

**Minutes of the 24<sup>th</sup> Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 27.05.2019 at Narmada Meeting Hall, Ground Floor, Jal Block, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3.**

The 24<sup>th</sup> meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 27.05.2019 with the Chairmanship (I/C) of Dr. D.M. More in the Ministry of Environment, Forest & Climate Change at Narmada Meeting Hall, Ground Floor, Jal Wing, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3. The following members were present.

- |    |                          |   |                                     |
|----|--------------------------|---|-------------------------------------|
| 1. | Dr. D.M. More            | - | Chairman (I/C)                      |
| 2. | Shri N.N. Rai            | - | Representative of CWC               |
| 3. | Dr. A.K. Sahoo           | - | Representative of Director of CIFRI |
| 4. | Dr. S.R. Yadav           | - | Member                              |
| 5. | Dr. (Mrs.) Poonam Kumria | - | Member                              |
| 6. | Dr. S. Kerketta          | - | Member Secretary                    |

Dr. S.K. Jain, Shri Sharvan Kumar, Shri Chetan Pandit, Dr. J.A. Johnson, Dr. Vijay Kumar, Prof. R.K. Kohli, Dr. T.P. Singh, Dr. J.P. Shukla and Dr. Govind Chakrapani could not present due to pre-occupation. The Member Secretary informed the Committee that Dr. T.P. Singh has submitted his resignation and requested the Ministry to relieve him as a EAC member from the Committee. The same was noted by the Committee and opined that let the Ministry may take a separate call in this regards. The deliberations held and the decisions taken are as under:

**Item No. 24.0 Confirmation of the minutes of 23<sup>rd</sup> EAC meeting.**

The Minutes of the 23<sup>rd</sup> EAC (River Valley & Hydroelectric Projects) meeting held on 23.04.2019 were confirmed.

**Item No. 24.1 Third Unit of 50 MW (Phase-II) For Tidong-I Hydroelectric Project (100MW+50MW) Himachal Pradesh by M/S Tidong Power Generation Private Limited- Regarding fresh TOR.**

**File No. J-12011/09/2019-IA-I(R), Proposal No. IA/HP/RIV/105017/2019**

PP along with the consultant made the detailed presentation on the project and provided the following information to the EAC:

Tidong I Hydro Electric Project is located in Kinnaur District of Himachal Pradesh, in Northern Part of India in the Himalayan mountain range. It is at the confluence of rivers Tidong and Sutlej on river Tidong which is fed from a glacial and snow melt fed river basin with several peaks in the catchment area over 6,000m, the highest of which is Rangrik Rang at 6,553 m. It is run of river scheme proposed to harness the hydro potential of Tidong River in its lower reaches between Lambar and Rispa villages. The proposed site is situated 270 km from Shimla on National Highway 22 up to a place near Moorang and thereafter 8 km on the state road upto village Thangi. The distance from Thangi to diversion site at Lumber is about 8 km. Diversion weir is located at Lumber village and power house at Rispa village. The coordinates of the proposed site are latitude 31°20'30" N to 31°33'30" and longitude 78°22'10" E to 78°47'50" E.

The project is a run of the river project with diurnal storage. The plant utilises a gross head of 615 m from Tidong river, diverted from an ungated weir of 1.75 m height and head regulator through a reservoir with a desilting arrangement into an 8.4 km concrete lined headrace tunnel to an underground shaft with embedded penstock of 1145 m to two vertical Pelton turbines each of 50 MW in a surface power station. The water is discharged through a tailrace channel to the main river Sutlej Originally, Tidong I HEP was conceived

as 100 MW (2X 50 MW) run of river project with diurnal storage. Environmental Clearance for Tidong-I Hydroelectric project for (2x50) 100 MW was accorded by Ministry of Environment, Forest & Climate Change (MoEF&CC) vide their letter J-12011/35/2007-IA-I dated 07<sup>th</sup> September 2007. It was observed that during monsoon months, actual discharge in Tidong River is much higher than the design discharge for about 60 days.

Based on the Techno-economic Study carried out by Engineering Consultant, it was found that there is possibility of putting additional 50 MW unit adjacent to two units each of 50 MW. The DPR for the 3<sup>rd</sup> Unit was prepared and submitted to Directorate of Energy (DOE), State Government of Himachal Pradesh. In principle approvals were accorded by the State Government of Himachal Pradesh vide their letter dated 24/09/2015 to go ahead for additional 50 MW unit in the power house.

About 39.0546 ha of forestland was involved in the project area as per the earlier EC for 100 MW project. The project land has been diverted for non-forest purpose for the 100 MW project under construction by Ministry of Environment, Forest and Climate Change through letter No. 9 HPC602/2007/CHA520, dated 18<sup>th</sup> June 2008. There will be no additional forestland required for the expansion project. A total land of 42.2557 ha has been acquired for Phase-I (2x50 MW) of the project. The details of land acquired is given as below:

Private land	3.2011 ha
Forest land	39.0546 ha
<b>Total</b>	<b>42.2557 ha</b>

The proposed expansion will be accommodated within the existing area of Power house and no additional Land/area will be acquired for the III<sup>rd</sup> unit. Project Benefits includes 632.63 MU of Energy generation at 95% availability in 90% dependable year. For the project under implementation of 100 MW, private land of 3.2011 ha was acquired under Land Acquisition Act. The land compensation has been paid to all the 29 land losers as per the direction of State Government of Himachal Pradesh (GoHP). However, land losers accepted the compensation under protest and have approached the lower court for enhancement. Lower court gave the verdict on 17/05/2017 in favor of the land losers. TPGPL has challenged the court order in High Court and have obtained stay on the lower court order. (Detail of the case: -Name of the court: High Court, Shimla, Case No.: CMP(m) No. 1573 of 2017).

The EAC after deliberation on the information submitted and as presented by the PP, recommended for **grant of standard Term of Reference (ToR) along with the following additional ToR** for undertaking EIA and preparation of Environment Management Plan (EMP):

- i. All the tasks including conduct of public hearing be completed as per the provisions of EIA Notification, 2006 and as amended time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant Chapter.
- ii. Fund allocation for CER shall be made as per Ministry's O.M. No. 22-65/2017-IA.III dated 1<sup>st</sup> May, 2018 for various activities therein. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.
- iii. Hydrological discharge needs to be revalidated for the availability of water in Monsoon season for additional 50 MW. Observed discharge series and discharge series developed by using correlation with respect to Baspa project data may be submitted in EIA/EMP reports.
- iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
- v. Baseline data shall not be more than 3 years old at the time of submitting the project for appraisal.

- vi. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III&IIIA) given in the EIA Notification, 2006.
- vii. Compliance report from the Regional office of MoEF&CC for existing Environmental Clearance granted vide dated 07.09.2007.
- viii. Total estimated project cost for both 100 & 150 MW needs to be submitted in the EIA/EMP report.

