

MINUTES OF THE 14TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 7TH JULY, 2021 FROM 10.00 AM - 05:00 PM THROUGH VIDEO CONFERENCE.

The 14th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 7th July 2021 through video conference, under the Chairmanship of Dr. K. Gopakumar. The list of Members present in the meeting is at **Annexure**.

Agenda No. 14.1

CONFIRMATION OF THE MINUTES OF THE 13TH MEETING

The minutes of the 13th EAC (River Valley Hydroelectric Project) meeting held on 16th – 17th June 2021 were confirmed.

Agenda No. 14.2

WRD-Govt. of A. P. - Environment clearance for Rayalaseema Lift Scheme to supplement 3 TMC per day to SRMC on D/s of Pothiredypadu Head Regulator, which is an integral part of 1. Galeru Nagari Sujala Sravanthi (GNSS0 Project in District Kurnool, Andhra Pradesh. 2. Srsailam Right Branch Canal, Andhra Pradesh 3. Telugu Ganga Project, Andhra Pradesh - Amendment to the Existing Environmental clearances to include Rayalaseema Lift Scheme - Reg.

[Proposal No. IA/AP/RIV/214491/2021; F. No. J-12011/18/2006-IA. I (R)]

14.2.1 The proposal is Amendment to the existing Environmental Clearances granted by MoEF to Srisailam Right Branch Canal, Andhra Pradesh and Environmental clearances granted by MoEF vide letter no. J-11016/70/83-IA dated 19th September, 1988 to Telugu Ganga Project, Andhra Pradesh.

14.2.2 The proposal was earlier considered by reconstituted EAC in its 13th EAC meeting held on 16th – 17th June 2021, and project proposal was deferred seeking additional information from Project Proponent (PP). Point-wise replies submitted by the PP vide letter dated 30th June, 2021 in response to additional details sought (ADS) by EAC in its 13th meeting are as follows:

- (i) Clear drawings of layout showing all components proposed in the current proposal.**

Reply:

- a) **Approach Channel (8.892 Km):** Start from Srisailam foreshore area up to forebay of proposed Pump House on the Northern Side of existing Pothireddypadu Head Regulator.
- b) **Forebay (237 m):** Forebay is proposed to connect approach channel to the pump house
- c) **Pump House (Area: 250 m X 40 m):** housing 12 Nos. of volute pumps with a capacity of 81.93 cumec/2893 cusecs capacity each are proposed. Water drawl level: 800 ft (+243.85 m) with maximum lift of 85.14 ft (25.95 m) and Delivery level at 885.14 ft (269.82 m)

- d) **Electrical Infrastructure:** Power requirement is estimated at about 420 MW and suitable H.T/L.T Panels, SCADA, HT/LT Cables, HM/EM Components will be provided which includes 400KV Substation and electrical power line from the existing HT lines.
- e) **Pipeline including delivery cistern (200m) :(pipes: MS, 5000mm dia x 12):** Pipelines will connect Pump House to Delivery Cistern.
- f) **Link Canal (500 m):** A link canal will be excavated from delivery cistern to SRMC, joining at 300 m downstream of Pothireddypadu Head Regulator.
- g) **Providing infrastructure:**
- Road to the pump station from Pothireddypadu Head Regulator for about 200 m.
 - 400KV substation and electrical power line from the existing HT lines.

Detailed diagram representing including existing and proposed components of Rayalaseema Lift Scheme has been submitted.

(ii). Comparative chart& drawings/layouts of proposal vis-a-vis the one considered by the Hon'ble NGT.

Reply: Table below shows comparative chart& drawings/layouts of proposal vis-a-vis the one considered by the Hon'ble NGT:

S.No	Description of Item	Proposal considered by the Hon'ble NGT	Modified Proposal
1	Location of Pump House	Near Mutchumarri Village	Northern side to the existing Pothireddypadu Head Regulator
2	Approach Channel	4.50 Km located in the foreshore of Srisailam Reservoir	8.892 Km located in the foreshore of Srisailam Reservoir
3	Forebay	0.237 Km	0.237 Km
4	Pump House	250 m X 40 m	250 m X 40 m
5	Pipe Line for Pressure Main including Delivery Cistern	200 m	200 m
6	Link Canal connecting to the existing SRMC	22.00 K m	0.50 Km
7	Delivery point on SRMC	4.00 Km Down Stream of PRP Head Regulator	0.30 Km Down Stream of PRP Head Regulator
8	No of Pumps	12 Nos	12 Nos
9	Power Requirement	420 MW	420 MW
10	Total Land Required	252 .61 Ha	25.20 Ha

11	Land Acquisition	202.34 Ha	No Land Acquisition
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(iii). **PFR/DPR with updated details as the DPR available on the PARIVESH is showing different figures as presented before EAC.**

Reply:

- DPR is updated duly including the additional information as presented before the 13th EAC (River Valley Project) meeting on 17.06.2021.
- Updated DPR for replies to the MOM has been submitted separately

(iv). **Change in land requirement details and land use**

Reply: Table below shows Change in land requirement details and land use:

Comparative Statement of Change in Land Requirement			
S.No	Description	Initial Proposal (ha)	Present Modified Proposal (ha)
1	Forebay	4.40	4.40
2	Pump House	1.00	1.00
3	Delivery Cistern Including Pipe Line	1.00	1.00
4	Link Canal	221.50	2.80
5	Electrical Sub station	24.71	16.00
Total		252.61	25.20
6	Land Acquisition requirement	202.34 (private lands)	No Land Acquisition
Note : The Approach Channel proposed for the scheme in Initial Proposal as well as in Modified Proposal are located in the foreshore of Srisailam Reservoir.			

- The land required for the present modified proposal is Government land and therefore no land acquisition is involved.
- This land was acquired for dumping/disposal of the spoil (muck) from the construction of Pothireddypadu Head Regulator and excavation of SRMC.
- Dumped spoil/muck in the required 25.20 Ha (Government land) will be carted and adjusted in the existing gaps of spoil banks all along the SRMC to ensure the availability of government land for the proposed RLS.

(v). **Details of Ecologically Sensitive Areas within 10 km of the proposed project.**

Reply:

- To get the correct information on Ecologically Sensitive Areas within 10 Km of the proposed project, Forest Department, Government of Andhra Pradesh was approached. The Conservator of Forest, Tiger Reserve Circle, Srisailam has issued a letter, based on the

inspection report of DFO, Wildlife Management, Atmakur on 26/06/2021. Letter mentions the distance of ESZ of Nagarjuna Srisailam Tiger reserve from the project as 11.544 km and 13.913 Km from compartment number 824 and 652 respectively. Neither of the pumping station nor any component of the Rayalaseema Lift Scheme is within 10 Km of the eco-sensitive zone or within the boundary of any protected wild life sanctuary.

- The notification of eco-sensitive zone and protected tiger reserve as per Note V(XVII) GC of EIA Notification 2006 is taken care and the pump house and other components are located more than 10 Km from the boundaries.
- Existing projects have already obtained required clearances and executed in compliance to the same. The nearest wild life protected area is Nagarjuna Sagar-Srisaisalm Tiger Reserve, which is more than 10 Km away from the RLS. The proposed scheme components are well outside the proposed ESZ draft notification of MoEF dt.11.02.2020.
- The report along with a map earmarking the Tiger Reserve Zone, depicting the distances of the proposed Rayalaseema lift Scheme as per draft Notification No. 565 dt.11 February 2020 is obtained from the Conservator of Forests, Tiger Reserve Circle, Srisailam, has been submitted.
- All components of Rayalaseema lift scheme i.e., Approach channel, location of the Pump House and connection from Pump House to Srisailam Right Main Canal (SRMC), do not fall under Wild Life Sanctuary. Hence there is no impact on Wildlife.

