevation of +620m before the confluence of PepfiNalla.

The total land requirement for various project activities is about 390 ha out of which 312 ha would come under submergence. About 25 ha of forest area is to be acquired for the project.

The Panyor basin lies in the coordinates from latitude 27° 20’ 00’’ to 27° 40’ 00’’N and Longitude 93° 15’ 00’’ to 93° 50’ 00’’E. The river Panyor originates from the foothill of the Himalayas at an elevation of 3400 m. NiyarpungPabung is the name of the river near its source. After coming down to an elevation of 1263 m, the NiyarpungPabungriver meets a rivulet named Niyorke near Mangio village, and then it flows as the Panyorriver. The catchment area at dam site is 1315.5 km^2. The Panyor meets several rivulets named Pering, Pakh, etc and flows in a south-easterly direction through the Lower Subansiri district. Further, it flows in the southerly direction to cross the border of Arunachal Pradesh near Kimin. After coming out of Arunachal Pradesh, it flows through plains of Assam as Ranganadiriver, and ultimately joins the mighty Brahmaputra river. The river flows in steep bed slope of about 1:13 from its source up-to an elevation of 1260 m. After this, the river bed slope becomes flatter. The average bed slope from the source to the dam site of the proposed project is about 1:26.5.

A long term discharge series of 23 years i.e, 1978-2001 based on available data was approved by CWC in 2001 for NEEPCO’s proposed RHEP – II project. This approved discharge data series has been adopted for Panyor Hydro Electric Project, located upstream of NEEPCO’s proposed RHEP – II Project, by suitably reducing the flow on catchment area proportionate basis. The 10-daily flow summary of water availability series (1978-79 to 2008-09) is computed at Panyor diversion site. The annual flow with

50% and 90% dependable years correspond to 1994-95 and 1982-83 respectively and annual yields work out to 2330 MCM and 1541 MCM respectively.

The EAC noted that river Panyor is part of Brahmaputra basin, and the proponent have reduced the storage capacity of the project with respect to Ranganadi Stage-II Hydroelectric Project. Therefore, EAC recommended that they need to consult the Government of Arunachal Pradesh and consider whether concurrence of Standing Technical Committee of CEA is also required.

The EAC also recommended that the project proponent be asked to furnish responses to various issues raised by SANDRP with respect to the project. A copy of the representation submitted by SANDRP was handed over to the project proponent.

Also the present prevalent norms of environment flow release of 20% of average of four leanest months in lean season, 30% of releases in monsoon months and 25% of releases in other months are required to be followed for this project as well and accordingly capacity & size of the project may be worked out.

It was also recommended that one representative of the State Government be asked to attend EAC meeting where this project will be re-considered. The EAC also asked WAPCOS, the consulting firm to be more circumspect and serious in preparing such reports. EAC noted that the quality of this report was much below the excepted level.TheProject proponent was asked to re-submit the proposal for TOR after attending to the above issues. A revised Form-1 is also to be submitted.

Agenda Item No. 2.8 **Nakthan HEP (520 MW) in Kullu District of Himachal Pradesh by M/s. Himachal Pradesh Power Corporation Ltd.– For extension of validity of ToR and Thana-Plaun HEP (191 MW) of HP Power Corporation Ltd. in District Mandi of Himachal Pradesh – For extension of validity of ToR**

(A) Nakthan HEP (520 MW) in Kullu District of Himachal Pradesh by M/s. Himachal Pradesh Power Corporation Ltd. – Extension of the Validity of TOR.

The Nakthan HEP (520 MW) in Kullu District of Himachal Pradesh was granted Scoping/TOR clearance on 26.8.2011 by the MoEF. The validity period of 2 years ended on 25.8.2013. The project proponent requested for 1 year extension of the validity on the following grounds:

(i) Due to severe winter, the data was not collected and will be completed during this year
(ii) Finalization of EIA/EMP and submit the documents to HPSPCB for conducting the public hearing.

The committee considered the request made by the project proponent and agreed for 1 year extension of the validity of TOR for 1 year i.e. from 26.8.2013 to 25.8.2014. The committee also mentioned that the PP should complete all the tasks during this 1 year extension period and submit EIA/EMP Reports.

(B) ***Thana-Plaun HEP (191 MW) in Mandi District of Himachal Pradesh by M/s. Himachal Pradesh Power Corporation Ltd. – Extension of the Validity of TOR.***

The Thana-Plaun HEP (141 MW) in Mandi District of Himachal Pradesh was granted Scoping/TOR clearance on 29.11.2011 by the MoEF. The validity period of 2 years will come to an end on 28.11.2013. The project proponent requested for 1 year extension of the validity TOR.

(i) Due to severe winter, the data was not collected and will be completed during this year
(ii) Finalization of EIA/EMP and submit the documents to HPSPCB for conducting the public hearing.
(iii) During study and investigation, the hydrological data have been verified and found that more water is available. Based on this, the capacity of the project has been enhanced from 141 MW to 191 MW.

The committee noted that the capacity of the project has been enhanced from 141 MW to 191 MW and it is not a case of merely extension of the validity of TOR. The scope of the project has been changed as the capacity has been substantially revised to 191 MW. Therefore, the project will be considered & examined afresh. The project proponent informed that the parameters have not been changed except a few. However, the EAC mentioned that fresh Form-1 has to be submitted to the Ministry giving all the details including a comparative table of original vis-à-vis revised proposal for re-consideration of the during the next EAC.

Agenda Item No. 2.9 Kangtangshiri HEP Project (80 MW) in West Siang District of Arunachal Pradesh by M/s Kangtangshiri HEP Ltd.For 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 14.9 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 Kangtangshri 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. 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. About 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. Total cost of the project is about Rs. 485 Crores.

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, compensation for forest land, 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, 2010 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.

The project proponent explained that in the Siyom catchment, the CWC approved 25 years of 10 daily discharge flow series for planning Siyom HEP. Since this is the nearest HEP to Kangtangshiri diversion site, the same flow series have been used for deriving flow series to this site. The flow series of Kangtangshiri has been developed from approved flow series of Siyom HEP by using coefficients recommended by CWC. The annual average rain fall is 2734 mm. The standard project flood is 2700 cumec& probable maximum flood is 3200 cumec. It was explained that the flow series is for a period of 25 years (1978-79 to 2008-09) and 1978-79 has been considered as 90% dependable year.

The environment flow has been calculated as 20% of the average discharge in four leanest months in 90% dependable year and this has been kept constant throughout the year. In addition to this one major nallah (DohakSokongNalla) joins with Yargyap Chu River at downstream of TWL, Kangtangshiri HEP. Catchment area of the Nallah is about 11.36 Sq-Km.

On being asked for higher releases in monsoon and other months, it was presented that even in 90% dependable year, an average of 22% spills will be available in the 10 daily values in 90% DY. Average spills in 75% and 50% DY are of the order of 32.03% and 44.6%.

The silt yield index (SYI) method has been used to prioritize sub-watershed in a catchment area for treatment. The area under very high and high erosion categories is to be treated at the project proponent cost. In the catchment of the proposed KangtangshiriHEP, there is no area under very high erosion category. Hence, CAT plan has been suggested for high erosion category, as a part of the present EIA study. The total area under high erosion category is 17975 ha, which accounts for about 40.67% of the total free draining catchment area. A combination of Engineering and Biological treatment measures has been proposed. A sum of Rs. 684.3 lakhs has been allocated for CAT Plan.

It has been indicated that as part of the Biodiversity Conservation Plan, plantation 2 species of herbs namely ***Aconitum ferox*****and*****Picrorhizakurroa***which are medicinally important fall in vulnerable category will be taken-up with the help of Forest Department for monitoring.