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**Item No. 24.2 Nardave Medium Irrigation Project at Nardave, Tal: Kankavali, Dist.: Sindhudurg by M/s Water Resources Department, Konkan Irrigation Development Corporation, Maharashtra - Regarding reconsideration of Environmental Clearance.**

**File No. J12011/7/2017-IA.I(R), Proposal No. IA/MH/RIV/62328/2017**

The Project Proponent (PP) along with MITCON Consultancy and Engineering Services Ltd., Pune made a detailed presentation of the project and *inter-alia*, provided the following information:

The project envisages construction of earthen dam having a maximum height of 66.43 m and 1,749 m length with gated spillway on the right flank and Irrigation cum Power Outlet (ICPO) on the left flank with gross storage capacity of 123.74 MCM on Gad River near Nardev Village in Sindhudurg District of Maharashtra. The project has GCA of 12,631 ha, CCA of 9,978 ha and ICA of 8,084 ha on both the banks of Gad river from 48 villages of Kankavali, Kudal and Malvan Talukas of Sindhudurg District. Irrigation proposed in the project is by lift irrigation for which a series of 14 Nos. of K.T. Weirs shall be provided along the river course to enable lifting of water for irrigation. The project also envisages a dam foot power house with generation capacity of 3 MW. Total catchment area is of 47.70 km<sup>2</sup>. There is no upstream utilization and net annual yield at 75% dependability is 125.80 Mcum. There are no projects exist on the downstream of Nardave Medium Project.

The PP informed that the project was submitted to the Ministry for environmental clearance (EC) in 2011. The Ministry asked for forest clearance status on 19.12.2011 and the project was again resubmitted to the Ministry on 27.9.2012. The MoEF & CC did not consider the proposal as the project was falling in Western Ghat areas. Later on, the PP in the EAC meeting held during 2-3 March, 2017 intimated that Moratorium on Western Ghats has been lifted and therefore PP has applied online for grant of ToR on 8.2.2017 as per the EIA Notification, 2006 and amendment thereon.

The EAC in its 3rd EAC meeting noted that the project was initiated before EIA Notification, 1994 and construction activities have been taken up accordingly. The original administrative approval for the project was given vide letter (Marathi) MHD/1085/(390/85) WRI dated 12.07.1989 for Rs. 3,243.78 lakhs. As the project was prior to enforcement of EIA Notification, 2006 and further, it was also not coming under the purview of EIA Notification, 1994, construction works had already been initiated. Till date, 61.50% work of total dam, 80% of ICPO, 40% of spillway work and 11 KT Weirs have been completed. As of now, Rs. 382.00 crores have been already spent. It was also further noted that some works have already been completed which appeared to be an ongoing project and subsequently, the project was stopped due to paucity of funds.

ToR was granted vide letter No. J-12011/7/2017 IA-1 (R) dated 10.10.2017 for collection of base line data and preparation of EIA/EMP report. Public hearing (PH) was held on 29.08.2018 at Dyandeep Sanskrutik Bhavan, Madhyamik Vidya Mandir, Kanedi, Tehsil Kankavali, Dist. Sindhudurg Chaired by the District Collector, Sindhudurg. PP informed that issues raised during the PH were adequately addressed. Major issues

were related to compensation under R&R, impact on biodiversity, risk due to dam break, air pollution and noise generation, etc. PP submitted the EIA/EMP report to the Ministry on 11.01.2019.

The total land requirement is 631.162 ha and almost 91% of land acquisition work has been completed. Out of this total land, 585.772 ha is private land (19.115 ha to be acquired), 11.25 ha is Govt. Land and 34.14 ha is forestland. The submergence area in the catchment of the dam is 356.35 ha. Five (5) villages consisting of 967 houses are likely to be submerged due to the proposed project. Stage-I forest clearance for 34.14 ha of forestland has already been obtained on 30.09.2009 (No. 6-MHC 018/2011- BHO/1691). The project is about 2 km away from the Radhanagari Wildlife Sanctuary. Standing Committee on NBWL held on 21.01.2015 recommended this proposal for wildlife clearance. The revised administrative approval has been accorded on 19.07.2007 [Marathi Govt. vide order No. Nardave-2007/140/(47/2007)-MPR-MPR Mantralay, Bombay]. The revised estimated cost of the project is about Rs. 44,670.76 lakhs (As per D.S.R.s 2005-06).

Base line data was collected during October 2017 to May 2018. In addition to this, June to Sept 2017 data considered for ecology. Ambient Air Quality and Ambient Noise levels monitoring were carried out at 8 locations from both submergence and command area of the project. Air quality at all the stations was within prescribed limit. Surface water samples from 5 locations and that of Groundwater from 9 locations have been collected. Most of the parameters are found to be well within the prescribed limits. Soil samples have been collected from 13 locations. In most of the project areas, the soil type is found to be silty clay. Soils found in the project area are fertile with moderate NPK and micro-nutrients.

Project benefit includes: 1) Increase in employment: 62 persons; 2) The proposed Nardave Medium Irrigation Project intends to irrigate 8,084 ha in 48 villages of Kankavali, Kudal and Malvan Taluka of Sindhudurg District; and 3) It will lead to increase in the agro-based industries in the command area, which would eventually lead to the economic up-liftment of the area.

<b>Environmental Management Plan (Rs. in lakhs)</b>		
<b>Sl. No.</b>	<b>Particulars</b>	<b>Outlay</b>
1.	Rehabilitation and Resettlement Plan	7,840.83
2.	Green Belt Development/ Afforestation	140.07
3.	Management of Physical & Environmental Resources	10.00
4.	Catchment Area Treatment Plan	243.46
5.	Fishery Management and Conservation Plan	10.00
6.	Biodiversity & WL Conservation Management Plan	15.00
7.	Sanitation and Solid Waste Management Plan	05.00
8.	Health Management Plan	68.58
9.	Disaster Management Plan	25.00
	Total	8,357.94

The EAC after detailed deliberations and considering all the facts of the project as presented by the PP, the EAC observed that PP has commenced and continued the work and then stopped the work due to paucity of funds. EAC, therefore, deferred the proposal and sought some additional information in the 21<sup>st</sup> EAC meeting held on 28.01.2019.

PP submitted the requisite information to the Ministry and accordingly proposal was listed in the 24<sup>th</sup> EAC meeting held on 27.05.2019 (present meeting). PP along with consultant made the detailed presentation before the EAC. After detailed deliberation on the information as presented and submitted to the Ministry, EAC **defer** the project for want of following information:

1. Information on seasonal variation on the environmental attributes including details on fish species.
2. As indicated migratory fish species are available, provision for fish passage in the EMP needs to be relooked.

3. Environmental matrix needs to be clarified.
4. For mapping of wildlife zone, high-resolution images should be included.
5. Data for all seasons (Pre-monsoon, monsoon & post monsoon) on soil, water, air to be submitted. Anticipated impacts because of the proposed project during all seasons should be worked out along with management plan.
6. Detailed data on plant diversity, endemic plants and status of species be submitted.
7. Approved conservation plan for Schedule I species in the project site should be submitted.
8. Declaration by way of affidavit that project cost was less than 100 Crores and as such project did not attracts the EIA Notification, 1994.
9. Declaration by way of affidavit that no construction work has been taken up after EIA Notification 2006 and amended thereof.
10. Status of NBWL Clearance.
11. Environmental Management Plan with budget breakup (Capital as well as recurring) shall be submitted.
12. Fund allocation for CER shall be made as per Ministry's O.M. No. 22-65/2017-IA.III dated 1st May, 2018 for various activities therein. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.
13. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III&IIIA) given in the EIA Notification, 2006.