(vi). Clarification on the water withdrawal methods. Will both the mechanism of water drawl Page 20 of 24 continue to operate?

Reply:

- Water will only be drawn either by gravity or by Pumping depending on the water level in the reservoir and requirement. Both mechanisms will not & cannot be operated simultaneously.
- The Rayalaseema Lift scheme (RLS) will work as alternative to Gravity flow from PRP Head Regulator but not as addition to the existing Gravity flow
- Below 841 ft (+256.3m)- Water shall be drawn only through Lift of proposed Rayalaseema Lift Scheme.
- Between 841 ft. to 874 ft. (+256.3 to + 266.4 m) – Either by lift or Gravity Discharge by gravity through PRP Head Regulator will be in the range of Nil at 841 ft. to about 33,300 Cusecs @ 874 ft. Water shall be drawn by gravity if driving head available by virtue of water level in reservoir is sufficient to meet the downstream water requirement or by proposed lift, if the requirement is more than that could be drawn by gravity.
- Above 874 ft (+ 266.4 m) upto FRL 885 ft (+269.75m) the gravity flow from Pothireddypadu Head Regulator shall be sufficient.

14.2.3: The EAC during deliberations recalled that noted that the Project as presented now is a remodeled one with the change in the alignment of the approach channel. In the earlier version of the project, the channel was aligned along the ridges alongside the reservoir of the existing Sri-Sailam Project, and the same is now proposed to be constructed in the fore-shore area of the same reservoir. Foreshore is the surrounding land area of the reservoir, which becomes dry due to sedimentation and/or due to depletion of water. However the cardinal issue of lifting of water from 800 ft. as against the planned arrangement of gravity flow from Pothireddypadu head works with the invert at 840 ft. and a minimum level of 854 m, remains same.

As such, the present proposal does not involve construction of any new water storage structure. The change which is proposed is the change in water feeding method to the existing schemes within the overall share allotted to Andhra Pradesh. It was also explained by PP during the presentation that if these already agreed levels are honored by all the parties, this project won't be necessary. The state govt. of Telangana has objected to this change in methodology with the apprehension that Andhra Pradesh would draw more water from the reservoir, which would jeopardize a number of their projects that are dependent on this reservoir. A number of representations have also been received from the civil society by this EAC against the project. These are the issues which need to be delved upon and decided by the concerned agencies/bodies meant for the purpose like KRMB and CWC, as also directed by the Hon'ble NGT.

However, the possible impacts of the proposed change in water feeding method on various facets of the ecology viz. changes in land use and their corresponding impacts on natural habitat, wildlife and sustainability of the river etc. would need to be assessed in a comprehensive manner. It is pertinent to mention that the State Government of Telangana has also raised certain concerns about such ecological impacts of the project in region.

14.2.4 *The EAC after deliberations recommended that the information on the following points are still required from project proponent:*

1.0 A holistic report on water availability in the river, with the existing and future schemes including hydropower projects, should be provided as envisaged in an approved Master plan of the river developments

2.0 A study showing the pre and post project temporal simulations of drawal of water from the reservoir.

3.0 Detailed status of other similar water lifting projects in the region/neighboring States along with status of environmental clearance.

4.0 The locations of any Wild life sanctuary, reserved forest area and other ecological habitats likely to be affected by the reduced levels in the reservoir post construction of the project.

*The EAC **deferred** the proposal on the above lines.*

Agenda No. 14.3

Ukai Pumped Storage Project of 1600MW in an area of 483.42 ha ha in village Ukai, Tehsil Songadh, District Tapi, Gujarat by M/s Greenko Energies Private Limited - Amendment in Terms of Reference – reg.

[Proposal No. IA/GJ/RIV/215492/2021; F. No. J-12011/03/2020-IA. I (R)]

14.3.1 The proposal is for Amendment of Terms of Reference granted by MoEF&CC vide letter no. J-12011/03/2020-IA-I dated 13th April, 2020 to to Ukai Pumped Storage Project of 2400M W in an area of 1064.61 ha in village Ukai, Tehsil Songadh, District Tapi, Gujarat by M/s Greenko Energies Private Limited.

14.3.2 The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

- i. It was noted that Terms of Reference granted by MoEF vide letter no. J-12011/03/2020-IA-I dated 13th April, 2020 to Ukai Pumped Storage Project of 2400M W in an area of 1064.61 ha in village Ukai, Tehsil Songadh, District Tapi, Gujarat by M/s Greenko Energies Private Limited.
- ii. The project was earlier proposed for 2400 MW (16800 MWH), with 7-hour storage capacity requiring 1064.61 ha of forest land. To reduce the forest land requirement, project is optimised for 1600 MW (9696 MWH) with 6.06 hours storage capacity, which would be developed on 483.42 ha of forest land.
- iii. The revised capacity of proposed PSP is 1600 MW (9696 MWH) and envisages non-consumptive utilisation of 1.371 TMC (38.82 MCM) of water from existing Ukai Reservoir by re-circulation. The gross storage capacity of Ukai reservoirs is 261.79 TMC (7413.04 MCM). As such, the proposed project involves creation of upper reservoir at 21°21'23.31" North and Longitude is 73°36'30.88" East and the lower reservoir at 21°20'1.00" North and 73°36'3.94" East of Songadh Taluka in Tapi District. Water from Ukai reservoir will be pumped and stored in the lower reservoir which will be used for power generation.
- iv. The proposed scheme involves construction of rock fill embankment (upper reservoir) - 35.0 m average height (with maximum height of 59m) with a length of 4817m for gross storage of 1.164 TMC water. Whereas the lower reservoir is proposed in the gorge with 22.0 m average height (with maximum height of 38m) and 1188m in length. The live storage of upper and lower reservoirs is estimated to be 0.887 TMC (dead storage - 0.277 TMC) and 0.883 TMC (dead storage - 0.211TMC) respectively.
- v. Water conductor system consists of 5 Nos. of independent Pressure shafts of 7.5 m in diameter and 847.56 m in length. The Surface Powerhouse will be located at about 704.00m from the intake structure and shall be equipped with four vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 320MW / 369MW respectively and two vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 160MW / 185MW respectively. As such, the

proposed project will generate 1600 MW by utilizing design discharge of 1141.59 Cumec and rated head of 157m. The Ukai PSP will utilize 1846 MW to pump 0.883 TMC of water to the upper reservoir in 6.73 hours.

- vi. The total land required for construction of various components including infrastructure facilities and muck disposal area is estimated to be around 483.42 Ha of reserved forest land and is located around 23.3 km (South) from the Shoolpaneswar (Dhumkhal) Wildlife Sanctuary.
- vii. GEPL envisages to complete the construction of project within a period of 3.5 years at an estimated cost of INR 7674.10 Crores.
- viii. **Detail reason for amendment in ToR/EC:** The need to revise the proposal arose because of following reasons
 - a) Originally, the Pre-feasibility Report (PFR) of Ukai PSP has been prepared for the capacity of 2400 MW with 7 hours storage capacity and obtained ToR clearance from MoEF & CC. The area of land required for the project was about 1064.61 Ha.
 - b) Since the entire land was coming under forest area, mainly to reduce the forest land requirement and also water availability, the project capacity has been revised to 1600 MW with 6.06 hours storage capacity and for this capacity the area of land requirement is 483.42 Ha only.
 - c) The feasibility of the project with least forest land requirement has also been examined and found that it is not possible to reduce the capacity of the project below 1600 MW because this will impact the techno economic viability of the project.