Muck Management Plan for the project was also discussed in detail. It was submitted that the total quantity of muck, including swell of 40% to be generated during construction of the project is 8.80 lakh m^3 out of which 5.36 lakh m^3 is proposed to be utilized in project construction. The balance 3.64 lakh m^3 will be disposed at 4 (four) designated dumping sites in 5 ha of area. The pictures and the sections of proposed dumping sites revealing that the distances of proposed sites from HFL of river is more than 50 m were shown. A provision of Rs 5.2 Crores has been earmarked for muck management which will include construction of RCC walls, PCC cladding, retaining walls, boulder crate walls and leveling the area, terracing and implementation of various engineering measures and development of vegetation over dump sites as per norms prescribed by Arunachal Pradesh Forest Department.

Seven (7) species of fish reported in Yargyap Chu River during primary survey Schizothoraxrichardsonii of Cyprinidae family is the only species which falls in ‘Vulnerable’ (VU) category. The remaining species are declared as common or exotic in introduction.

It was noted that the total submergence area is about 9.5. ha and project proponent proposed the development of reservoir fisheries. The fishery development & management plan has been proposed for the conservation of indigenous fish species. It was also mentioned 1 hatchery is proposed in consultation with Fisheries Department, Government of Arunachal Pradesh. The hatchery is likely to cater fingerlings requirement of reservoir and upstream/downstream of the river. The plan will be implemented with the help of State Fishery Department and an amount of Rs. 61.30 lakhs has been allocated under this plan.

As a part of Local Area Development Plan, it is proposed to develop education, improvement of public health facility, drinking water facility etc, in various villages in the periphery of the affected villages. The following activities are proposed under of Local Area Development Plan, following were proposed:

- Up-gradation of school fixtures, equipment
- Improvement of drinking water and sanitation facilities
- School bus service
- Scholarship to students

Based on the field assessment, it is observed that, in all there are 60 project affected families who are expected to lose land. No family is likely to lose homestead.

The following measures have been recommended under R&R :

- Compensation for trees and traditional rights over forest land.
- Schedule tribe family grant as per NRRP, 2007.
- Livelihood grant: Livelihood grant @ Rs.1,00,000/PAF.
- Vulnerable person family grant: Pension of Rs. 500/- per month for lifetime for each applicable family
- Scholarships and Other skill development: Scholarship of Rs 500/month/One Child from each PAF.
- Training facilities to development of entrepreneurship: Grant of Rs 2000/month/One Child from each PAF.
- Provision of Electricity: 100 units of electricity per month free of charge for a period of10 years/PAF.
- Fishing rights : Fishing rights in the river/ reservoir to PAF.

The total amount proposed for implementation of Environmental Management Plan (EMP) is Rs.2383.80 lakhs.

The EAC after deliberating on various issues have suggested certain modification in the project and desired the following additional information/clarification:

- Point-wise response to the observations received from SANDRP with respect to the project is to be submitted

- 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 required to be followed for this project as well. The project proponent informed that if they consider new environmental guidelines, capacity of the HEP come down to 66 MW against proposed 80 MW. The committee mentioned that the MoEF guidelines is to be followed and environmental flow is to be maintained to ensure ecological integrity of the river.
- Noise resonance effect due to blasting to be considered in EIA&EMP report
- The committee enquired about free flow distance between Kangtangshiri TWL and d/s FRL of Rego HEP. The Consultant & Project proponent informed that as decided by EAC during 48th EAC meeting, 500 m free flow stretch has been kept between TWL of Kangtangshiri HEP and FRL of Rego HEP. The EAC opined that preferably 1 km free flow stretch needs to be maintained. But, in case earlier EAC gave some dispensation based on certain facts/figures, this may be reconsidered in the light of the said EAC recommendations.
- The committee desired to knowif the gradient of the river at this stretch is high. In that case, 1 Km free flow requirement may not be required. Anyway, this should be justified by the developer based on the available information.
- Availability of *Salvelinusfontinalis* (Arctic charr) has been reported in EIA, while as per records,this species is introduced only in one trout farm of H.P., so its availability from this river stretch is not possible. Therefore the fish diversity of the river need be verified.
- Green belt development should be taken-up immediately on acquisition of land. Tall plant species may be considered for plantation.
- Allocation for CAT plan is to be increased.
- Permanent Staff should be provided for Disaster Management Plan (DMP). The DMP cost should be divided in to capital as well as recurring costs.
- 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 should revised
- The overall EMP cost should be revised keeping especially the CAT plan, LADA activities, fisheries management and compensatory afforestation & bio-diversity conservation in view.
- All commitments made in the public hearing should have to be fulfilled by the project proponent
- In Environmental Monitoring - 2 species of herbs namely ***Aconitum ferox*****and*****Picrorhizakurroa***which are medicinally important should be monitored regularly for their improvement in vegetation, growth and percentage of survival during the construction and operation phases.

The project proposal will be reconsidered after receipt of the above mentioned information/clarification.

Agenda Item No. 2.10 Sonthi Lift Irrigation Scheme in Gilbarga District of Karnataka by M/s. Krishna BhagyaJala Nigam Ltd – For consideration of TOR

The barrage of the proposed Sonthi Lift Irrigation Scheme is proposed at Sonthi village of Chittapurtaluka in Gulbarga District. The coordinates of the barrage site are 16^0, 49' 50" & longitude of 76^0, 55' 45". The storage capacity envisaged is 2.89 TMC of water including dead storage of 0.265 TMC. The project shall benefit Chittapurtaluka of GulbaragaDistirct and Yadgirtaluka of Yadgir District. Gulbarga district is one of the most drought prone areas in the state of Karnataka. The district is one of the most backward districts in the state and occupies lowest position in economic as well as human development.

It was explained by the project proponent that the project has been started as minor irrigation barrage with submersible bridge to facilitate communication facilities to famous pilgrimage center-Sri Chandralamba Devi Temple and also between the two TalukasheadquartersChittapur and Shahapur and to provide irrigation facilities to 797 Ha of land in Rabi season. Now Sonthi MI Barrage is proposed to be modified as " SONTHI LIFT IRRIGATION SCHEME" contemplates to utilise 4 TMC of water through lift canals to irrigate GCA of 16800 ha of land situated on the left bank side of Bhima river covering ChittapurTaluka of Gulburga district and YadgirTaluka of Yadgir district.

The submersible bridge is proposed to be modified as non-submersible bridge and instead of needle gates automated vertical type crest gates are proposed. Sonthi Lift Irrigation Scheme, involves, construction of gated barrage across River Bhima near Sonthi Village in ChittapurTaluka. The length of barrage is 665 m. The length of earthen dam towards the left flank is 275 meters and on the right flank is 180 m.

The spillway crest is kept at RL 368.00 m and Full reservoir level is at 376.00 m. The Maximum water level is envisages at 376.00 m. The top of the barrage is fixed to RL 380.250 m. The life of the barrage is considered for 100 years. The project requires only 0.7 ha of forest land for its construction of canal from Yadgir Reserve Forest. The Sonthi Main Canal fromchainage3.885 km to 4.275 km passes in the border line of the forest boundary for which the proposals have been submitted on 29.12.2011 to the State Forest Department. The total cost of the project is Rs.502.05 crores. The Benefit Cost ratio of the project is 1.75 and the cost per hectare of area irrigated works out to Rs. 2.98 Lakhs.

The scheme comprises of an intake channel of 3 km length to draw water from the foreshore of the reservoir at Kollur village and construction of Jackwell at the end of intake channel near Tarkaspet village and there by lifting the water by installing 3 vertical turbine

pumps, including a standby pump of 1944 HP capacity to an height of 43.20 m through raising mains of 2.20 m diameter for a length of 4.32 km. A delivery chamber is constructed from where the canal network will start in a gravity flow for irrigating 16800 Ha of land of Gulbarga and Yadgir districts.

During Kharif season, Tur Dal, Bajra, Jowar, Oil Seeds, Pulses, Ground Nut and Maize. During Rabi season Toor, Bajra, Groundnut, Jowar, Sunflower, Pulses, Wheat, Cotton are the major crops grown in the area. In addition, cotton and chillies are the two seasonal crops grown in the area.