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**Item No. 24.3 P.V. Narasimha Rao Kanthanapally Sujala Sravanthi Project Jayashankar Bhupalapally District, Telangana by Irrigation & CAD Department, Government of Telangana- Reg. reconsideration of Environmental Clearance.**

**File No. J-12011/1/2010-IA-I, Proposal No. IA/TG/RTV/87571/2017**

The proposed project viz., P.V. Narasimha Rao Kanthanapally Sujala Sravanthi Project (PVNRKSSP) involves construction of 23 m high and 1,132 m long barrage across river Godavari in Jayashankar Bhupalapally District of Telangana. It is located 3 km downstream of existing J. Chokka Rao Devadula Lift Irrigation Scheme (JCR DLIS). The proposed project is likely to stabilize and provide irrigation facilities to existing 5,55,310 ha of command area, i.e. existing J. Chokka Rao Devadula LIS (JCR DLIS) (stabilization of 2,51,310 ha) plus (+) Sri Ram Sagar Project (SRSP)-Stage I & II (stabilization of 3,04,000 ha, out of total ayacut of 5,70,066 ha of Stage-I&II). About 50 TMC of water will be utilized for stabilizing the existing command area and 50 TMC of water will be utilized for drinking water purpose for enroute villages. However, in view of the allocation made to JCR DLIS to an extent of 60 TMC, this project needs 30 TMC of water duly keeping provision of the demands of irrigation and drinking water. The command area is already benefitted by the existing irrigation facilities for the Kharif and bi-seasonal crops and the proposed scheme facilitates irrigation during Rabi season. The project will be benefitting 3 districts of Telangana, i.e. Jayashankar Bhupalapally, Nalgonda and Khammam. The project has been considered as per the provisions of EIA Notification, 2006 and amendments from time to time.

Government of Telangana has accorded administrative approval for this project vide order No. G.O.Ms.No.14 dated 13.02.2017 and the total cost of the project is Rs. 2,121 Crore. Total land required for the project is 674.18 ha, out of which 94 ha is private land and 580.18 ha is river bed area. No forestland is involved in the project. The Scoping/TOR clearance for the project was accorded on 03.04.2017.

As per Godavari Water Disputes Tribunal Award (GWDT), the total allocation of water in the Godavari River to the Telangana State & Andhra Pradesh is 1480 TMC with a view to optimally utilize the water earmarked to projects in Telangana region, the Irrigation & CAD Department prepared a comprehensive plan

for irrigation development in the region, considering shortfall in the existing & ongoing projects, and accordingly reallocation for the existing projects. The net water availability at proposed barrage site has been worked out to be 407.4 TMC of which, 180 TMC is allocated for Kaleshwaram Irrigation project (peddha), 4.5 TMC for Kaleshwaram LIS (tank filling) and 100 TMC for the proposed PVNRKSSP. The total requirement of water amounting is 284.5 TMC and balance 122.90 TMC of water shall be released at the downstream. Hence, sufficient water is available for the project and downstream users.

The purpose of the proposed barrage is to raise the water level in the river to feed the existing irrigation scheme and canals for irrigating the ayacut, which are not getting sufficient water, and also to meet the drinking water needs of the region. The salient features of the proposed barrage are as given below:

1.	FRL (m)	77.00
2.	Location	18°35'19.43"N, 80°23'49.13"E
3.	Total length of barrage (m)	1,132
4.	Max. height of Spillway crest above deepest foundation (m)	11
5.	Crest level (EL m) for Spillway/ Under Sluice	+71.00 / +70.00
6.	No. of gates in Spillway/ Under sluice bays	48 / 11
7.	Type of gates	Radial lift
8.	Maximum discharging capacity (Cumecs)	8,50,000
9.	Total Land	674.18 ha (94 ha private land + 580.18 ha river bed)

Public hearing was conducted at Zilla Parishad High School, Eturangaram, Jayashankar Bhupalapally District of Telangana on 27.9.2018 as per the provisions of the EIA Notification, 2006. All the issues raised during the public hearing have been incorporated in the EIA/EMP report. The main issues raised during the public hearing are implementing environmental safeguards to mitigate air, water and noise pollution, Catchment Area Treatment (CAT), jobs for local people and fair compensation for land losers. Majority of them supported the project for implementation.

The various environmental aspects covering the 10 km radius of proposed barrage and existing command area were considered for baseline data collection. The baseline data (Monsoon season - July-September, 2017, Winter season - October-December, 2017 and Summer season January- March, 2018) was collected covering Physico-chemical aspects, biological aspects and socioeconomic aspects. Three (3) season data have been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested for minimizing the anticipated impacts.

The project benefits are as given below:

1. No forestland is required for implementation of the scheme.
2. Construction of barrage across River Godavari acts as a reservoir thereby supporting proliferation of fish species.
3. Existing irrigation schemes will be stabilized by providing assured water for irrigation.
4. Providing safe drinking water to a large no. of villages, which has lot of socio-economic concern.
5. Agricultural linkages will be considerably improved.
6. The project improves total farm output and hence raises farm income.
7. Altogether, 518 villages will be benefitted directly under the scheme.
8. Direct employment opportunities for 400 members (50 Technical and 350 construction labourers) will be provided during construction phase. Further, indirectly labour opportunities will be substantially improved since larger area will be brought.

The CWC vide letter No.16/27/2006-PA(N)/454-89, dated 14.03.2006 cleared Sriram Sagar Project Stage-II for implementation. Further, vide CWC letter No. 16/27/2007 PA(N)-333-368, dated 7.3.2007, letter No. 16/27/2010-PA(N)/1939-64 dated 4.10.2010 and CWC letter No. 3/13/2017 /FTP-TLG/Mon (S)/406-16 dated 12.12.2017 accorded the clearance for implementation of J. Chokka Rao Devadula LIS.

The salient features of the project as stated in EIA/EMP report are as follows:

- i. Catchment Area Treatment Plan - Catchment area of 85,000 ha is earmarked for treatment and soil conservation measures and Rs. 158.15 Crore is estimated for implementation.
- ii. The R&R Plan - Right to fair Compensation and Transparency in land Acquisition, Rehabilitation and resettlement Act, 2013 and modified Telangana Act, 2016 will be followed for compensating the land losers. Out of 94 ha, 65 ha has already been acquired and paid Rs.18.03 Crore of compensation and for remaining 29 ha, Rs. 2.53 Crore has been earmarked.
- iii. Muck Disposal Plan - The project is expected to generate 32,72,754 m<sup>3</sup> of muck. Of which, 6,54,551 m<sup>3</sup> will be used for construction of guide and tie bunds, 6,54,551 m<sup>3</sup> for construction of service paths, 11,45,464 m<sup>3</sup> is used for cut off trenches and 8,81,188 m<sup>3</sup> will be used for restoration of construction area. The entire muck will be utilized in the project.
- iv. Biodiversity conservation and restoration of Construction site -Restoration of construction area using green belt and plantation has been planned including conservation of Schedule-I species. An amount of Rs. 14 Lakhs is earmarked for this purpose.
- v. Fisheries Development Plan - Construction of barrage and impounding of water will be beneficial to stock the fish species. An amount of Rs. 27 Lakhs has been earmarked for this purpose.
- vi. Local Area Development Plan - Under this plan, up-gradation of existing schools, identification of folk, art and cultural activities, smart classes and up-gradation of Primary Health Centers will be taken up in the tribal areas. An amount of Rs. 40 Lakhs has been earmarked for this purpose.
- vii. Environmental Monitoring Programme budget is Rs. 30.33 Lakhs earmarked for environmental monitoring during construction and operation phase of the project.