Based on above, the PFR has been revised and the major changes in the revised proposal is as below:

- a) The land area required for the project is reduced from 1064.61 Ha to 483.42 Ha which is more than 50%.
- b) Because of the reduction in area, the water requirement of the project is also reduced to 0.883 TMC against the earlier requirement of 1.38 TMC.
- c) The capacity of the project is revised to 1600 MW based on the reduced water requirement with the storage capacity of 6.06 hours
- ix. The comparative statement with reference to earlier proposal and revised proposal is given in table format:

Sr. No	Details	Revised (Proposed New Layout - 1600 MW)	Original (As per ToR Granted - 2400 MW)
	State	Gujarat	Gujarat
	District	Tapi	Tapi
	Village	Ukai	Ukai
	Geographical Co-Ordinates (UR)		

Sr. No	Details		Revised (Proposed New Layout - 1600 MW)	Original (As per ToR Granted - 2400 MW)
	Latitude		21°21'23.31"N	21°20'49.60"N
	Longitude		73°36'30.88"E	73°36'34.06"E
	Geographical Co-Ordinates (LR)			
	Latitude		21°20'1.00"N	21°19'1.52"N
	Longitude		73°36'3.94"E	73°35'42.37"E
	Area		483.42 ha	1064.61 ha
1	a	Type	Pumped Storage Project	Pumped Storage Project
	b	Storage Capacity	9696MWH	16800 MWH
	c	Rating	1600 MW	2400 MW
	d	Peak operation duration	6.06 Hours daily	7 Hours daily
2		Upper Reservoir (Proposed)		
	a	Live Storage	0.887 TMC	1.39 TMC
	b	Dead Storage	0.277 TMC	0.84 TMC
	c	Gross Storage	1.164 TMC	2.23 TMC
	d	Full Reservoir level (FRL)	EL +341.00 m	EL +352.00 m
	e	Min. Draw Down Level (MDDL)	EL +315.00m	EL +334.50 m
	f	Top Bund Level (TBL)	EL +344.00 m	EL +355.00 m
	g	Type of Dam	Rock fill Embankment with central clay core	Rock fill Embankment with central clay core
	h	Max. Height of Rockfill Embankment	59 m	70 m
	i	Length at the top of Rockfill Embankment	4871 m	11468 m
	J	Top width of the Rockfill Embankment	10.0 m	10.0 m

Sr. No	Details		Revised (Proposed New Layout - 1600 MW)	Original (As per ToR Granted - 2400 MW)
	k	Type of Power Block	Concrete Gravity Structure	Concrete Gravity Structure
	l	Height of Power Block	51.00 m	46.00 m
	m	Length at the top of Power Block	170.00 m	235.0 m
	n	Top width of the Power Block	10.0 m	10.0 m
3		Lower Reservoir (Proposed)		
	a	Live Storage	0.883 TMC	1.38 TMC
	b	Dead Storage	0.211 TMC	0.75 TMC
	c	Gross Storage	1.094 TMC	2.13 TMC
	d	Full Reservoir level (FRL)	EL +175.00 m	EL +167.00 m
	e	Min. Draw Down Level (MDDL)	EL +157.00m	EL +153.20 m
	f	Top Bund Level (TBL)	EL +178.00 m	EL +170.00 m
	g	Type of Dam	Rock fill Embankment with central clay core	Rock fill Embankment with central clay core
	h	Max Height of Embankment	38 m	45 m
	i	Length of Embankment	1188.00 m	1453 m
4		Intake Structure		
	a	Type	Diffuser Type	Diffuser Type
	b	Elevation of Intake centre line	EL +302.20 m	EL +322.60 m
	c	Elevation of intake bottom	EL +298.45 m	EL +319.10 m
5		Penstock /Pressure Shafts		

Sr. No	Details		Revised (Proposed New Layout - 1600 MW)	Original (As per ToR Granted - 2400 MW)
	a	Type	Finished steel lined - circular	Finished steel lined - circular
	b	Number of Pressure Shaft	Total 5 No. of Independent Penstocks	Total 8 No. of Independent Penstocks
	c	Diameter of Pressure Shaft	7.5 m	7.0 m dia.
	d	Length of Penstock/Pressure Shaft	847.56 m Length of surface penstock from Intake to Vertical Pressure Shaft – 34.41 m Length of Vertical Pressure Shaft – 200.89 m Length of Horizontal Pressure Shaft – 612.26 m	1105 m Length of surface penstock from Intake to Vertical Pressure Shaft – 570 m Length of Vertical Pressure Shaft – 175 m Length of Horizontal Pressure Shaft – 360 m
	h	Design Discharge of each Penstock	228.32 Cumec	190.73 Cumec
	i	Velocity in the Penstock	4.99 m/sec	4.96 m/sec
6		Powerhouse		
	a	Type	Surface Powerhouse	Surface Powerhouse
	b	Centre line of Unit	EL +127.00 m	EL +123.20 m
	c	Dimensions (Excluding Service bay)	L 170.00m x B 25.50m x H 51.10 m	L 222.00m x B 24.00m x H 51.10 m
	d	Size of Service bay	40.00 m (L) x 25.50 m (W)	40.00 m (L) x 24.00 m (W)
	e	Service bay level	EL +141.20 m	El. 137.35 m
7		Tail Race Tunnel		
	a	Type & Shape	Concrete Lined – Circular	Concrete Lined – Circular
	b	Number of Tunnels	6 Nos. (4 for large units + 2 for smaller units)	8 Nos.
	c	Dia. of Tunnel	8.5 m for Larger unit & 6.0m for Smaller unit	8.0 m
	d	Length of the Tunnel	25 m	25.00 m
	e	Design Discharge	228.32 Cumec for Larger unit & 114.16 Cumec for Smaller unit	190.73 Cumec

Sr. No	Details		Revised (Proposed New Layout - 1600 MW)	Original (As per ToR Granted - 2400 MW)
8		Tailrace Outlet		
	a	Type	Surface	Inclined
	b	No. of Outlet	6 Nos.	8 Nos.
	c	Elevation of outlet centre line	EL +119.25m for Larger unit & EL +118.00m for Smaller unit	EL +115.48 m
	d	Elevation of Outlet bottom	EL +115.00m	EL +111.28 m
	e	Trash rack Type	Vertical with inclination of 15°	Vertical with inclination of 15°
	f	Size of Trash rack	3nos. of 3.33 m (W) x 42.00 m (H) for each Larger unit 2nos. of 2.5 m (W) x 42.00 m (H) for each Smaller unit	2nos. of 4.25 m (W) x 43.40 m (H) for each
	g	Tailrace outlet Service Gate	4 nos. of 7.00 m (W) x 8.50 m (H) for Larger unit 2 nos. of 5.00 m (W) x 6.00 m (H) for Smaller unit	8 nos. of 6.60 m (W) x 8.00 m (H)
	h	Tail Race outlet Emergency Gate	2 Nos. of 7.00 m (W) x 8.50 m (H) for Larger unit 1 no. of 5.00 m (W) x 6.00 m (H) for Smaller unit with Moving Gantry	4 No. – 6.60 m (W) x 8.0 m (H) with Moving Gantry
9		Power Evacuation		
	a	Voltage Level	400 KV	400 KV
	b	No. of Transmission lines	One 400 KV transmission line with double circuit.	Two 400 KV transmission line with double circuit.
	c	Total Length	109 kms (Proposed PSP to 400kV/765 KV GIS, Kumetha -1 PGCIL Substation Gujarat State).	109 kms (Proposed PSP to 400kV/765 KV GIS, Kumetha -1 PGCIL Substation Gujarat State).
10		Project Cost	7674.10 Cr.	11500.83 Cr

14.3.3 The EAC during deliberations noted the following:

Terms of Reference granted by MoEF vide letter no. J-12011/03/2020-IA-I dated 13th April, 2020 to Ukai Pumped Storage Project of 2400M W in an area of 1064.61 ha in village Ukai, Tehsil Songadh, District Tapi, Gujarat by M/s Greenko Energies Private Limited.