The catchment area intercepted at barrage site is 69184 km^2. For assessing the availability of water at Sonthi barrage site, the observed flow data at the C.W.C. Gauging Stations namely, at Takali (CA= 33916 Sq.Km) and at Yadgir (CA= 69863 Sq.Km) on river Bhima at Wadakbal on river Sina (CA = 12092 Sq.Km) where in the flow data is available from 1965-66 to 2005-06 have been used. The percent monsoon flows of river Bhima at Takali, river Sina at WadakbalandofriverBhima at Yadgirwere arrived at by dividing monthly flow of the corresponding year by the monsoon total of that year.

By considering the 75 % dependable yield of Bhima at Sonthi project site from total Catchment works out to 46.77 TMC. Gross crop water requirements have been worked out based on the modified Penman's method. The total water requirement for irrigating 16800 ha with above cropping pattern works out to 100.30 Mcum (3.54 TMC) and the evaporation losses to 10.15 Mcum. (0.36 TMC).

The intensity of the irrigation is kept at 105% by providing 2.3 TMC during Kharif season, 1.4 TMC during Rabi and 0.3 TMC for two seasonal crops. The proposed project will benefit total 31 villages includes 9 villages of Chittpaurtaluka of Gulbarga District and 22 villages of Yadgirtaluka of Yadgir district.

The project involves submergence of one village (Hursagundagi). The total land required for the project is 1412.81 ha for dam and allied works including submergence. About 0.78 ha of forest land is to be acquired and the remaining land (1412.03 ha) is private land. The Clearance for Diversion of forest land has already been accorded by the Southern Region office of Ministry of Environment and Forests.

There is no protected, eco sensitive, wildlife area as notified in Wildlife (Protection) Act, 1972 is located in 10 km of proposed command area. The project proponent had applied for TOR clearance in March 2012. It was informed to the EAC that during the intervening period, 3 season field studies have also been completed. The Government of Karnataka informed that they had gone ahead with data collection as per extant provision of EIA Notification, 2006. The project proponent presented the draft TOR and the EAC suggested that following aspects be included in the TOR:

- Soil sampling should be done at two more locations

- At two to three locations, soil profile should be studied in the dam area

It was also informed to the project proponent that a complaint/representation against the project from SANDRP has been received. As per the complaint, construction work for the project has already been started. In that case, this is a violation of Environmental Protection Act, 1986. The project proponent was given a copy of the complaint and was asked to give a detailed response. The EAC also advised MoEF to write to State Government on the violation and take necessary action/ settle in accordance with provisions of prevalent office memorandum on such violation. The proposal may be placed before EAC only after this issue is resolved.

Agenda Item No. 2.11 Dinchang HEP (252 MW) in West Kameng District Arunachal Pradesh by KSK Dinchang Power Company Pvt. Ltd. – For downward revision of the capacity from 360 MW to 252 MW & extension of the validity of ToR.

The project proponent made a detailed presentation on the project. The project is proposed on Digo River in West Kameng Districts of Arunachal Pradesh. The Project envisages construction of 69 m high concrete dam from the deepest foundation Level across Digo River which is 4.5 km downstream of Selari village to generate 360MW hydropower. This is a run-of-the river scheme. The total land requirement for the project is 122.13 ha out of this 36 ha is forest land and 46.13 is private land. Total submergence is about 23.3 ha. An underground powerhouse is proposed on the left bank of the river with 4 units of 90 MW each. No National park /Sanctuary/Biosphere Reserve/Historical monument exits in the vicinity of the project area. The total project cost isRs. 2410 Crores.

The Scoping/TOR Clearance to this project was granted on 8.11.2011 for 360 MW capacity.

The project proponent intimated that during the course of detailed study & investigation, it was noticed that part of land on the right bank of river above the El. 1145 m was under occupation by DRDA. On taking up the matter with Government of Arunachal Pradesh and based on land Revenue Department's letter dated 12.6.2013, the Government of Arunachal Pradesh revised the upper limit of the project to El. 1138m. The lower limit i.e., the TWL remains unchanged at El. 800m. The said change in upper limit of the project also necessitated change from Dam to Barrage and also lowered the Power potential from 360 MW to 252 MW. The revised power potential of 252 MW accepted by CEA vide letter dated 13.9.2013. The lowering the FRL , reduced the submergence area from 23.3 ha to 6.71 ha and also leads to free riverine flow of approximately 2.4 Km (against earlier 1Km) up to TWL of upstream Khuitam Project.

It was also intimated that immediately on acceptance of the revised FRL at El. 1138 m by the Government during July 2013, the Land & Socio Economic Survey was started

but the same could not advance due to monsoon season. The said Land & Socio Economic survey, its compilation in EIA/EMP report and conducting Public Hearing is likely to take about one year time and accordingly the developer has requested for extension of validity of ToR for one year (beyond 7.11.2013) i.e., overall up-to 3rd year (7.11.2014).

The proponent has made a brief presentation of the comparison vis-a-vis old and downward revision of the project, which is presented below:

Sl.No	Items	Original Project (360 MW)	Revised Project (252 MW)
1.	Diversion Structure	Concrete Dam (42 m high above river bed)	Barrage (21 m high above river bed)
2.	FRL	El. 1160 m El. 1157 - decided to lower during ToR meeting to increase free flow of river	El. 1138 m.
3.	TWL	800 m.	800 m.
4.	Submergence	23.3 ha	6.71 ha
5.	Length of Reservoir	2.05 Km.	0.93 Km.
6.	Total Land Requirement	122.13 ha	105.20 ha
7.	Free flow (from Dinchang reservoir tip to TWL of Upstream Khuitam Project	1 Km.	2.4 Km.
8.	Design Head & Discharge	330 m / 120 Cumecs	312 m / 89 cumecs
9	Estimated Annual Energy	1445 MU	1093 MU
10.	Project Cost.	2410 Crores	1980 Cores

The committee noted that the environment impact due to lowering of FSL is appreciably less and is welcoming exercise in downward revision of the capacity. However, the committee mentioned that the latest norms of MoEF for environmental flow, muck disposal, cumulative impact of up-stream/downstream projects and biodiversity

study is to be carried-out by associating a reputed organization to be recommended either by WII, Dehradun or by ICFRE, Dehradun. The committee agreed for:

(i) Downward revision of the capacity of the project from 360 MW to 252 MW

(ii) Extension of the validity of ToR for 1 year from 8.11.2013 to 7.11.2014.

The EAC also asked the proponent to complete remaining works and submit EIA/EMP within this extended period.

Agenda Item No. 2.12 Teesta Low Dam I & II (combined) HEP (3x27 MW) of WBSEDCL in Darjeeling, West Bengal – For ToR

The project is located on BadiRangit or Great Rangit River, a principal tributary of Teesta, near Melli village of Darjeeling District in West Bengal. Access to the project site lies from right bank from Tessta Bazar Bridge on River Teesta on Siliguri- Gangtok route NH 31. All the project components are located on the right bank of the river with its power house at the dam toe. The dam site is located at about 2km upstream on river Rangit from TeestaRangit confluence. The project can be accessed from Siliguri in Darjeeling district of West Bengal. The left bank of the project can be accessed from Siliguri – Jorthang Road at about 4 km of Melli town. The project can also be accessed from the right bank side by a road offtaking from Teesta Bazar bridge upto the project site. Confluence of Bari Rangit and Teesta is mid-way of Melli and TeestaBazaar .Bagdogra is the nearest airport and New Jalpaiguri is the nearest broad gauge railway station.

The Teesta Low Dam (I and II) Combined HEP is a run-of-the-river scheme in Darjeeling District in West Bengal. In the year 2009, Ministry of Environment and Forests accorded approval of TORs as per the provisions of Environment Impact Assessment Notification, 2006 vide letter no. J-12011/23/2009-IA.I on 8th July, 2009. There is no change in dam site. However, some optimization have been proposed keeping in mind the latest stipulations of MoEF with regard to Environmental Flows, clear free stretch, etc. and improvement in water availability due to utilization of discharge data for Reshi G&D site, which was not available earlier. The project proponent requested for approval of TOR for the enhanced capacity from 60 MW to 81 MW.