The cost estimates for implementation of EMP of the project is presented below:

**Table - Cost Estimates (Rs. In lakhs) of Environmental Management Plan (EMP)**

Sl. No.	Heads	Cost
1.	Catchment Area Treatment (CAT) Plan	158,15.00
2.	Command Area Development	70.00
3.	Restoration of construction site (GB development)	14.00
4.	Fisheries Conservation and Management Plan	27.50
5.	Reservoir RIM Treatment	10.00
6.	Land Acquisition	2,53.03
7.	Local Area Development Plan (LADA)	40.00
8.	Public Health Delivery System	10.25
9.	Sanitation and Solid Waste Management Plan	7.00
10.	Energy Conservation Measures	65.00
11.	Environmental Safeguard Measures to control Air, Noise & Water Pollution	23.25
12.	Environmental Monitoring Programme	30.33
<b>Total</b>		<b>1,63,65.37</b>

Online application for consideration of EC by the EAC has been received on 05.12.2018. The proposal was earlier considered in the 21<sup>st</sup> EAC meeting held on 29.01.2019. The EAC deliberated and after considering

all the facts of the project as presented by the PP, deferred the proposal and sought following additional information:

1. Price of water to be lifted shall be calculated based on the energy required.
2. The environmental matrices for both construction and operation phases is to be revisited. Updated matrix shall be submitted to the Ministry for reconsideration.
3. Provisions of fish pass be explored. List of fish species to be revisited from the secondary sources and accordingly be updated in the EIA/EMP report. Minimum flow requirement be calculated during the leanest season for fish like Hilsa, *Bengalensis*, etc.
4. Detail present status of R&R to be implemented. 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.
5. Only three reptile species are reported from the project area. It needs to be updated with updated list of reptiles present in this area.
6. Submission of certificate from the Chief Wildlife Warden that project is outside ESZ of Eturangaram wildlife sanctuary.

The project proponent submitted the additional information online on 30.04.2019. After submission of the additional information, the proposal has been reconsidered for reconsideration of recommendation of Environmental Clearance in the EAC meeting held on 27.05.2019. The Project Proponent and the Consultant, Environmental Health & Safety Consultants Pvt. Ltd., Bengaluru, made a presentation on the additional information and *inter-alia*, provided the following:

1. Price of water to be lifted be calculated based on the energy required.

**Reply of PP:**

- a) The total energy consumption for lifting **38.18 TMC** of water from Intake pump house at Gangaram village of J. Chokka Rao Devadula Lift Irrigation Scheme till Dharmasagar Tank for 170 days is about **334.50 MW i.e. 1389.97 Million Units**
- b) As per Govt. of Telangana circular (TSNPDCL Tariff Plan 2018-19), cost for 1 unit is **Rs. 5.86/-**
- c) Annual Energy cost= **Rs. 814.52 Crores**
- d) Quantity of water to be lifted = **38.18 TMC**
- e) Cost of water/m<sup>3</sup>

$$\begin{aligned} &= \frac{\text{Annual Energy Cost (in Rs.)} \times 35.315}{\text{Total water to be lifted} \times 10^9} \\ &= \frac{814.52 \times 10^7 \times 35.315}{38.18 \times 10^9} \\ &= \mathbf{Rs. 7.53/m^3} \end{aligned}$$

2. The environmental matrices for both construction and operation phases is to be revisited. Updated matrix shall be submitted to the Ministry for reconsideration.

**Reply of PP:**

The environmental matrices for both construction and operation phases has been presented in Table 4.3 of Section 4.3 of Chapter-4 (Page 4.19 - 4.25) of revised EIA/EMP report.



- Provisions of fish pass be explored. List of fish species to be revisited from the secondary sources and accordingly be updated in the EIA/EMP report. Minimum flow requirement be calculated during the leanest season for fish like *Hilsa, Bengalensis, etc.*

**Reply of PP:**

The construction of barrage does not affect the migratory paths/movements of the fishes as the sluice gates (11 Nos. of width 15 m) of the barrage provide an access for the fishes to cross the barrier.

The list of fish species and the references of the secondary data are given in Table 3.34 of Section 3.5.3.4 in Chapter 3 (Page 3.122-3.127) of revised EIA/EMP report.

As per the monthly inflow data collected from 1966-2013, the average inflow at the barrage site during the lean season is 3977.3 MCM (140.5 TMC) which is sufficient for the movement/breeding activities of *Hilsa (Hilsa) kelee* (Cuvier), *Hilsa (Tenualosa) ilisha* (Hamilton) and *Anguilla bengalensis* (Gray, 1831) species of fishes. Further, the migratory and behavioral aspects of the above species are discussed in Section 9.5.1 of Chapter 9 (Page 9.29 - 9.31) of revised EIA/EMP report.

- Detail present status of R&R to be implemented. 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.

**Reply of PP:**

The project requires 94 ha of private land, no person is affected due to this project, only land is affected, and hence there is no rehabilitation and resettlement. The present status of land acquisition is as given below;

Total land to be acquired for the project (ha)	Compensation already paid as per LA, 1894		Balance land to be acquired as per RFC&TLA, 2013	
	Extent (ha)	Amount (Crores)	Extent (ha)	Amount (Crores)
94	65	18.03	29	2.53

Right to fair Compensation and Transparency in land Acquisition, Rehabilitation and resettlement Act, 2013 and modified Telangana Act, 2016 will be followed for compensating the land losers.

- Only three reptile species are reported from the project area. It needs to be updated with updated list of reptiles present in this area.

**Reply of PP:**

The data has been verified and the reptile species have been updated. Total number of species is 18. The checklist of the reptile species has been updated and is presented in Table 3.33 of Section 3.4.4.2.2 in Chapter 3 (Page 3.110 -3.111).

- Submission of certificate from the Chief Wildlife Warden that project is outside ESZ of Eturnagaram wildlife sanctuary.

### **Reply of PP:**

It is submitted that originally during survey and study of the project, it was observed that the project is being proposed in the river bed/private lands only and therefore no requirement of forestland in Eturnagaram Wildlife Sanctuary. But during discussions held with PCCF (Wildlife), Govt. of Telangana, it was mentioned that the project is touching the outer periphery/boundary of ESZ of Eturnagaram Wildlife Sanctuary. Based on the discussions and observations by State forest authorities necessary proposal/permission, if required, will be obtained from Competent Authority.

The EAC deliberated based on the information provided by the PP and **recommended for grant of Environmental clearance** to the proposed project with the following additional conditions:

- i. Necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and subsequent amendments thereof.
- ii. 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.
- iii. Under CER activities, preference should be given to strengthen the basic amenities in the project affected villages like maintaining drinking water supply, providing health care facilities, etc.
- iv. Preference to be given to the local villagers as per the requirements and suitability, in the job/ other opportunities in the project, etc.
- v. Measures to be taken to develop skills of the local villagers particularly with respect to the trades related to construction works such as electrician, welder, fitter, etc.
- vi. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports before grant of EC.