The application for amendment in ToR dated 13th April 2021 was submitted to Ministry on 30-06-2021. The present proposal for Amendment in ToR is mainly to reduce the forest land requirement and also water availability, at present the entire project land is coming under forest area. Accordingly, the project capacity has been revised from 2400 MW to 1600 MW with 6.06 hours storage capacity and for this capacity the area of land requirement is 483.42 Ha only.

14.3.4 *The EAC after deliberations recommended the proposal for amendment in ToR granted by the Ministry vide letter dated 13th April, 2020 to Ukai Pumped Storage Project with capacity reduction from 2400 MW to 1600 MW in an area of 483.42 Ha in village Ukai, Tehsil Songadh, District Tapi, Gujarat by M/s Greenko Energies Private Limited with the condition that a detailed cost benefit analysis shall be done in terms of depletion in forest cover and its corresponding impacts on ecology of the region and viability of the project.*

Agenda No. 14.4

Parwan Major Multipurpose Irrigation cum Drinking Water Supply Project in an area of 12,247.79 ha by Department of Water Resources, Government of Rajasthan in village Akawad Kalan, Tehsil Khanpur, District Jhalawar, Rajasthan - Extension of Environmental Clearances - Reg.

[Proposal No. IA/RJ/RIV/212581/2021; F. No. J-12011/27/2007-IA-I (R)]

14.4.1 The proposal is for extension in validity of Environmental Clearance granted by MOEF vide letter no. J-12011/17/2018-IA. I (R) dated 25th November 2011 to Parwan Major Multipurpose Irrigation cum Drinking Water Supply Project in an area of 12,247.79 ha by Department of Water Resources, Government of Rajasthan in village Akawad Kalan, Tehsil Khanpur, District Jhalawar, Rajasthan.

14.4.2 The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

As per EC dated 25th November 2011

- (i) The proposed project envisages construction of 38 m high gravity dam (from foundation level) across Parwan river near Akawad Kalan Village in the District Jhalawar, Rajasthan. The gross storage capacity of the reservoir will be 490 Mcum at FRL out of which 302 MCM will be allocated for irrigation purposes and 50 MCM will be supplied for drinking purposes to 820 villages of Kota, Baran and Jhalawar Districts.
- (ii) Shergarh Wildlife Sanctuary is 5 km away from the project site: A pick-up weir already exists adjacent to the wildlife sanctuary and 16 Mcum water will be stored in this pick weir for the animals.
- (iii) The gross command area (GCA) is 1,54,787 ba and culturable command area (CCA) is 1,31,400 ha. Total land requirement is 12,247.79 ha out of which 9810 ha will be submerged. Out of the total submergence area, 1608.59 ha is forest land, 2034.85 ha is government land and 6166.50 ha is private land.
- (iv) Forty Seven (47) villages will be affected due to land acquisition, out of which 17 villages will be fully and 30 villages will be partially affected. A total of 2722 houses will be submerged and in total 3002 families will be affected, of which 461 families are tribal. The Ministry of Tribal Affairs has

approved the R&R Plan for the affected tribal families. The total estimated cost of the project is about Rs. 31114 Crores out of which Rs. 5.70 crores will be for implementation of EMP.

Details submitted in current proposal:

- (i) It has three components:
 - 1. Construction of Gravity dam which is situated in Village Akawad Kalan, Tehsil Khanpur Dist., Jhalawar
 - 2. Development of micro irrigation based irrigation infrastructure in 131 lakh ha area.
 - 3. Development of micro irrigation based irrigation infrastructure in 0.70 lakh ha area,
- (ii) Earlier at the time of grant of EC, the total CCA of project was 1.31 lakh ha.. The project was planned with flood irrigation concept, but later on, to optimize irrigation water use efficiency, the irrigation methodology was shifted from Flood irrigation to micro irrigation. Hence, the project area increases from 1.31 Lakh ha to 2.01 lakh ha. The revised project has been planned without increasing the dam height, storage capacity, submergence area etc. Only the benefited command area increases due to increase water use efficiency.
- (iii) Water Resources Department (PP) applied for revised EC for the revised project area vide WRD letter dated 25.06.2018. Based on the submission of project authorities, MoEF&CC granted TOR for revised environment clearance for the revised project proposal vide MoEF&CC letter dated 21.08.2018.
- (iv) As per notification issued by MoEF&CC dated 14th August 2018, revised EC for the projects having no change in the submergence area dam height forest land and CCA increased due to adoption of micro irrigation has been exempted. Hence MoEF&CC exempted the project from the revised EC and withdrew the TOR issued on 21.08.2018 vide its letter dated Oct 1, 2020.
- (v) The project involves use of forest and wild life area, hence Final approval of forest land diversion of 1825.983 hectare from MoEF vide File No. 8-10/2012-FC received on 23.01.2017 and clearance from NBWL for wild life approval from MoEF vide letter no. F.No.-6-43/2007 WL-I(XIII) v on 10.5.2011. Physical work of project component has started since May 2017 and likely to be completed in next three years.
- (vi) **Project could not commence due to:**
 - a) Final approval for diversion of forest 1825 ha land was accorded on 23.01.2017, hence physical work was started only after this clearance.
 - b) During 2019-20 there was exceptionally high rainfall in Project area (1900 mm against annual average rainfall of 900 Mm /year. Due to heavy rainfall, flow in river was continued till March 2020. Hence work remained partially closed.
 - c) Due to outbreak of corona and consequential country wide lockdown, works remain totally closed during March and April 2020 and partially closed in May - June 2020. Due to second wave of Corona and consequential lockdown, works remained partially closed.

(vii) Salient features for implementation of the project activities:

S.no.	Name of Project	Physical Progress	Stipulated Date of Start	Stipulated Date of Completion	Tentative Date of completion	Remarks
1	Construction work of Dam and Tunnel	69.23 %	29.05.2017	07.04.2022	Sept-2023	90% Tunnel work is completed and Dam work is in progress.
2	Development of Infrastructure works for 1.31 Lakh Ha. area of irrigation Under Phase I (LMC and RMC)	21.75 %	28.05.2018	27.11.2022	June-2024	Under Phase-I work of Canal, Pumping station and pipe laying is in progress.As on date 22% work is completed.
3	Development of Infrastructure works for 0.70 Lakh Ha. area for irrigation Under Phase II (LMC and RMC)	40.56%	14.10.2018	13.04.2022	June - 2023	Under Phase-II work of Canal, Pumping station and pipe laying is in progress.As on date 41% work is completed.
4	Work of Land Acquisition and R&R under project	69.62%	29.05.2017	07.04.2022	June-2022	90% work of Land Acquisition is completed and remaining work is in progress.

viii) Project proponent vide letter no. 636-37 dated 7th July 2021 informed that permission for proposed Dam on Parwan River for Parwan Major Multipurpose Project was recommended with 7 No. of conditions during 22nd meeting of NBWL and conveyed vide letter dated 10.05.2021. Project authorities has already made compliances of all 7 conditions and the compliance has been already submitted to

Additional Principle Chief Conservator of Forest & Nodal Officer Forest Conservation (FAC), Rajasthan Jaipur along with the proposal of final stage clearance for diversion of forest land submitted to MoEF.