The comparative statement of the earlier and the revised layout is given as below:

S. No.	Parameter	Old Layout	Revised Layout
1.	Location	Dam Site at 2 km u/s of Teesta–Rangit confluence on Rangit river	Same
2	Dam Top Level	261m	258m
3.	Hydrology	Av. Flow in 90% year= 123 cumec	140 cumec
3.	FRL	259 m	254 m
4.	Installed Capacity	(4*15) 60 MW	(3*27) 81 MW
5	Rated Discharge, cumec	155 cumec	207 cumec
6	Gross Head	49m	46m

The revised layout of Teesta Low dam I&II (Combined) project envisages to utilize the head of 46 m between the TWL of Jorthang Loop on Rangitriver at EL 258 m and minimum TWL of Teesta LDP I&II EL 208 m at proposed dam axis.

The project consists of a diversion dam, an intake with three intake tunnels, a water conductor system, a surface power house with surface transformer hall and a tail race channel.

The diversion dam is envisaged to be a concrete gravity dam of about 74.1 m in height with its top level at EL 258 m, FRL at El 254 m and MDDL at El 251 m. The dam is provided with 8 sluice radial gates each of 11.25m X 15.25m with one overflow spillway gate to surpass design discharge PMF of 21462m^3/s. The intake structure shall consist of three bell mouth opening of 5m dia. with trash rack. Three horizontal/vertical steel lined underground pressure shafts, each of 5m to feed the three Francis turbine of 27 MW each.

A surface power house of 86m long x 20 m wide x 44 high has been provided to house 3 units of 27 MW Francis turbines (total capacity 81 MW). A surface Transformer deck at Elevation 217.6 m of size has been provided to accommodate (3+ 1 spare) nos. three phase 220 kV transformers, each of capacity 33 MVA. 110 m long two concrete lined conduit has been proposed to discharge the tailrace water directly into the river at an elevation of 208 m.

The annual energy generation from the project has been assessed as 344.80 GWh on 90% dependable basis. The project would also provide peaking benefits of 81 MW round the year. The project is estimated to cost Rs. 859.1 crore.

The project is proposed to be completed in a time frame of about five and half years, including the time for establishment of access roads and development of other infrastructural facilities.

The land requirement of the project is 205 ha. The details are given as below:

Component	**Area (ha)**
Diversion structure including Reservoir	186
Pressure Shaft	1.5
Power House and Switchyard Tail race	10
Dumping Yard	2
Borrow areas	1.5
Roads Colony	4
Miscellaneous	
Total	**205.0**

As per the present level of investigations, about 15 ha of private land and 190 ha of forest land is to be acquired.

The project proponent confirmed that Environmental Flows as per the following norms shall be maintained:

- Monsoon Season : 30%
- Lean Season : 20%
- Non-monsoon-non-lean season : 25%

The project proponent confirmed that three season field studies have been completed in the year 2012 – 13.

The EAC was intimated that at present social survey of PAFs is pending, after which the EIA / EMP report shall be prepared. Thereafter the Public Hearing would be held.

The project proponent confirmed that they have submitted the TOR for Basin Study for Teesta Basin (West Bengal portion) to MOEF for approval. The project proponent also confirmed that any recommendation of the Teesta Basin study pertaining to the project shall be acceptable to them.

The EAC recommended a fresh ToR for the enhanced capacity of 81 MW. On the request of Government of West Bengal for using collected data, the EAC also recommended that data to be used in the CEIA study should not be more than three years old.

The following additional conditions would be applicable for the ToR:

(i) A table of 10 daily water discharges in 90% dependable year showing the intercepted discharge at the dam, the environmental and other flow releases downstream of the barrage and spill are to be provided in hydrology section of EIA.

(ii) The Muck disposal sites should be selected at-least 30 m away from the HFL of the river/stream and details shall be shown including location, quantity of muck to be disposed off vis-à-vis the total area for dumping.

(iii) A site-specific study to be carried-out for establishing the proper environmental flow release during monsoon, non-monsoon and lean months. Environmental flow must mimic the pre-dam flow pattern of the river for sustaining the aquatic bio-diversity together with downstream user need and accordingly, water withdrawal for power generation is to be regulated. Minimum environmental flow release would be 20% of average of four months of lean period and 25% of flows during non-lean non-monsoon period corresponding to 90% Dependable year. The cumulative flow releases including spillage during monsoon period should be 30% of the cumulative inflows during the monsoon period corresponding to 90% dependable year.

(iv) To include observed flow at G&D site, rainfall data and intermediate catchment mapping along with its contribution in EIA report.

(v) Biodiversity study is to be carried-out by associating a reputed organization to be recommended either by WII, Dehradun or by ICFRE, Dehradun.

(vi) Cumulative impact of upstream/downstream project is to be taken into account, if any.

(vii) The Resettlement & Rehabilitation plan should as per the latest norms and R&R Plan, 2007 should be followed. The committee also suggested that the project proponent should also keep in mind the land reforms act of Government of India, if it is enacted in R&R Plan. Empowerment of local community in the project activities should be ensured.

(viii) Kanchenjunga Biosphere reserve and Mahananda Sanctuary seem to be in near vicinity from the Project location (should be confirmed from respective forest department). Therefore, the EIA is to assess flora and fauna in the project area particularly under endangered category as per IUCN Red list. Kanchenjunga National Parks are in near vicinity. Therefore, EIA/EMP is to assess flora & fauna.

(ix) The outcome of basin study of Teesta would be binding on the developer for the project.

Agenda Item No. 2.13 Sahstrakund HEP in District of Yeotmal by GMIDC, Aurangabad- Adequacy of EIA

The project proposal is for generationof 25 MW hydropower and provide irrigation facility to 9999 ha of area. This is a Category-B project. This project was earlier submitted to MoEF for consideration. The Ministry had written vide letter dated 23.03.2010 to Upper Penganga Project Circle mentioning that the project is Category-B project should be dealt by SEIAA.

Now, the project proponent submitted the proposal once again to MoEF for Environmental Clearance. It has been mentioned that the project was submitted to SEIAA. The SEIAA issued ToR on 29.07.2010. The EIA study was carried-out and the public hearing was conducted on 11th 12th January, 2011 in Nanded and Yavatmal Districts of Maharashtra. The final EIA was submitted to SEIAA for EC. This project was considered by SEIAA in its meeting held on 12.09.2011. The following were recorded in the minutes by SEIAA:

(i) The project site is located less than 10 Km from the protected site
(ii) Submergence area is 6000 ha of area for irrigating 9,000 ha of area
(iii) Public hearing conducted on 12.01.2011 faced with major opposition.

The EAC asked the project proponent to apply for a fresh ToR first as this is a category 'A' project.

Agenda Item No. 2.14 Lower Kopili HEP (120 MW) in KarbiAnglong 7 North Cachar Hill Districts of Assam by M/s. Assam Power Generation Corporation Ltd. – For reconsideration of ToR.

The project for granting ToR was earlier considered during 26th-27th December, 2012 and subsequently during 22nd – 23rd March, 2013 by EAC. The project proponent has brought down the capacity from 150 MW to 120 MW factoring into dedicated release of environmental flow. Of this 120 MW, a dam toe power house of 10 MW has also been proposed with 2x2.5 m +1x5 MW combinations. The EAC during its 68th meeting sought additional information/clarification to enable its reconsideration. Accordingly, on receipt of clarification and additional information, the project was included for consideration of 69th EAC meeting.