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**Item No. 24.4 Satdharu Medium Irrigation Project in District Damoh of Madhya Pradesh by Water Resources Department, Govt. of Madhya Pradesh- Regarding fresh Environmental Clearance.**

**F. No. J-12011/27/2017-IA. I(R), Proposal No. IA/MP/RIV/67589/2017**

The Project Proponent (PP) along with M/s Voyants Solutions Pvt. Ltd., 403-IV Floor, BPTP Park Central, Sector-30, NH-8, Gurgaon - 122001, Haryana, accredited with NABET/ QCI made a detailed presentation of the project and inter-alia, provided the following information:

Satdharu Medium Irrigation project is proposed on river Satdharu, a tributary of river Bearma, the latter finally joins river Ken. The project is situated in Damoh block and is 20 km from district head quarter. Project shall encompass 24.80 m high and 755 m long earthen dam including 57.50 m long side channel spillway on river Satdharu near village Bariyao of Damoh district. Yield for Satdharu project (CA=145.68 sq.km) has been computed using the catchment area and average areal rainfall ratio of Garraulli G&D site and the concerned dam catchment. Yield for 50%,75% and 90% dependability has been assessed as 86.97 MCM, 63.03 MCM and 23.56 MCM respectively.

It is designed to store 63.03 MCM live storage of water to provide irrigation to command area of 7555 ha (CCA) through a well-planned network of pressurized pipe irrigation network. A rising main of 5.5 km shall take off from the irrigation sluice and shall take pressurized flow up to distribution chamber. From distribution chambers four gravity minors of total length 18.70 km shall take off to irrigate command located

on both bank of Satdharu river. Five villages consisting of 526 families are likely to be affected by this project. The total cost of the project is about Rs.315.65 Crores and it is proposed to be completed in three years.

For Damoh city and villages drinking water provision of 28.01 MCM has been earmarked. There is no intercepted catchment area at Satdharu dam site and full catchment (145.68 sq.km) entirely lies in state of Madhya Pradesh. Entire submergence at FRL and gross command area of 11623 ha lies in MP. Proposed irrigation under Kharif and Rabi shall be 1500 ha and 7555 ha respectively i.e. annual proposed irrigation shall be 9055 ha.

The proposed dam site is located near Bariyao Village in Damoh Tehsil at latitude 23°42'36"N and longitude 79°27'12"E and geographically covered under SOI Topo Sheet No. 55M/6,55M/3 and 55M/10. The site is approachable from Damoh by a fair weather PWD road and a 2KM fair weather road from this PWD road. The distance from Damoh is 20 km. The nearest railway station to the dam site is Damoh section of west Central. Damoh is a rail head on Jabalpur - Kota West Central Railway.

About 1226.34 ha land of Damoh shall be permanently acquired for the project of which the forest, private and government land shall be 789.93 ha, 212.86 ha and 223.55 ha respectively. Total 05 villages are coming under partial submergence. There shall be 526 affected families of which there shall be 84 displaced families. The land acquisition process as per RFCTLARRA 2013 was initiated in all villages and the District Collector has made award for all stake-holders. Stage-I clearance for diversion of 789.93 ha forest. land was issued by MoEFCC vide letter No.F.No.8-63/2017-FC Dated 11th May,2018. No archaeological monument of national importance, Defense Establishments, lies either in the project area or in its submergence area. The dam site is 9.35 km from the ESZ of Noradehi WLS whereas the reservoir tip is about 3.51 km from the boundary of ESZ.

The maximum concentration of PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>x</sub> and SO<sub>2</sub> has been found to be 59.3 µg/m<sup>3</sup>, 35.95 µg/m<sup>3</sup>, 16.44 µg/m<sup>3</sup> and 6.25 µg/m<sup>3</sup> respectively and within the NAAQS prescribed by CPCB. Noise level monitoring in Ambient air has been done at 06 locations for three seasons. The maximum L-equivalent noise levels during day and night time recorded were 52.3 dB(A) and 40.5dB(A), respectively, and are within the prescribed limits. All physical and general parameters were observed within the desirable limit at all sampling locations as per IS 2296:1982 for class E water. The ground water had all parameters within the desirable/permissible limits specified in IS 10500: 2012. The texture of the soil varied from loam to clay loam, soil is neutral at all the locations having pH varying from 7.43 to 7.72 and have low to high organic carbon (0.47 % - 0.88%). Soils are low in available nitrogen content. (85 to 102 kg/ha). Soils are low in available phosphorus (8.3kg/ha to 9.3kg/ha). Soils are medium to high in potassium content (214.8kg/ha to 468kg/ha). In the study area 185 species of plants were recorded. These include 63 trees, 44 shrubs, 78 species of herbs and climbers. The faunal study reveals that 19 mammalian species of which one (Grey wolf) belongs to Schedule-1 of WPA, 1972; 120 bird species; 15 species of herpeto-fauna were recorded /reported. A total of 30 species of Phytoplankton, 7 species of Zooplankton and 4 taxa of zoo benthos and 10 fish species have been recorded in the project area.

Anticipated Environment Impacts and Mitigation measures includes habitat loss due to diversion of 789.93 forestland and 3427 trees, for mitigation of which compensatory afforestation (Rs. 9,052 lakh) shall be carried out in equivalent non-forest land transferred to Forest Department. Reduction in reservoir capacity and water available for the designated use which shall be addressed through implementation of Biological and engineering measures in 1460 ha area under CAT Plan (Rs 882.00 lakh). Fragmentation of habitat and consequent increase in temporary stress levels of wildlife during construction phase for mitigation of which Wildlife and Bio-diversity Management Plan (Rs 30 lakh) has been proposed. The GLC in air for PM<sub>10</sub> due to fugitive dust emissions from construction activities at the Dam complex and due to increased transportation shall increase for mitigation of which various steps shall be undertaken which inter alia include periodical air quality monitoring (Rs 6 lakh) and copious sprinkling at dam site and on roads for dust suppression shall be done under Air Pollution Control (Rs 7.20 lakh). Ambient air noise levels are expected to increase only during

the project construction phase for mitigation of which construction equipment will be equipped with noise suppression devices and properly maintained mufflers and strict compliance with occupational safety and health standards shall be ensured. Movement of fish on upstream of dam shall be stopped but the reservoir on upstream shall continue a habitat for the indigenous species as well as reservoir species for which Fisheries Management Plan (Rs 195 lakh) has been provided. The flows downstream of the dam shall be reduced to the volume (63.03MCM) stored behind the dam for consumptive use. During monsoon on an average there shall be regular flow of 1.35 cumecs on downstream of dam. During November to May about 0.07 cumecs discharge shall regularly flow d/s in these months.

The scoping clearance to the project was granted by the Ministry vide letter No. J-12011/27/2017-IA-I(R), dated 12.10.2017. The Public Hearing, presided by Mr. Anand Kopariya, ADM, Damoh, was conducted on 28th December, 2018. The main issues touched were related to rehabilitation resettlement and about adequate compensation should be granted for acquiring their assets like land, houses, garden/trees. Adequate provision for drinking water may be earmarked in the project; concession in stamp duty for purchasing land in other area and provision for employment should be generated. Land against patta land may be provided.