14.4.4: The EAC during deliberations noted that the proposal is for extension in validity of EC dated 25th November, 2011 as per EIA Notification, 2006, the period of validity of EC is 10 years and extendable for 3 years in case PP applies within the expiry date of EC. PP has requested for extension in validity of EC as project could not commence due to delay in accordance diversion of forest 1825 ha land which was accorded on 23.01.2017 by MoEF&CC, due to heavy rainfall in 2019-2020 work was partially closed and due to outbreak of corona and consequential country wide lockdown, works remained totally/partially closed. Now, since PP has applied for extension in EC and considering extendable period is 3 years as per EIA Notification, 2006 and its amendments therein, the EC may be extended till 24th November, 2024. PP has submitted an application no. IA/RJ/RIV/212581/2021 dated 1st July, 2021 i.e. within its validity period of EC.

14.4.5 *The EAC after deliberations observed that project has been delayed due to delay in accordance diversion of forest 1825 ha land which was accorded on 23.01.2017 by MoEF&CC, due to heavy rainfall in 2019-2020 work was partially closed and due to outbreak of corona and consequential country wide lockdown, works remained totally/partially closed. In view of this, EAC **recommended** the proposal for extension in validity of EC dated 25th November, 2011 to Parwan Major Multipurpose Irrigation cum Drinking Water Supply Project in an area of 12,247.79 ha by Department of Water Resources, Government of Rajasthan in village Akawad Kalan, Tehsil Khanpur, District Jhalawar, Rajasthan till 24th November, 2024, under the provisions of EIA Notification, 2006 and subsequent amendments/circulars.*

Agenda No. 14.5

Shaheed Lakhman Nayak Small Hydroelectric Project of 25 MW in an area of 4.902 ha in Village Tentuligumma, Tehsil Boipariguda, District Koraput, (Odisha) – Reconsideration of Environmental Clearance by Meenakshi Odisha Power Private Limited – Reg.

[Proposal No. IA/OR/RIV/140749/2020; F. No. J-12011/03/2007-IA. I]

14.5.1 The proposal is for reconsideration for grant of Environmental Clearance to Shaheed Lakhman Nayak Small Hydroelectric Project of 25 MW in an area of 4.902 ha in Village Tentuligumma, Tehsil Boipariguda, District Koraput, (Odisha).

14.5.2: Observation in Earlier EAC:

1. The proposal for EC was earlier considered in 9th EAC Meeting held on 25th March, 2021.
2. The project was deferred by the EAC seeking additional information which is reflected in the Minutes of the 9th EAC Meeting held on 25th March, 2021.
3. Point-wise replies in response to additional details sought (ADS) by EAC in its 9th meeting are as follows:

(i) Details about upstream and downstream projects be provided along with sketches.

Reply: The proposed SLN SHEP is located on the Kolab river in Koraput district. River Kolab originates at an elevation of about 1372 meters asl from the Sinkaran hills of the Eastern Ghats in Koraput district and meets Godavari River in Andhra Pradesh. The river travels a total length of 198.75 km up to its confluence with the Godavari River. Catchment area of Kolab river up to the diversion weir is 2438 sq. km.

Upstream project is Upper Kolab HEP (320 MW), operational since 1990. Downstream project is Middle Kolab SHEP (25 MW) by M/s Meenakshi Power Private Limited of Meenakshi Group group, which got commissioned in the year 2009.

Upper Kolab and SLN SHEP are 122 km apart and there is no other project in between. Proposed SLN SHEP and downstream Middle Kolab SHEP (25 MW) are both small hydropower projects of Meenakshi Odisha Power Private Limited & Meenakshi Power Private Limited respectively with small weirs and about 150m inter-project distance. Proposed SIN SHEP takes about 200m of river stretch only

An L-section of the river has been prepared has been submitted.

(ii) Type of fish passes to facilitate movement of fish in the river may be indicated in the EIA/EMP report. CIFRI must be consulted in this regard.

Reply: The project envisages the construction of a 8.33 m high gated weir across Kolab with FRL of 339 m and a head race tunnel of 6 m dia and 185 m long. The water of Kolab river shall be diverted by to headrace tunnel for generation of power. The water will be discharged from tailrace channel back to the river and only about 200 m of river stretch will be affected.

To facilitate movement of fish in the river it is proposed in the EIA/EMP study, to provide 'close-to-nature type' fish pass in the form of bypass channel i.e. natural-looking channel that mimics a natural river. Bypass channels are particularly suitable for the diversion structure like weir where migration is to be restored by inserting a fish pass, since it generally requires no structural alterations of the diversion structure itself.

For further study and detailing on the fish pass, CIFRI has been consulted vide letter number MOPPL/SLNSHEP/CIFRI/2405/21-22 dated 24/05/2021. CIFRI promptly responded and suggested a site visit, however, due to COVID 19 lockdown visit dates are yet to be finalized. In the meantime, CIFRI sought additional information, which was shared on email dated 09/06/2021. The matter is being pursued.

(iii) Status of approval of Conservation plan for Schedule I species from Chief Wildlife Warden

Reply: As discussed during the earlier meeting, Biodiversity Conservation and Wildlife Management Plan has been prepared for the schedule species reported from the study area viz. Indian Grey Hornbill and Indian Peafowl and submitted to the Office of Principal Chief Conservator of Forest (wildlife) and Chief Wildlife Warden for approval vide our letter dated

02/03/2021 (Annexure 3a). After EAC's observation, matter was pursued with the department for its approval. Following is the chronology of correspondence with the department:

- a) Letter dated 23/03/2021 received from the Office of Principal Chief Conservator of Forest (wildlife) and Chief Wildlife Warden, Odisha asking us to revise the plan as per the template shared by the office. Copy of letter has been submitted.
- b) Plan was revised and submitted for approval vide our letter dated 7/04/2021. Copy of letter has been submitted.
- c) DFO has approved the plan and submitted to RCCF Koraput for onward transmission to PCCF (Wildlife) & Chief Wild Life Warden, Bhubaneswar, Odisha vide letter dated 07/05/2021. Copy of letter has been submitted.
- d) RCCF Koraput has submitted the plan to PCCF (Wildlife) & Chief Wild Life Warden, Bhubaneswar Odisha vide letter dated 20/05/2021. Copy of letter has been submitted.

At present the plan is pending approval at the office of Chief Wildlife Warden and delay is due to Covid 19 pandemic, where many officers and staff of the department got affected.

(iv) A comparison between minimum observed flow in the river and proposed e-flow along with arrangements for maintaining the e-flow as per norms be provided

Reply: The hydrological data has been used from daily flows gauged by CWC at Saradaput (Station No. 73) on Kolab River (Sabari) for a period of 44 years from June 1971 to May 2015. Data is presented at section 3.2.1.6 of the EIA report. Minimum observed discharge in river is 3 cumec during the month of March in year 2009-10.

Minimum environment flow has been worked out as specified in Scoping/TOR based on the average discharges in 90% dependable year 2002-03) i.e. 20% of the average of the 4 lean months during lean season; 30% of the average of the 4 monsoon months for peak/monsoon season; 20% of the average flow in other months (non lean non monsoon). The values based on 90% DY discharge (2002-03) works out to be 2.2, 57.8 and 5.8 cumec.

A scour sluice with 2 vents of 4.5m (width) x 6m (height) has been provided. Vent will be kept open for about 1m during lean season to ensure release of minimum environment flow; opening will be increased during other months to increase the discharge through sluice and during monsoon the vents will be fully open as there is substantial additional discharge in the river. Average monsoon discharge is 193 cumec in 90% dependable year as compared to rated design discharge of 86.5 cumec.