The EAC felt that high acidity of river water was a serious threat for both capital cost and life of electro-mechanical component of the project post commissioning. The project proponentsubmitted their response about the viability of the project. During the presentation, response to representation received from South Asia Network on Dams, Rivers and People was also given. The key issues discussed during the meeting were:

Dam Induced Flood

The catastrophic flood on 18th July' 2004 was mainly due to high intensity of rainfall in the upper catchment of Kopili River (upstream of Khandong Dam). As per the available rainfall records, in the month of July' 2004 monthly rainfall recorded is of the highest order i.e. 2372.80 mm at Jowai (during the period from 1983 to 2005) and of the order of 729.50 mm at Garampani (during the period from 1963 to 2006). It is also evident from the flood damage data of the affected Revenue Circles of Nagaon district viz. Doboka, Hojai, Kampur and Raha from 1995-2013 that there was heavy flood during the year 2004.

Water level in the Khandong reservoir went upto 727.70 m against FRL of 719.30 m. The reservoir can be filled upto M.W.L. and normally the dam is designed for this level. Moreover there is no gate installed at the Khandong Dam and flood release from the reservoir due to gate operation does not arise. Excess inflow due to heavy rainfall in the catchment is passing over the dam after the attaining M.W.L. of the reservoir.

In this context, it may be mentioned that construction of another dam about 25 km downstream of the existing Khandong Dam will moderate the flood due to inflow from the undisturbed intervening catchment area of 788 sq km between Khandong dam and proposed Lower Kopili dam and excess inflow that spilled over from the Khandongreservoir. Moreover, Lower Kopili Dam is designed for maximum flood of 11030 cumec based on IMD data of precipitation over the entire catchment area covering Khandong and Lower Kopili Dam i.e. of 1288 sq.km and 788 sq.km respectively (total area of 2076 sq.km). The design flood (PMF) for Lower Kopili H.E project of 11030 cumec was approved by C.W.C on 30.10.2012.

The downstream impact due to flood could only be averted with prior warning to the people who reside in the riverine area. During operation of gates of LKHEP.APGCL will install such system in coordination with District Administration and Local people.

As stated by SANDRP, the major tributary Myntang of river Kopilihaving a catchment area of 512 Sq KM is included in the intervening catchment area of 788 Sq Km of Lower KopiliDam .As such the inflow from Myntangriver already included in the design flood of 11030 Cumec for LKHEP and approved by CWC in 2012.

Inadequate Spillway Capacity at proposed Lower Kopili H.E. Project.

The design spillway capacity of the proposed LKHEP is not 16110 Cumec as mentioned. It is evaluated as 11030 Cumec which has been approved by CWC after detailed hydrological study made with H.M. data acquired from IMD Pune& New Delhi as stated in para 1 above. The Lower Kopili Dam is designed for the above capacity which is inclusive of excess water spill over from Khandong Dam and inflow from the intervening undisturbed catchment area of 788 sq km upto Lower Kopili Dam. . Hence, the design spillway capacity of LKHEP is adequate to pass off the PMF of 11030 Cumec.

Acidity of the water in River Kopili

Water of Kopili River is acidic at the proposed LKHE project site. Therefore, special measures are to be adopted to protect the Electro mechanical and Hydro mechanical equipment and river water exposed surface of concrete of the proposed project.
APGCL has taken the following decisions:-

i) Adopt similar measures taken by MeSEB for MyntduLeshka HEP, Meghalaya.
ii) Stainless steel to be provided to all H.M. and E/M equipment, reinforcement, steel liner etc.
ii) Concrete admixtures to be used for all water contact surface to mitigate adverse impact of acidity.
iii) Avail expert consultancy from CWC for tackling acidity problems.

This is the one of the reasons for enhancement of project cost. It may be stated that activity of the proposed LKHEP would not aggravate any acidity factor in the river and in its downstream during construction as well as in post construction stage. The acidity in the river is only due to open cast mining in the upper catchment areas located in the state of Meghalaya.

Similar problems have been experienced by NEEPCO as well as by MeSEB for Kopili and MyntduLeshka HEP respectively. The MeSEB has proposed to use acid resistant coated steel materials which were tested at CSMRS lab during July 2013.The test results revealed that the coated materials found suitable to resist acidic hydro environment and no major deterioration of the paint and colour. The Project Proponent also intends to adopt similar measures.

GSI NE region had done extensive detailed surface and sub-surface geotechnical investigation since 1979-80 to 1985-86 and 2008-09 to 2012-13. Locations of various components were fixed as per the guidance of Engg Geology Division GSI, Shillong.

GSI in its Geo technical report for LKHEP has mentioned about the existence of Dhansiri- Kopili fault located near to the project site (refer Plate-III of the report, enclosed). As per available records, major Earth Quake > 5 in Ritcher Scale were occurred during the period 1901-93 within 50KM radius of the proposed project site. IIT Roorkee has considered the aforesaid report while carrying out studies for determination of site specific design Earth Quake Parameters for LKHEP (June 2012). Based on these parameters, various project components have been designed. Further, APGCL has already initiated actions to install 3-4 seismographs network at the proposed LKHEP site for MEQ studies.

APGCL presented the project before the EAC in three occasions i.e. Dec'12, March' 13 and latest on 24the September' 2013. Based on the observations of EAC, APGCL has reviewed the land area to be acquired for the project.. Compensation to project affected families will be given as per the norms of NRRP-2007 of Government of India.
Form-I has been revised considering observations of EAC. Area and land use pattern to be acquired have also been revised in item 1.1.of Form-I. Hence the revised Form-I submitted on 23.08.2013 should be treated as final.
APGCL is committed to address the local issues particularly project Affected Families with priority.

Reservoir submergence was shown as 620 ha in the earlier PFR. In the said PFR, a provision of 2.00 m above the MWL of 229.60 m was kept in the reservoir area of 620 Ha as a cushion for allowance of any subsidence on the reservoir periphery due to draw down effect of fluctuation of water level. In order to comply with the observation of EAC, the land area under submergence has been reassessed as 552.00 ha considering submergence in the reservoir area up-to MWL only.

The EAC recommended the TOR clearance for the project, with the following additional issues to be covered in the CEIA study:

- Cumulative impact of the operation of Kopili reservoirs of Khandong dam, Longku dam and Lower Kopili hydroelectric projects.
- The rights of Dimasa people shall be protected and the same shall be covered as a part of R&R Plan. In addition, any measure suggested by the state government of Assam, for PAFs of Dimasa Tribe shall also form part of R&R Plan.
- The geo-morphological and neo-tectonic mapping shall be done as a part of the study. These maps along with site specific studies shall be included in the

documents for appraisal by EAC for River Valley Projects of Ministry of Environment & Forest, and National Committee on Seismic Design Parameters, Central Water Commission. The recommendations of these agencies will be suitably incorporated in project design, construction as well as operation.

The EAC recommended grant of ToR with the following additional conditions:

- Downstream impact assessment study shall be conducted appropriately by project proponent.
- Impacts on hydrological regime and aquatic ecology due to peaking power operation to be assessed.
- Assessment of optimum reservoir operation to be done.
- Impacts due to tunneling and blasting to be assessed and mitigation measures proposed.
- Impacts due to mining for abstraction of construction material.
- Impacts due to backwater effect especially during monsoon.
- Impacts due to filling up of reservoir upto MWL.
- Existence of wetlands, water courses and other water bodies in the Study Area.
- Three season water quality monitoring downstream of MyntduLeshka HEP, in Meghalaya to be carried out.
- It is to be assessed if anti-coating material will react with acidic waterand adversely impact water quality.
- Environmental flow to be proposed as per existing norms i.e. 20% for lean, 25% for non-lean and non-monsoon and 30% for monsoon period.
- Bio-diversity study to be conducted by a suitable institute as per OM of MoEF dated 28.05.2013.
- Cumulative impact assessment of upstream and downstream projects also to be done.
- FC application has to be submitted soon and not later than 6 months from date of issue of the ToR.

The meeting ended with a vote of thanks to the Chair.