#### **Environmental Management Plan with budget breakup (Capital & Recurring cost):**

S. N.	Plans	Cost (Rs. Lakh)	Capital Cost (Rs lakh)	Annual Recurring (Rs lakh)
1.	Catchment Area Treatment Plan	882.00	780.00	34.00
2.	Command Area Development Plan	5306.00*	4661.00*	215.00*
3.	Compensatory Afforestation Scheme	9052.00	8233.00	273.00
4.	Wildlife and Bio-diversity Management plan	30.00	18.00	4.00
5.	Fisheries Management Plan	195.00	186.00	3.00
6.	Resettlement & Rehabilitation Plan	3030.00	3030.00	0.00
7.	Green Belt Development Plan	66.00	48.00	6.00
8.	Reservoir Rim Treatment Plan	30.00	30.00	0.00
9.	Muck Management Plan	15.00	15.00	0.00
10.	Landscape and Restoration Plan	4.00	3.40	0.20
11.	Restoration Plan for Quarry Sites	9.00	5.40	1.20
12.	Disaster Management Plan	10.00	9.40	0.20
13.	Water, Air and Noise Management Plan	16.00	7.90	2.70
14.	Public Health Delivery Plan	90.00	18.00	24.00
15.	Labour Management Plan	21.00	9.00	4.00
16.	Sanitation and Solid Waste Management Plan	54.00	33.00	7.00
17.	Environmental Safeguards	20.00	5.00	5.00
18.	Energy Conservation Measures	21.00	6.60	4.80
19.	Environmental Monitoring Plan	27.00	3.00	8.00
Total EMP (S.N.1 To S.N. 19)		13572.00	12440.70	377.10
20.	CER Plan	475.00	405.00	20.00
Grand Total EMP and CER Plan		14047.00	12845.70	397.10

\*N.B. The cost of works under CAD Scheme has been excluded, as it will be funded under Central Plan with State share in prescribed proportion.

Project benefits inter alia shall include the benefits like (i) Increased Irrigation Potential (Rabi -7555 ha and Kharif-1500 ha),(ii) Better Living Standards, (iii) Improved Market Facilities (3 marketing sheds and 6 km

single lane bituminous road) , (iv) Employment Potential (About 500 people)/ Fisheries (306 fishermen will be benefitted), (v) Sustained Water Availability for Agriculture and Cattle rearing (63.03 MCM for agriculture and 15 MCM for drinking/ domestic), (vi) Increased Green cover(37 ha), (vii) Improvement in Groundwater Level.

EAC in the present meeting observed that Stage-I Forest Clearance for diversion of 789.93ha, has been accorded on 11.05. 2018, application for approval conservation plan for Schedule I species had been submitted to concerned department. Further, total 05 villages are coming under partial submergence. There shall be 526 affected families of which 84 shall be displaced. The land acquisition process as per RFCTLARRA 2013 was initiated in all villages and the District Collector has made award for all stake-holders.

EAC after detailed deliberations, and considering all the facts of the project as presented, **defer** the proposal for want of following information:

1. Under fisheries Management Plan, no specific Species has been mentioned?
2. Fish diversify in three seasons limited to 10, seems to be very less number and no fish species name has been mentioned for which FMP has to be taken up.
3. Impact prediction says movement of fish at the u/s shall be stopped, it is not mentioned what are the fish species to be impacted. Thus detail of the type of fish species to be impacted should be mentioned.
4. Details of insecticide absent in surface water is to be submitted. Measurements have to be mentioned in proper units.
5. Impact of hydrology before and after irrigation should be given.
6. Certificate from Chief Wild Life Warden that project site is outside ESZ.

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**Item No. 24.5** Channaka-Korata (Rudha) barrage on Penganga River-Interstate Irrigation Project, Adilabad district of Telangana by Irrigation & CAD department, Government of Telangana-**Regarding fresh Environmental Clearance.**

**File No. J-12011/17/2016-IA-I(R) , Proposal No. IA/TG/RIV/55126/2016**

ToR for the proposed project has been issued on 05.09.2016. The Project Proponent (PP) applied online on 16.04.2019 for grant of environmental clearance. The PP along with M/s. Aarvee Associates Architects Engineers and Consultants Pvt., Ltd., Hyderabad accredited with NABET/ QCI made a detailed presentation of the project and inter-alia, provided the following information:

In the Interstate Board (ISB) meeting held at Mumbai on 23.08.2016, both Telangana and Maharashtra states have signed the interstate agreement of Channakha-Korata barrage and in this meeting construction of Channakha-Korata barrage by Telangana state has been signed. As per the agreement, 42.48 MCM (1.5 TMC) of water will be shared between Telangana and Maharashtra states in the ratio of 80:20 i.e., 1.2 TMC and 0.3 TMC respectively. It is a joint project between the States of Maharashtra and Telangana on River Penganga and it is independent of the joint Lower Penganga Project, which envisages construction of a barrage across River Penganga on down stream of Lower Penganga Project to irrigate an of 6,677.00 ha (5,463.00 ha in Telangana and 1,214.00 ha in Maharashtra). Command area lies in 14 villages of three mandals viz., Tamsi, Adilabad and Jainad in Adilabad district of Telangana state and 9 villages in Kelapur tehsil of Yavatmal district in Maharashtra state. The Gross Command Area of the project is 10,442.913 ha. Total land requirement is 228.08 ha which is entirely private land. Total submergence area is about 31.16 Acres in Telangana state. A total of 23 villages consisting of 283 persons are likely to be affected due to this project. The Government of Telangana has already acquired this private land with an estimated R&R budget of Rs. 17.8 Crores. The total cost of the project is about Rs. 399.16 Crores and is proposed to complete the construction work in 2 years.

## Background

The Channakha-Korata (Rudha) barrage is located on Penganga River near Channakha village in Kelapur Tehsil of Yavatmal district in Maharashtra state and Korata village in Tamsi Mandal of Adilabad district of Telangana State. The proposed barrage across Lower Penganga river lies at Longitude: 78°31'7.30" E and Latitude: 19°49'8.19" N. The free Catchment area for Barrage is 1338.12 km<sup>2</sup>. The annual gross yield is assessed to be 321.96 million m<sup>3</sup> (11.37 TMC) at 75% dependability. The storage capacity of the project is 23.474 million m<sup>3</sup> (0.829 TMC) and proposed to utilize 42.48 million m<sup>3</sup> (1.5 TMC) in the ratio of 80:20 i.e. 33.984 million m<sup>3</sup> for Telangana state and 8.5 million m<sup>3</sup> for Maharashtra state.

## Project Features

The major components of project are Barrage, Reservoir, Pump House, Pressure mains, Approach bund and Canal network. A Broad crested type Barrage is designed with a length of 342.00 m having 23 Gates. With 3.36 km long main canal (Distributaries for a tentative length of 30 km) in Telangana state on right bank of the river and in Maharashtra state with Piped Distribution network on left bank of the river. The Pump House is located at upstream of barrage near Hathighat village, to lift 4.50 cumecs of water from Barrage. An approach channel 120 m long connects the fore bay of the pump House to the riverbed level. Vertical Turbine pumps (4 Nos.) of 1.92 MW each are proposed to lift the water through MS pressure mains. The power required for lifting the water will be 7.68 MW. The Salient features of the proposed Channakha-Korata barrage Project for Telangana are given Table-1.