(v) Air and water analysis results be re-checked in terms of its sampling time/season, whether the average mentioned in the analysis is annual or it is only for 2 seasons

Reply: Data has been rechecked and reproduced in the format discussed in EAC meeting. As the TOR required 2 season data collection, the averages mentioned in analysis earlier was for each season separately. These are 24 hourly monitoring values at each location. Entire data set along with the plots is given at Annexure 5. This also include Water Quality Data for Surface and Ground Water monitored during Pre-monsoon and Monsoon season.

(vi) A statement on the issues raised during public hearing and commitments made, activity-wise, be provided.

Reply: Issues raised during the Public Hearing and commitments made form part of the Public Hearing proceedings, which are enclosed as Annexure VII of the EIA report. Copy of the same as extracted from PH proceedings has been submitted.

(vii) Impact of proposed activity during construction on terrestrial and aquatic life be studied and management plan be prepared accordingly.

Reply: Construction phase impacts on terrestrial and aquatic life have been discussed in Chapter 4 of EIA report and are briefly mentioned below:

- Loss of forest (4.90 ha) will directly impact the habitat of terrestrial fauna including avi fauna. Due to acquisition of 4.902 ha of forest land for the construction of the project 508 trees belonging to 35 species shall be felled. The loss of trees shall affect the feeding and breeding of Indian Grey Hornbill and also the population of Indian Peafowl; both are Schedule I species reported from the area.
- Increased movement of vehicles in the area will generate air and noise pollution impacting flora in the project vicinity.
- Construction activities including operation of construction plant and machinery lead to air and noise emissions directly impacting the flora in the project surrounding. Air emissions especially dust emissions close to river/surface water body impacts the water quality and aquatic fauna. Wastewater generation from construction activities, finding way to natural water bodies without treatment, lead to impact on aquatic Fauna.
- Construction workers temporarily housed near the project site, can indulge in tree cutting and hunting impacting the flora in the project vicinity area.
- Project is about 1 km away (aerial distance) from the nearest boundary of Kangar Valley National Park. Though outside the eco-sensitive zone, incidence of spotting stray fauna cannot be ruled out.

To mitigate such impacts, Biodiversity Conservation and Management Plan has been prepared and submitted for the approval of Chief Wildlife Warden so that conservation measures can be implemented through wildlife department. Measures suggested for habitat improvement include increased tree cover, provision of drinking water in hot summer, awareness programs for villagers and migrant labour, etc.

Further, mitigation measures to minimise the impact of air, noise and water pollution on terrestrial and aquatic fauna have been discussed separately in report and are briefly discussed below:

- No waste dumping in the forest area
- Wastewater from construction site will be treated to ensure compliance with general discharge standards before releasing to any water body/land application.
- All vehicles coming to site will have valid PUC, speed limit will be imposed for vehicle moving on village roads around the site. Construction equipment and machinery will be provided with appropriate pollution control measures such as adequate stack height for

DG sets, dust control from crushers to minimise impact on air environment Water sprinkling on loose construction material and kuchha roads to minimise dust emissions.

- Provision of cooking fuel (LPG) for workers and also Community kitchen to control tree cutting.
- Awareness program and Code of Conduct for labour to make them aware of proximity to protected area and legal consequences of hunting and poaching.

(viii) In accordance with TOR full details about name and number of posts to be created by the project proponent for implementation of EMP and monitoring of environmental parameters be specified in the EIA report rather giving name of Committee proposed for monitoring and evaluation of the Biodiversity Conservation and Wildlife Management Plan.

Reply: Project has planned to keep a full time environment and social coordinator for undertaking all the activities related to implementation of EMP and monitoring of environmental parameters. He will also be responsible for coordination with wildlife for monitoring and evaluation of the Biodiversity Conservation and Wildlife Management Plan. He will be designated as Manager (Environment) and will have bachelor degree in civil/environment engineering and post graduate degree/diploma in environment science/engineering and minimum 3-5 years of experience of working on project site related to environment management and monitoring. He will be reporting to project Manager/Head.

(ix) Proposed cost of green belt development plan seems at lower side, so the revised cost estimate be provided after consultation with concerned forest department.

Reply: Total budget of green belt development was earlier Rs. 2.6 lakh, which has been revised to Rs. 23.975 lakh. Additional road side plantation has been proposed and fund has been allocated for local park development as demanded in public hearing, Revised Green belt Development Plan has been submitted.

(x) Detailed impact analysis of muck transportation and management be provided.

Reply: Impacts of muck generation, transportation and management has been discussed in EIA report and muck management details discussed. This being a small project with only 185 m long HRT and surface powerhouse, muck generation is not substantial. Component wise muck generation estimate, as prepared in DPR, is given below:

S. No	Description of work	Earthwork Excavation in cum	
		All Soils	Hard Rock
1.	Gated Weir and Scouring Sluice	5000	10000
2.	River Diversion Works	10000	0
3.	Approach Channel, Trash Rack and Intake Structure	5000	6500
4.	Head Race Tunnel	6250	9000

5.	Surge Shaft	750	2250
6.	Steel Penstock and Civil Works	5500	6500
7.	Stabilizing of Slopes	1500	3000
8.	Power House	3500	12000
9.	Tail Race Pool	1800	6000
10.	Tail Race Channel	3000	10000
11.	Civil Works for Switch Yard	2500	0
12.	Buildings & Misc. works	5200	4750
	Total	50000	70000
	SUMMARY		
•	Earthwork Excavation in all soils	50,000	cum
•	Excavation in Hard Rock	70,000	cum

Only 120,000 m³ of muck is expected to be generated from the excavation work and entire muck will be used in the project construction work. It has been estimated that for various project construction activities, there would stone requirement of 2,04,140 cum and sand requirement is 55,250 cu m; therefore, muck major portion of the muck will be utilised in the project work and only unsuitable quantities will require disposal in low lying area in consultation with the State pollution control board and Forest Department.

(xi) Necessary consent of neighboring States (The project falls 1 km from inter-state boundary Chhattisgarh) be submitted.

Reply: The matter was taken up with Government of Odisha through the Office of Engineer in Chief (Electricity) cum Principal Chief Electrical Inspector, the nodal department to deal with SHEPs in Odisha including their techno-economic clearances. They have issued two letters in this regard:

- No. Tech-38/Vol. 111/1825 dated 20/05/2021
- No. Tech-38/Vol.111/2039 dated 23/06/2021

They confirmed that all the project components fall within the jurisdiction of Odisha and inter-state boundary with Chhattisgarh is approx. 1.2 km away. This is a run of the river project without any storage and therefore there will not be any submergence issue due to construction of weir. Copies of the letters has been submitted.