*****

Appendix –I

RESPONSE TO COMMENTS OF SANDRP ON MOHANPURA PROJECT

Comment 1

EIA does not mention that the project is part of Inter-Linking of Rivers. The Mohanpura dam is part of the Government of India's Interlinking of River scheme, specifically part of the Parbati-Kalisindh-Chambal scheme, see for example the mention of Mohanpura dam on Nawaj river in salient features of the PKC at L http:/nwda.gov.in/writereaddata/linkimages/7740745524.PDF, the full feasibility of the PKC can be seen athttp:/nwda.gov.in/index4.asp?ssslid=36&subsubsublinked=24&langid=1. This hiding of this crucial information by the Project Proponent is tantamount to misleading the EAC and MoEF and should invite action under EIA notification.

Response:

The proposed Mohanpura Major Multipurpose Project is a different project than the one conceived under the PKC Link. The present proposal concerns construction of a reservoir of 616.27 MCM gross storage capacity at village Banskhedi which is located 22 Km downstream of the site identified at village Mohanpura under the PKC for construction of the reservoir of 140 MCM gross storage capacity. It is for the sake of convenience that the name of the present project is kept as Mohanpura Project.

The PKC is still in idea stage, as even its DPR has not been prepared yet by the NWDA despite the lapse of more than 30 years since the idea of PKC was conceived.

Under the PKC the proposal was to transfer surplus water of Nevaj and Kalisindh rivers to the Gandhisagar reservoir on river Chambal or elsewhere downstream in river Chambal. On examination by the Government of Madhya Pradesh it was found that better project sites as well as command area are available for construction of reservoirs on river Nevaj and river Kalisindh in MP, and transfer of water from their sub basins to Chambal river basin by lifting was not justified. In this backdrop, the Government of MP conveyed its decision to the Union Ministry of Water Resources of not pursuing the PKC.

However, 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/230-235 dated 12.06.2012. A copy of the same is attached for ready reference.

In the above backdrop, the FTL for the proposed Project is kept at 398M, which is the same for the project conceived under PKC on river Nevaj. This eliminates risk or doubts of any future conflict if PKC ever crosses the stage of ideaand becomes viable.

Comment 2

Much bigger Mohanpura Reservoir proposed compared to the PKC proposal. It is clear from the perusal of the Feasibility of the PKC link given on the NWDA link that the project now before the EAC is much bigger and actually an unviable scheme. The Gross and live storage of the NWDA scheme is 140 MCM and 52.5 MCM, where as the proposal now before the EAC has gross storage of 616.27 MCM and live storage of 539.42 MCM (page 1-328 mentions Live storage as 616MCM, showing another instance of shoddy work of WAPCOS), which means the live storage proposed now is more than ten times the live storage proposed in NWDA scheme. It may be noted that there is less than 4% difference in catchment area of the two schemes, the NWDA site was slightly upstream with the catchment area of 3594 sq km, compared to catchment area of now proposed scheme being 3726 sq km. This does not warrant or justify more than ten time higher live storage. In fact the NWDA scheme had the proposal to transfer 464 MCM from the Patanpur Dam to the Mohanpura dam and yet, under the Mohanpura live storage capacity proposed under NWDA scheme was much smaller. It is clear that the proposal before NWDA is complete unviable proposal and should be rejected.

Response:

As stated above, the proposed project is different from the one conceived under the PKC. The present proposal is for irrigating 65,000 Ha CCA and catering to drinking and industrial water needs of the area. The live storage capacity of 539 MCM has been determined keeping in view water requirements for CCA of 65,000Ha, 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, if it crosses the stage of concept to DPR ever.

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 Nevaj 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 DPAP blocks of district Rajgarh which are water stressed.

The viability of the proposed Project has been assessed by experts of BODHI, Bhopal who have ascertained the BC Ratio of 2.06 for the Project. The CWC norms allow BC ratio of 1 for irrigation projects in DPAP areas. Thus, the BC ratio of the Project is much above the benchmarks stipulated by CWC for irrigation projects.

Comment 3

Unjustifiable submergence. The proposal before EAC entails submergence of 7051 Ha, almost three times the submergence as per NWDA scheme of 5210 ha. The project proponent has hugely underestimated the no of affected families to 1800 against private land acquisition of

5163 ha. They have amazingly, allotted just 132 ha of land for R&R, when land for land provisions under the MP R&R policy will require much more than 5000 ha just for R&R. The whole social impact assessment of the proposal has not been done at all. In fact the phrase Social Impact Assessment or Social Impact does not figure in the entire EIA, when the National Green Tribunal has been laying such a stress on SIA. It is clear the huge displacement is unjustified, and the project proponent has no interest in even doing any just rehabilitation.

Response:

It is unfortunate that incomparable data of two distinct projects have been compared in the above comments.

Submergence area depends on the storage capacity and designed benefits of any river valley project. The better and meaningful yardstick for determining reasonability of submergence area of any irrigation project is the ratio of submergence to benefit area. The proposed Project aims at irrigating 65,000 Ha CCA besides providing 80 MCM water for industry and drinking needs which is equivalent to irrigating 13,000 Ha area. Compared to this, submergence area of 7,051 Ha is mere 9% of the benefit area of 78,000Ha. This is considered a very good ratio for land use changes for any irrigation Project.

The number of PAF is based on door-to-door survey of the PAFs by officers of the Water Resources Department. Village wise information of PAFs had been submitted earlier and a copy of the same is attached for easy reference.

Land for R&R is provided for development of R&R colonies, and 132 Ha land reserved for R&R colonies would suffice for meeting the resettlement needs of families required to be displaced. In the event more land is needed, the same would be made available for R&R of the Project. The National R&R policy applicable for the Project does not stipulate land-for-land to PAFs. 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.

All requisite components of SIA have already been submitted to the MOEF and the same is a matter of records. The EAC in its meetings dated 06.06.2013 and 24.09.2013 had considered the same.

Comment 4

Under-estimation of Land required for Canal. The project has command area of 62250 ha and claims that it will require just 152 ha of land for canals (table 2.6 of EIA), which is clearly a huge under estimate and is not based on any real assessment. The project will require several times more land for the canals and will have related social and environmental impacts which have not even been assessed.

Response:

Land required for canal network has been ascertained on need basis after field survey. The Project stipulates use of pipe conveyance system for about 80% of canals. Pipe conveyance system reduces land requirement substantially. The calculation sheet of the area requirement for canals is annexed.

Comment 5

No Downstream Impact Assessment. The report has not done any downstream impact assessment, including the impact on biodiversity, livelihoods, draws down agriculture, water security, groundwater recharge, geo-morphological impacts, among others.

Response:

As per 10 daily data of river flow submitted earlier the river gets dry from November to June every year.

Out of the 749 MCM water availability on 75% dependability at dam site the project would store 539 MCM water leaving good quantity for downstream flow during monsoon. Post monsoon, downstream river would get water from environmental releases and regeneration of irrigation water. Thus, the Project would have positive impact on downstream flows in river Newaj.

Comment 6

No Command Area Development Plan. The EIA report mentions CAD in two sections: Section2.8 and 10.9. However, perusal of both sections show that neither have full description of Command Area Development Plan or adverse Impacts of Command Area Development Plan including drainage, health, biodiversity and other issues.

Response:

A CAD Plan prepared as per norms had been submitted to the MOEF and the same is a matter of records. Impacts (positive as well as negative) of Command Area Development Plan including drainage, health, biodiversity and other issues have been included in Volume-I of EIA report, submitted earlier for Appraisal by EAC for River Valley Projects, MOEF.

Comment 7

Impact of Project on Chambal River Sanctuary. It may be noted that the project is to be constructed on Newaj river, a tributary of the Chambal river. The project will have significant impact of water, silt and nutrient flow pattern into the Chambal river, the 425 km of which has been declared as Chambal River Sanctuary in 1979 across three states of Madhya Pradesh, Rajasthan and Uttar Pradesh. However, the EIA does not even mention that the Chambal River Sanctuary exists downstream of the proposed project and will be impacted by the project. According to the

Wildlife Act of 1972, any project that affects flow of water into or out of the protected area should be assessed and necessary clearances be taken from the designated authorities including Chief Wildlife Wardens and National Wild Life Authority. However, the EIA agency does not even seem aware of the existence of the sanctuary.