**Table -1: Salient Features of Channakha-Korata barrage**

<b>HEAD WORKS/BARRAGE</b>		
<b>A</b>	<b>Location</b>	
	District	Adilabad
	Mandal	Tamsi
	Village	Korata
<b>B</b>	<b>Watershed</b>	
	River	Penganga
	Free catchment area	1,33,812.00 ha
<b>C</b>	<b>Barrage</b>	
	Type	Barrage with vertical lift gates
	Total Length	342 m
	Maximum height	10 m
	(a)above FRL and (b)above MWL	+213.000m, +218.10m
<b>D</b>	<b>Reservoir</b>	
	FRL	+213.00m
	MWL	+218.10m
	Dead storage level	+203.00m
	Lowest River Bed Level	+201.645m
<b>E</b>	<b>Submergence</b>	
	Area under submergence	31.16 acres
	Only Private land (Total)	31.16 acres
<b>F</b>	<b>Pump House</b>	
	Location	Upstream of barrage at Hathighat village
	Peak demand	4.47cumecs

	No of vertical turbines	4nos. of 1.92 MW each
	Total Capacity of the pumps	4.5cumecs
	Power required	7.68MW
<b>G</b>	<b>Command area/Canal Distribution</b>	
	Command Area	6677.00 ha (CCA) 10,442.913 ha (GCA)
	Water Requirement	4.50cumecs
	Designed for water	4.53cumecs
	Length	3,360m
<b>H</b>	<b>Drinking Water</b>	
	Water allotted for drinking purpose	1.15 MCM
	Villages benefitted	23 Nos.
<b>I</b>	Cost of the Project	Rs. 399.16 Crores
	Cost of the EMP	Rs. 21.15 Crores

### Project Benefits

1. As per Godavari Water Disputes Tribunal Award, it is agreed that from Lower Penganga dam to confluence up to Wardha river and downstream of Saykheda and Waghadi dam, 9 TMC water is allocated to Maharashtra state and remaining water is allocated to Telangana state. To utilize this water 4 barrages are proposed along Penganga river, out of which 3 are inter-state projects. Channakha-Korata barrage is second among them.
2. A barrage of storage capacity 0.829 TMC will be constructed to serve the population of 17,340 in drought prone areas of Adilabad district.
3. The 4.5 cumecs of water for irrigation is proposed to be lifted from the barrage and delivered at elevated place and will be carried through gravity canals.
4. 1214 ha of command area in Maharashtra state is proposed to irrigate by piped irrigation.
5. The project is having 31.16 acres of limited submergence in Telangana state at barrage FRL of 213m.
6. To provide water facilities from the allocated water resources, for irrigating the left out ayacut of Lower Penganga Project situated in the uplands & drought prone areas of Adilabad district, Telangana state and Yavatmal District in Maharashtra. There will be substantial increase in the land prices thereby improving the economy of the region.
7. Provision of drinking water supply is made to the 14 villages of Telangana state and 9 villages of Maharashtra state.
8. Direct employment opportunities for 500 persons during peak construction phase and 350 during non-peak activities and 20 persons during the operation phase of the project.
9. There is no forestland involved in the construction of the project.
10. Improved agricultural production leads to establishment of the food processing units thereby improving the economy of the region. Indirect labor opportunities will be substantially improved since larger area will be brought under Irrigation
11. The Benefit Cost (B.C.) ratio for this joint project is 1.60.

### Base Line Status of Project Site

The Baseline Data was collected during Monsoon, Post-monsoon and Pre-Monsoon seasons from September, 2016 to August, 2017. M/s Vision Labs, Hyderabad an accredited by NABL was engaged for the same. The environmental attributes covered for the study include ambient air quality, ground and surface water quality, noise levels, land environment including soil quality, land-use pattern, forest cover, biological environment,

socio-economic and health status of the population, demography and quality of life. The primary and secondary data of the stated parameters were also collected and included in the EIA report for analysis.

### **Air Environment:**

The criteria adopted for selecting the monitoring stations, sampling and analysis was carried out as recommended by IS: 5182 and CPCB. After a preliminary survey of the study area and taking into account the meteorological (predominant wind directions, wind speed) and topographic conditions, traffic volume, major settlements in the study region, six (6) stations were selected for carrying out Ambient Air Quality Monitoring (AAQM). The parameters selected for analyzing ambient air quality status were SO<sub>x</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and CO. All the AAQ stations fall under residential category. The recorded concentrations are compared with the latest National Ambient Air Quality (NAAQ) Standards as notified by CPCB. Monitoring was carried out for all the three seasons of the year. The highest PM<sub>10</sub> value of 46.8 µg/m<sup>3</sup> was observed at Korata village in pre-monsoon and lowest value of 16.2 µg/m<sup>3</sup> was observed at Ghubadi village during monsoon. The PM<sub>2.5</sub> observed at Korata is the highest in pre-monsoon and the lowest value was observed at Ghubadi village in monsoon, which were 25.8 µg/m<sup>3</sup> and 8 µg/m<sup>3</sup>, respectively. The highest SO<sub>x</sub> of 6.7 µg/m<sup>3</sup> was recorded at both Korata in pre-monsoon and Korata and Lowest value 4.0 µg/m<sup>3</sup> was recorded at Pippalkhoti, Korata, Ghubadi, Kodori and Akoli during all the study period. The maximum Nitrogen Di-oxide (NO<sub>x</sub>) value was observed to be 17.5 µg/m<sup>3</sup> at Korata village in pre-monsoon and minimum value of 8.7 µg/m<sup>3</sup> recorded at both Kodori and Akoli villages during monsoon. The CO concentrations at all the locations are found to be less than 1 mg/m<sup>3</sup>.

The concentrations are low, which may be due to the reason that there is no major economic activity except for some agricultural based activities.

### **Surface Water quality:**

During the study period nine (9) Surface water samples were collected for assessing the water quality. Monitoring samples were fixed based on proximity to the project site, their activities and depending upon its utility by the people in the region. Analysis was done for selected physio-chemical parameters along with bacteriological indicators of pollution have been used for describing the baseline status of water environment. Sampling was carried out for all the three seasons of the year. The following are the season wise summary of the Surface Water quality results observed.

The surface water samples collected from the various sources showed pH value ranging between 7.38-8.65 during the study period. Some of water samples were observed to be slightly turbid during monsoon and the analysis results show that the hardness values are in the range of 100 to 200 mg/l. The values of Dissolved Oxygen are in the range of 2.3 to 7.5 mg/l. At three locations viz., SW-3, SW-6 and SW-7, the dissolved oxygen levels were found to be less in monsoon than the requirement, which can affect aquatic life. The BOD values are found to be 3-38 mg/l. The higher values are found to be at locations SW-2, SW-4, SW-6 and SW-7. COD values are found to be between 8-126 mg/l. The highest COD was observed at SW-6 location. The concentrations of Chlorides, Sulphates, Iron and Zinc are well within the limits. Overall, the surface water quality in all seasons is observed to be satisfactory and mostly matching with the IS: 2296 Class "C" Standards.

### **Ground Water Quality**

For assessing the ground water quality in the study area, seven (7) samples were collected from the identified bore wells/dug wells. Sampling was carried out for three different seasons during the study period.