The Project Proponent also informed the following:

- Biodiversity Conservation and Wildlife Management Plan was prepared earlier as part of EIA report with a budget of Rs. 55.00 lakh. The plan has been revised in line with the template provided

by Office of the Principal Chief Conservator of Forests (Wildlife and Chief Wildlife Warden, Odisha for a total budget outlay of Rs. 2.50 crore. The revised budget break up is given below:

S.No.	Particulars	Budget (Rs. In Lakhs)
PART A: TO BE IMPLEMENTED BY PROJECT PROPONENT		
1.	Green Belt Development	2.60
2.	Energy Conservation Measures	37.40
3.	Sanitation and Solid Waste Management	49.00
4.	Monitoring and Control of Air, 'Noise and Water Pollution	76.00
Sub Total Part A		165.00
PART B: TO BE IMPLEMENTED BY FOREST AND WILDLIFE DEPARTMENT		
A	Habitat Improvement	
1.	Plantation of tree groves in 2 ha area @ Rs. 75,000/ ha (Including maintenance cost)	1.50
2.	Construction and filling of water holes 10 Nos. @ Rs. 2.0 lakh/ hole	20.00
3.	Recurring cost of filling of water holes (Rs. 50,000/ year for 09 years)	4.50
4.	Provision of veterinary care and cages @ Rs. 50,000/ year for 10 years	5.00
5.	Population Status Studies (every 03 year) @ Rs. 3.0 lakh/year	9.00
6.	Infra-structure development (Surveillance Equipment's like Cameras Wireless Sets, GPS, etc.).	10.00
Sub Total A		50.00
B	Prevention of Forest Fire	
1.	Fire Fighting Equipment	10.00
2.	Clearing of Fireline (Rs. 1 lakh/year for 10 years)	10.00
Sub Total B		20.00
C	Creation of awareness among people (@ Rs. 1 lakch/year	10.00
D	Biodiversity Management Committee (@ Rs. 50,000/year)	5.00
Sub Total C		15.0
Sub Total Part B		85.0
Total Budget		250.0

The budget has already been approved by Regional Chief Conservator of Forests (letter enclosed for ready reference). The final approval by PCCF (wildlife) is expected soon.

ii. Timelines to Implement Commitments Made in Public Hearing Meeting

Issues raised by the public in Hearing Meeting	Response of the Project Proponent with Timelines	Timelines
<p>Compensation of Forest Land to be acquired for the Project from Tulasi Reserve Forest.</p>	<p>Project would require 4.902 ha of forest land under Malkangiri Forest Division in Koraput District and not from Tulasi Reserve Forest. To compensate for the diversion of forest land, compensatory afforestation shall be taken up by the forest department over 5.060 ha non- forest private land identified in Khata No. 326/529 of Village Benasur, under Borigumma tehsil of Koraput district as directed by MoEF&CC while issuing stage I forest clearance for the project on July 06, 2020. The cost of compensatory afforestation will be borne by the project and requisite amount already deposited; thereafter, stage II forest clearance has been issued by MoEF&CC on Feb 16, 2021.</p>	<p>Completed</p>
<p>Protection & Preservation of Local Environment</p>	<p>Project has carried out a comprehensive EIA study based on the terms of reference issued by MoEF&CC vide letter dated 17/04/2020. All the potential impacts of the project have been identified and an Environment Management Plan (EMP) prepared to ensure that minimum impacts of project construction and operation on local environment. EMP includes Biodiversity Conservation</p>	<p>All through during project construction and operation phase</p>

	Plan, Muck Management Plan, Air, Noise and Water Pollution Control, Green Belt Development, Restoration of Construction Site, etc. to ensure protection and preservation of local environment. There are provisions of environment quality monitoring on regular basis during project construction and operation to assess the efficacy of EMP implementation.	
Plantation on road side vacant land & Government land of Tentuligumma & Kartanpalli Panchayat.	Provision for green belt development along the road and around project and office building has already been made in the EIA report. Total area of green belt development has been worked out as 1.8 ha in EIA report. If, additional, government. land is available; project will carry out plantation on additional area of 1.8 ha i.e. a total budget for green belt development on 3.6 ha will be made in project.	Will be completed in one year from th start of construction and maintained for a period of 5 years
Preventive measures against pollution due to Transportation & use of Heavy machineries for the project.	Aspects of transportation of man and material, use of machineries and equipment, use of DG sets for backup power during project construction leading to increase in traffic have been identified as impacts in the EIA report. Mitigation measures have been recommended to minimise air and noise pollution due to transportation and use of machinery and same shall be implemented.	All through the construction phase of 3 years
Development of the	Project has made provisions	Activities will start,

<p>locality like road, Education, Free Electricity for Local villages, drinking water supply, Bus provision for local students, Provision of Ambulance, Development of Health facilities including Health camp etc</p>	<p>for local area development during EIA study based on the assessment of the local needs and budgeted Rs. 1.00 crore for the same. Keeping in view work and the demands by the locals the budget will increased to 1.82 crore (about 1% of the total project cost).</p> <p>Village main road work has already been initiated and largely completed by state government, for the repair of other internal village roads a provision of Rs. 20.00 lakh has been made.</p> <p>Education development in the local villages will be carried out a budget of Rs. 30.00 lakh in consultation with locals, which will ensure providing basic infrastructure and provisions of teachers.</p> <p>A budget of Rs. 30 lakhs for health infrastructure such ambulance, health camps and strengthening local health centre.</p> <p>A budget of Rs. 12 lakhs has been proposed for 3 years of construction period for provision of free electricity to peripheral village.</p>	<p>with the start of construction of work and completed in 3years period commensurate with the construction phase.</p>
<p>Other Peripheral Developmental work as per written representation submitted by local villagers</p>	<p>For other peripheral development work, a list of 42 items are given in the representations. A committee will be formed including the important persons of the Peripheral Villages, project personnel and local authorities</p>	<p>Activities will start, with the start of construction of work and completed in 3 years period commensurate with the construction phase</p>

	to prioritize the development work. A budget provision of Rs. 75 Lakhs will be made for the other peripheral development works.	
Up gradation of existing Shaheed Lakshman Nayak UP school from 7" Standard to High school.	Up gradation of the existing Schools should be done by the State Government and any peripheral financial aid required shall be provided from the above budget allocated for the other Peripheral development works and improvement of educational facilities.	As per above development work on need basis to be completed within 3 years of construction phase
Provision of Teachers at Bijliguda, Mankadapani & Aanalaguda school.	Provision of teachers should be done by the State Government and any financial aid required shall be provided from the above budget allocated for the other Peripheral development works and improvement of educational facilities.	As per above peripheral development work on need basis to be completed within 3 years of construction phase
Provision of College for local students.	The peripheral villages are scantily populated and provision of College for the local students is not feasible. The financial requirements of any college going students will be met from the budget allocated for education and other peripheral developments.	As per above peripheral development work on need basis to be completed within 3 years of construction phase
Development of Museum with Park & Beautification of Tenuligumma Panchayat.	A budget of Rs.15 Lakhs is provided for the development of parks beautification of the Tentuligumma Panchayat	Work has already been initiated and it will be completed by end of 2021
Employment opportunities & Training to local youths in project on priority basis.	Project will give preference to local eligible candidates in employment. Training needs will be identified and employment	During the project construction phase of 3 years

	opportunities & training to local youths will be prioritized during the project construction period on need basis.	
Construction of Bridge over river for direct communication to Boipariguda	The Work is already taken up by the Govt. of Odisha. The Govt. of Odisha has awarded the Work to the Contractor for execution.	-

- iii. Employment of Environment Manager for Proposed SLN SHEP and operational Middle Kolab SHEP:** We propose to keep a full time environment and social coordinator for undertaking all the activities related to implementation of EMP and monitoring of environmental parameters for the existing as well as proposed project. I-le will be designated as Manager (Environment) and will have bachelor degree in civil/environment engineering with 4-5 years' experience or post graduate degree/diploma in environment science/engineering and minimum 2-3 years of experience of working on project site related to environment management and monitoring. He will be reporting to project Manager/Head. The appointment will be made within 6 months' period.
- iv. Rows of Plantation in Green Belt and Survival Rate:** Roadside plantation have been proposed for Green Belt Development on proposed project road and village roads. The project road will have two rows of plantation and village roads will have a single road of plantation. Further, the green belt will be maintained over a period of time to ensure 95% survival rate.
- v. Quantification of Impacts of Muck Transportation:**Total muck generation from various underground activities has been estimated in DPR as 1.2 lakh cum. Out of this hard rock quantity will be 70,000 cum and soil quantity will be 50,000 cum. DPR has further estimated that most of the muck generated is proposed to be utilized for various construction related activities. For impact analysis of transportation of muck, it is assumed that 10% of hard rock and 40% of soil will be unusable and require dumping at muck disposal sites i.e. about 27,000 cum.