Response:

The proposed Project would be located upstream of river Chambal at a distance of more than 200 Km. of the Ghadiyal Sanctuary in river Chambal.

It is a matter of fact that river Newajis not a direct tributary of river Chambal. Nevaj joins river Parwan, which joins river Kalisindh and Kalisindh joins river Chambal.

The catchment area of Newajupto project site is 3825 sq. Km. The catchment area of Chambal at Ghadiyal Sanctuary is approximately143,200 sq. km. Thus, Newajcontributes mere 2.6% of waters during monsoon to Chambal and that too during floods. Post monsoon Newaj gets dry. As stated above, the Project would impact downstream flows positively.

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.

Comment 8

Impact of mining of material for the project not mentioned. The EIA has some assessment of material required to be mined for the project at Table 2.7, but where will this come from and what will be the impacts of this is not even mentioned.

Response:

In construction of large river valley projects material obtained from excavation of dam site for construction is used as construction material. Balance quantity of material is drawn from submergence area with requisite permissions of appropriate authorities. Therefore, separate mpact assessment for the same is not felt necessary at this stage. 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.

Comment 9

Unfounded assumption about water availability. The project assumes huge yield of 745.2 MCM, much higher than that assessed by the Chambal Master Plan, without assigning any reason. This seems to be a ploy to push for unjustifiably huge reservoir. This is clearly wrong and the proposal should be rejected.

Response:

NWDA and CWC have assessed water availability in river Nevaj at Mohanpura. A copy of letter No. MP/90/2011-PAC dated 12.06.2012 is enclosed in which CWC has mentioned water availability of 740 MCM on 75% dependable basis. BODHI, Bhopal has done detailed calculation of water availability based on weighted rainfall data and assessed water availability of 749.71 MCM.

Comment 10

Inadequate assessment of upstream water requirement. The EIA does not do proper or adequate assessment of current and future water requirements of upstream areas and allocates almost all available water in the catchment to the project in a bid to justify unjustifiable project. The figure given in table 10.9 are not even substantiated with any basis and hence are far from adequate in the context.

Response:

Present upstream use and proposed upstream projects have been taken into account by BODHI, Bhopal while doing detailed calculation of hydrology. The results match with those of CWC and NWDA. Therefore, there seems no rational to doubt the capabilities and intentions of expert bodies.

Comment 11

No Proper Options Assessment The EIA does not do proper options assessment to arrive at the conclusion that the proposed project is the most optimum proposal. It may noted that the area has rainfall of 886 mm and there are a lot of options for local water systems. As is clear from the public hearing report, several farmers suggested that a instead of one big dam a series of smaller dams should be built and that farmers will have to commit suicide if the dam is built. The response in the EIA is most callous that this is not technically feasible is not even backed by any evidence, which again shows the shoddy nature of the EIA. Moreover, EIA does not do any options assessments.

Response:

The EIA study has been conducted as per the project layout and project features finalized at the time of TOR clearance.

Comment 12

Public hearing in the office of the DM? Chapter 17 of the EIA says, "Public Hearing for Mohanpura Multipurpose Major Project was conducted by Madhya Pradesh State Pollution Control Board (MPPCB) on 11th March 2013 in the premises of the office of the District Magistrate, Rajgarh". This is most shocking state of affairs. The Public hearing as per the EIA notification is

supposed to be conducted at the project site and cannot be conducted in the office of the District Magistrate. The MoEF should have applied its mind on just this aspect and rejected the proposal and asked them to get the public hearing done in legal way. The public hearing report is also incomplete with incomplete sentences. This again shows the shoddy work done by the WAPCOS.

Response:

Public hearing has been done according to the notification from Ministry of Environment & Forests, New Delhi dated 14th Sept 2006. District Magistrate's office being located at a distance of 9 km from the project site and its location being central to submergence and command area bothwas considered the most suitable site for public hearing. The site for public hearing was convenient to the public in view of transport connectivity and facilities available.
Public hearing report has been prepared by MP Pollution Control Board, and not by WAPCOS. There might be some typographic mistakes but the report is complete.

Comment 13

Shoddy EIA The whole EIA is done in most shoddy way and should be rejected for this reason and EAC should make recommendation for black listing of WAPCOS as EIA agency. Just to illustrate, the EIA says MDDL stands for Maximum Draw Down level (page 1-14), it has not done Social Impact Assessment, has not even mentioned the project impact on the Chambal River Sanctuary (one of the only two river sanctuaries of India also proposed as Ramsar site), for hugely inadequate R&R land and canal land requirements, for not doing impact of mining of materials for the project, for not assessing the hydrological viability of the project, for making unfounded assumptions, among other reasons mentioned above.

Response:

A detailed EIA report has been prepared which is being appraised by Hon'ble Expert Appraisal Committee of River Valley Projects, Ministry of Environment and Forests.
The comments, suggestion, response as given by Hon'ble EAC for River Valley Projects, Ministry of Environment & Forests, NGOs has been taken into consideration and appropriate responses have been formulated.

Comment 14

There is conflict of interest for WAPCOS in view of its being an organization of the Ministry of Water Resources.

Response:

WAPCOS has no conflict of interest, as it has no role in approval process or issuing approval in the Ministry of Water Resources.

Appendix -II

RESPONSE TO COMMENTS OF GHARIAL CONSERVATION ALLIANCE

S. No.	Comment	Response
1	The information provided by WAPCOS under-represents the faunal richness of the region and is an attempt to deceive the Expert Appraisal Committee on River Valley Projects. The sources used in the EIA are old and I would like to draw you attention to more recent work from the region.	We would like to appreciate the efforts made to publish paper on 'Chambal River Basin (Chambal National Sanctuary), which is mainly a Review Paper. The sources of data include both sanctuary as well as primary. Secondary data sources include journals, books, internet site, newspapers, etc. The paper covers the Chambal wildlife sanctuary located at a distance of more than 200 km, from the site. The study area covered in the paper includes area from Bundi-Kota in Rajasthan upto the confluence point of river Chambal with river Yamuna at Etawah. The study area for the EIA-EMP study is limited to project area and area with in 10 km of various project appurtenances only. Moreover, river Newaj is seasonal in nature, and river Chambal is perennial in nature. The list of faunal species given in the paper under reference is a compilation information given in various papers covering a much larger area then the Study Area of the CEIA study. In CEIA study, the source of data is primary data collection and review of data in various published papers and Forest Working Plan of the area. Thus, considering the above aspects, it is felt that there is no under representation of the faunal richness of the region.
2	The Methodology outlined in Annexure-XII by WAPCOS has simply been copied from other survey reports/studies without actually conducting them. The amounts to professional dishonesty and fraud, and is another attempt to deceive the EAC-RVP.	The methodology adopted for faunal studies is a standard methodology. The concern related to reference quoted for methodology related to faunal survey has appeared due to use of cross reference of various authors. This has been done to establish authenticity of methodology developed by various scientists using their longitude/extensive scientific studies as per Indian prospective. Therefore, the methodology for faunal studies in the EIA-EMP study is a standard methodology.
3	WAPCOS response that	It is confirmed that Blackbuck was not reported

S. No.	Comment	Response
	Blackbuck is not reported in the area' is again not true. Please refer to the press report and scientific study which show the presence of blackbuck from the area	in the project area during the course of the field studies conducted as a part of the CEIA study.