Each truck at 80% of its total capacity can take A.5 cum of muck. Therefore, 6000 truck trips will have to be made to dispose off the unusable muck at the low lying area at a distance of about 3-5 Km from the site of generation. Each trip one way will take about 15-20 min. The muck will be generated for about one year of construction period, out of total 3 years of construction period. Therefore, for a period of 300 days 20 truck trips will be made per day.

Emissions from heavy-duty BS IV compliant truck engines (presently BS IV compliant trucks are available) are as below.

- CO: 4 g/kWh (for 500 bhp truck approx. emission: 0.42 g/s)
- HC: 0.55 g/kWh: (for 500 bhp truck approx. emission: 0.06 g/s)
- NOx: 3.5 g/kWh: (for 500 bhp truck approx. emission: 0.36 g/s)
- PM: 0.03 g/kWh: (for 500 bhp truck approx. emission: 0.003 g/s)

For about 20 trips per day for a distance of 3-5 km, the vehicular emissions will be well within the permissible limits as the vehicles used will be complying with the emission norms with valid PUC certificate. Further, muck will be transported in covered trucks and habitation and narrow village roads will not be used for transportation to minimise the impact.

- vi. As advised by EAC, a copy of DPR has been submitted to Central Water Commission, Government of India today for assessment of interstate issues, if any. A copy of the cover letter is enclosed herewith for ready reference.
- vii. Geological Investigation Report carried out as part of the DPR has been submitted.

14.5.3: 14.5.4 The EAC after detailed deliberation on the other additional information and as presented by the PP, **recommended** the proposal for grant of Environmental Clearance to the project subject to compliance of applicable Standard EC conditions with the following additional conditions:

- (i) Impact of proposed activity shall be quantified during construction on terrestrial and aquatic life be studied and management plan be prepared accordingly.
- (ii) G&D stations shall be installed at project site and data shall be shared with MoEF&CC.
- (iii) Environment Management cell shall be formed with qualified members/ Engineers.
- (iv) The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP report. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.
- (v) Environment matrix provided in EMP be revised if any data change. Number and period of stocking of Fish be incorporated in EMP.
- (vi) Plantation across roads as proposed shall have three rows plantation (more than two where applicable). The village roads will have two rows of plantation. Green belt/ Afforestation shall maintain survival rate over 95% throughout the year for every plant species.
- (vii) After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.
- (viii) Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.
- (ix) Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
- (x) Geology of rock shall be shared and detailed plan also be made for utilization of such rocks during the construction of project.
- (xi) PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.

- (xii) *Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.*
- (xiii) *Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. Report of the same to be submitted to Ministry and its Regional office.*
- (xiv) *A multi-specialty hospital to cater the need of people living within 10 km radius of the project shall be established.*
- (xv) *Solar panel be provided to the families living in rural areas within 10 km radius of project.*
- (xvi) *Computer labs with internet facility shall be established in primary schools within 10 km radius of project.*
- (xvii) *Sport complex with multi- sport facility shall be established. The children's from economically weaker section shall be given free of cost sport facility.*
- (xviii) *An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.*
- (xix) *The Multi-Disciplinary Committee needs to be reconstituted and the meeting needs to be held at regular interval*
- (xx) *PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.*
- (xxi) *The e-flow shall be maintained as per NGT directions.*
- (xxii) *A time bound action plan for compliance of each of the above condition will be submitted to RO, MoEF&CC within 3months.*

ATTENDANCE LIST

Sr. No	Name& Address	Role	Attendance
1	Dr. K. Gopakumar	Chairman	P
2	Dr. N. Lakshman	Member	P
3	Dr. Mukesh Sharma	Member	P
4	Dr. B. K. Panigrahi	Member	A
5	Dr. Chandrahas Deshpande	Member	P
6	Dr. A. K. Malhotra	Member	P
7	Dr. Uday Kumar R.Y.	Member	P
8	Dr. Narayan Shenoy K	Member	A
9	Shri Balraj Joshi	Member	P
10	Shri Sharvan Kumar	Member (Representative of CEA)	A
11	Shri A. K. Singh	Representative of CWC	P
12	Dr. J. A. Johnson	Representative of WII	P
13	Dr. A. K. Sahoo	Representative of CIFRI	P
14	Dr. Vijay Kumar	Representative of Ministry of Earth Sciences	A
15	Shri Yogendra Pal Singh	Member Secretary	P

APPROVAL OF THE CHAIRMAN



Yogendra Pal Singh via nic.in
to me

4:35 PM (3 minutes ago) ☆ ↶ ⋮

From: kgopa@isc.ac.in
To: "Yogendra Pal Singh" <yogendra78@nic.in>
Cc: jaj@wil.gov.in, sjitkumarmalhotra463@gmail.com, "amiya saho" <amiya.sahoo@icar.gov.in>, amiya7@gmail.com, "Amrendra Kumar Singh" <ceenvtmgmt@nic.in>, "bijayaketa panigrahi" <bijayaketa.panigrahi@gmail.com>, balrajoshi@hotmail.com, balrajoshi@gmail.com, "chandrahah deshpande" <chandrahah.deshpande@wellingkar.org>, dchandrahah@gmail.com, mukesh@iitk.ac.in, lnand@rocketmail.com, "kn shenoy" <kn.shenoy@manipal.edu>, udaykumary@yahoo.com, director@mmit.ac.in, "Dr. Vijay Kumar" <vijay.kumar66@nic.in>, dirhpa3@gmail.com, "Munna Kumar Shah" <munna.shah@gov.in>
Sent: Monday, July 19, 2021 12:04:34 PM
Subject: Re: Draft MOM of 14th EAC (R.V. &H.E.)-reg.

Dear Sir

Yes we have incorporated all the suggestions and now we can approve it with all the support of other expert committee members.

With warm regards

Prof. K.Gopakumar, FIEEE, FNAE
DESE, Indian Institute of Science
Bangalore-560012, INDIA

From: Yogendra Pal Singh <yogendra78@nic.in>
Sent: Monday, July 19, 2021 11:58 AM
To: Gopakumar K <kgopa@isc.ac.in>
Cc: jaj@wil.gov.in; sjitkumarmalhotra463@gmail.com; amiya.sahoo@icar.gov.in; amiya7@gmail.com; ceenvtmgmt@nic.in; bijayaketa.panigrahi@gmail.com; bijayaketa.panigrahi@gmail.com; balrajoshi@hotmail.com; balrajoshi@hotmail.com; balrajoshi@gmail.com; chandrahah.deshpande@wellingkar.org; chandrahah.deshpande@wellingkar.org; dchandrahah@gmail.com; dchandrahah@gmail.com; mukesh@iitk.ac.in; lnand@rocketmail.com; kn.shenoy@manipal.edu; udaykumary@yahoo.com; director@mmit.ac.in; dirhpa3@gmail.com; munna.shah@gov.in
Subject: Re: Draft MOM of 14th EAC (R.V. &H.E.)-reg.

External Email

Dear Chairman Sir,

Please find attached the draft minutes after incorporating the comments/suggestions received from Joshi Sir and Shri Sharvan Kumar Sir, for approval.