Annexure-I

List of EAC members and Project proponent who attended 68th Meeting of Expert Appraisal Committee for River Valley & Hydro Electric Power Projects held on 11th - 12th November, 2013 in New Delhi

A. Members of EAC

1.	ShriAlokPerthi	-	Chairman
2.	Dr. K. D. Joshi	-	Member
3.	Dr. Vijay Kumar	-	Member
4.	Dr. P. K. Choudhuri	-	Member
5.	ShriHardip Singh Kingra	-	Member
6.	Shri N. N. Rai	-	Member
7.	Sh. M. Raghuram	-	Member
8.	Shri B. B. Barman	-	Member Secretary & Director, MoEF
9.	Dr. P. V. SubbaRao	-	MoEF

B. Jidu HEP (92 MW) in the Upper Siang District of Arunachal Pradesh by M/s. Meenakshi North East Power Pvt. Limited, Department of Water Resources – For ToR

1.	Shri B. Srinivas	-	Director
2.	Shri S. K. Kathuria	-	Consultant
3.	Shri M. Jagan Mohan Rao	-	Chief Consultant
4.	Shri Neeta Arjun	-	Group General Manager
5.	Ms. ChandraniMitra	-	Professional Scientist, Env.
6.	ShriSandipan Das	-	Environment Engineer
7.	ShriSippayn Kumar	-	Environment Engineer

C. Sip Kolar Link Medium project in District Sehore, Madhya Pradesh by M/s. Water Resources Department, Government of Madhya Pradesh – For reconsideration of Environmental Clearance.

D. Mohanpura Major Irrigation Project in Madhya Pradesh M/s. Department of Water Resources, Government of Madhya Pradesh – For reconsideration of Environmental Clearance

E. Bansujara Irrigation Project in Tikamgarh/Chhatarpur District of Madhya Pradesh. M/s. Department of Water Resources, Government of Madhya Pradesh -For Environment Clearance

F. Ghogra Minor (Upper Ghogra) Irrigation Project in Sehore District of Madhya Pradesh. M/s. Department of Water Resources, Government of Madhya Pradesh – For Environment Clearance

1.	Shri R. S. Julaniya	-	Principle Secretary
2.	Shri Manish Singh	-	Secretary
3.	Shri M. G. Choubey	-	Engineer -in- Chief
4.	Shri S. K. Nigam	-	Consultant
5.	Shri Anil Singh	-	Executive Engineer
6.	Shri R. P. Lokwani	-	Executive Engineer
7.	Shri Deepak Satpule	-	Executive Engineer
8.	Shri B. K. Jain	-	SDO
9.	Dr. Aman Sharma	-	General Manager
10.	Dr. Harcharan Singh	-	Superintending Engineer

G. Nyamjungchu Stage-I HEP, Arunachal Pradesh– For discussions for Environmental Flow.

1.	Shri R. K. Mahajan	-	Director
2.	Shri V. K. Kapoor	-	President Projects
3.	ShriSumitGarg	-	General Manager- Commercial
4.	ShriJainenderKaroam	-	DGM
5.	Smt. KakoliSengupta	-	EHS- Executive
6.	ShriAnujVij	-	GoAP

H. Panyor H.E.P. (80 MW) on Panyor River (Ranganadi) in Lower Subansiri District Arunachal PradesH–For ToR

1.	Shri Ramesh Chandra	-	President
2.	Shri M. Balakrishanan	-	Sr. General Manager
3.	Shri B. Ravindran	-	Head Civil (Hydro)
4.	ShriRanji Kumar	-	Assistant Manager
5.	Dr. Aman Sharma	-	General Manager
6.	Dr. M.V. R. N. Acharyulu	-	Manager (Env.)
7.	ShriTarunRajavamshi	-	Environment Engineer
8.	Dr. Harcharan Singh Rumana	-	Ecology Environment Assistant
9.	Ms. Momita M. Ghosh	-	Environment Enginer
10.	Shri S. H. Dixit	-	Senior Engineer

I. Nakthan HEP (520 MW) in Kullu District of Himachal Pradesh by M/s. Himachal Pradesh Power Corporation Ltd.– For extension of validity of ToR and Thana-Plaun HEP (191 MW) of HP Power Corporation Ltd. in District Mandi of Himachal Pradesh – For extension of validity of ToR

1. ShriVikas Gupta - Dy Technical Principla
2. Ms. LakshamiVarsain - Geologist
3. Shri N. P. Jagota - Senior Manager
4. ShriPrashanAggarwa - General Manager
5. Shri Rahul Sharma - Assistant Engineer
6. ShriDaljeet Singh - Sr. Manager
7. ShriPremLalVerma - DGM
8. ShriVinod Kumar Tiwari - Director
9. Shri P. K. Kathuria - General Manager
10. Shri D. S. Verma - AGM
11. ShriRajan Sharma - Sr. Engineer
12. Dr. A. N. Singh - Scientist

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

1. Shri Ramesh Chandra - President
2. ShriTarunRajavamshi - Environment Engineer
3. Dr. Harcharan Singh Rumana - Ecology Environment Assistant
4. Ms. Momita M. Ghosh - Environment Engineer
5. Shri S. H. Dixit - Senior Engineer
6. Shri R. Ganesh Babu - Sr. Manager
7. Shri Praveen Kumar - Principal Engineer
8. ShriJitendraChaubey - Managing Consultant
9. ShriGopiKrushnan - Manager-EHS

K. Sonthi Lift Irrigation Scheme in Gilbarga District of Karnataka by M/s. Krishna BhagyaJala Nigam Ltd – For consideration of TOR

1. Shri K. S. Mahesh - Executive Engineer
2. ShriKapil Mohan - Managing Director
3. ShriShambhu Azad - General Manager (WAPCOS)
4. Dr. Aman Sharma - General Manager (Env.)

L. Dinchang HEP (252 MW) in West Kameng District Arunachal Pradesh by KSK Dinchang Power Company Pvt. Ltd. – For downward revision of the capacity from 360 MW to 252 MW & extension of the validity of ToR

1. Dr. M. U. R. N. Acharyulu - Manager
2. Shri S. K. Dutta - Assistant Vice President
3. ShriTarakesh Swain - Assistant Manager

4.	Shri C. S. Kasand	-	DGM
5.	ShriRanjit Kumar	-	Assistant Manager
6.	ShriTansukhKhatri	-	Manager
7.	Shri Rajesh Kumar Mahana	-	Manager

M. Teesta Low Dam I & II (combined) HEP (3x27 MW) of WBSEDCL in Darjeeling, West Bengal – For ToR

1.	Shri Amitabh Tripathi	-	Head (CD)
2.	Shri B. K. Kumar	-	Consultant
3.	ShriAmitavaSen	-	Superintending Engineer
4.	Dr. Aman Sharma	-	General Manager (Env.)
5.	ShriTanmoy Das	-	Consultant
6.	Shri R. N. Saha	-	Chief Engineer

N. Sahstrakund HEP in District of Yeotmal by GMIDC, Aurangabad- Adequacy of EIA

1.	Shri R. B. Ghote	-	Chief Engineer
2.	Shri E. B. Jogdand	-	Chief Engineer
3.	Shri D. R. Tawar	-	Superintending Engineer
4.	ShriAdikraoYewale	-	Sc. & Tech. Park
5.	Shri H. W. Solage	-	Executive Engineer
6.	Shri V. K. Kurundkar	-	Assistant Engineer

O. Lower Kopili HEP (120 MW) in KarbiAnglong 7 North Cachar Hill Districts of Assam by M/s. Assam Power Generation Corporation Ltd. – For reconsideration of ToR.

1.	Shri R. C. Jain	-	Managing Director
2.	Shri A. C. Boruah	-	General Manager
3.	Shri P. K. Khoond	-	DGM
4.	Shri H. M. Sharma	-	RE
5.	Shri R. Kapoor	-	RE
6.	Shri A. Sharma	-	General Manager
7.	Shri A. Basistha	-	Consultant
8.	Shri U. Dutta	-	AGM
9.	Shri M. Dixit	-	Sr. Engineer
10.	Smt. Momita M. Ghosh	-	Sr. Engineer

*****