The groundwater samples collected from the various sources showed pH value ranging in between 6.85 to 8.0 during the study period. Water quality analysis also shows the hardness values are in the range of 130 to 460 mg/l, fluoride values are in the range of 0.40 to 0.8 mg/l which is well within the limits. The Chloride



concentration in the samples collected varied between 10-165 mg/l which is well within the permissible limits. In general, the ground water quality assessed during all seasons is found to be satisfactory.

### **Noise Environment**

The noise levels were monitored at ten (10) locations. Precision integrating microcomputer controlled sound level meter having statistical unit with digital display was used for ambient noise level monitoring. It has been observed that all the values measured during the study period are well within the CPCB standards prescribed for residential areas during day and night times. At Hathighat pump house the values of daytime and nighttime noise levels are found to be in the range of 40.6-64.4dB(A) and 32.5-50.5 dB(A).

### **Land Environment**

Based on the land use and land pattern of the existing region, fifteen (15) sampling locations are being identified and analyzed. It was observed that the pH of the soil varies from 7.16 to 8.12, which is considered being very slightly alkaline in nature. The EC of all the soil samples are found to be in the range of 118-185  $\mu$ S/cm. The soil nutrients such as Nitrogen, Phosphorous and Potassium (NPK) are the index of the soil fertility. The NPK values are in the range of 102-524 kg/ha, 18-72 kg/ha & 71-239 kg/ha, respectively. The Nitrogen values found to be low at some locations in the study area as compared to the minimal requirement of 280 kg/ha, Phosphorous levels are also found to be high at all the locations as compared to the general requirement level of >10 kg/ha, and Potassium levels are also found to be lesser at some locations as compared to the minimum limit of 108 kg/ha.

Overall the soils in the study area are rich is found to be in Organic Carbon. The observed values found to be consistent and normal in range. Excess exchangeable sodium in sodic soils has a marked influence on the physical soil properties. As the proportion of exchangeable sodium increases, the soil tends to become more dispersed which results in the breakdown of soil aggregates and lowers the permeability of the soil to air and water.

### **Biological Environment**

Tippeshwar Wildlife Sanctuary is 3.50 km from proposed project and the forest area is classified as dry deciduous forest as per Champion and Seth (1968) and the region falls in hot arid climatic zone. The flora and fauna were studied in the project with respect to terrestrial, aquatic and avian aspects in both forest and non-forest areas. There is no forest diversion involved in the construction of the project.

Based on the proposals of I&CAD Department, Govt. of Telangana, the SBWL has considered the proposal on 31<sup>st</sup> January, 2018 and approved the proposal for recommendation to NBWL with the condition to form a committee to suggest mitigation measures after spot inspection of the area and the conditions as laid down by the Chief Wildlife Warden. Subsequently, constituted Expert Committee visited Channakha-Korata barrage site on 4<sup>th</sup> May, 2018 and 3<sup>rd</sup> - 5<sup>th</sup> September, 2018 and suggested mitigation measures. The same is addressed in mitigation measures of EIA study and will be adhered to. Accordingly, budgetary provision of Rs.8.00 Crores has been made in the EMP for implementing Biodiversity and Wildlife conservation including Tiger Conservation Plan.

### **Public Consultation:**

Public Hearing (PH) was conducted at Zilla Parishad High School, Pippalkoti village Tamsi Mandal, Adilabad District of Telangana on 24.5.2018 Chaired by Joint Collector & Addl. District Magistrate, Adilabad. Similarly, PH was held Lokshradeya Abasaheb Deshmukh Parawekar Vidyalaya, Chanakha, taluk Kelapur, Yavatmala

District, Maharashtra on 12.10.2018 Chaired by Assistant Collector & Sub-divisional Magistrate, Yavatmala. Both the PHs were held as per the provisions of the EIA Notification, 2006.

All the issues raised during the public hearing have been incorporated in the EIA/EMP report. The main issues raised during the public hearing are construction of roads, implementing environmental safeguards to mitigate air, water and noise pollution, jobs for local people and fair compensation for land losers. Local people supported the project for implementation because many farmers committed suicides and therefore, irrigation facilities created by this projects will certainly reduce this agrarian distress to some extent in the district.

#### **Environmental flow:**

<i>Season</i>	<i>Average inflow (in cumecs)</i>	<i>Percent of flow</i>
<i>Lean</i>	<i>0.89</i>	<i>0.19</i>
<i>Monsoon</i>	<i>455.83</i>	<i>96.74</i>
<i>Non-Lean Non-Monsoon</i>	<i>14.47</i>	<i>3.07</i>

#### **Environmental Management Plan**

The Environmental Management Plan (EMP) depicts the procedure in which the project proponent would carry out the implementation of the mitigation measures and ensures compliance with environmental regulations that are binding on the project. EMP is prepared based on assessment of adverse impacts due to the proposed activity. The EMP is also drawn after due consultation of Environmental Experts, project proponents and other relevant authorities.

The EMP provides the best management practices which are to be adopted to mitigate environmental impacts in similar projects. This plan also specifies the organizational requirements and institutional strengthening necessary for sound environmental management of the project. The major components of the EMP are:

- Providing mitigation measures for the adverse impacts identified and quantified,
- EMP implementing Agency,
- Monitoring of the EMP implementation,
- Training on Environmental management,
- Budget for EMP implementation.
- Disaster Management

#### **Costs of Implementation of EMP**

The design and construction of the project involves a number of items such as resettlement & rehabilitation, erosion prevention, compensatory afforestation, eco-conservation measures, traffic management, health & safety etc., only those items that are not covered under the budget for construction are shown in the EMP implementation budget. The total budget for implementation of EMP works out to be Rs. 21.15 Crores as given in below table.

The main components are:

- Compensatory Afforestation
- Tree plantation / Transplantation
- Environmental monitoring during construction and operation phase
- Training during construction and operation phase

### Tentative Budget for Implementation of EMP

S. No.	Item	Cost (Rs. in lakhs)
<b>I</b>	<b>Logistics and Administrative cost:</b>  Vehicle costs and office administration & logistics, etc. for EMC (Environment Management Cell)	38.00
<b>II</b>	<b>Construction costs:</b>  For Sanitation Bio-Toilets, Dust Suppression provision, Decommissioning of Cofferdam, Labour camps, Traffic Management and Monitoring of flora and fauna including Tiger & others during construction and Operation phase etc.	1,019.60
<b>III</b>	<b>Tree plantation:</b>  Compensatory Tree Plantation along the service road of the Canal having length of 30Kms and administrative building area (8000 nos. of trees x Rs. 1000/per tree including 5 years of maintenance)	96.00
<b>IV</b>	<b>Monitoring costs: Construction Phase:</b>  Air Quality & Noise level Monitoring, Water Quality & Soil Quality Analysis and Awareness/Training programs.	34.22
<b>V</b>	<b>Monitoring costs: Operation Phase:</b>  Air Quality & Noise level Monitoring, Water Quality & Soil Quality Analysis	4.74
<b>VI</b>	<b>Corporate Social &amp; Environmental Responsibility:</b>	6,00.00
	<b>Sub Total</b>	<b>17,92.56</b>
	<b>GST @ 18.00 %</b>	<b>3,22.66</b>
	<b>Grand Total</b>	<b>21,15.22</b>

#### Summary & Conclusion:

The identified and quantified significant project & environmental impacts/ issues are summarized below:

- a. The command area development plan is designed in such ways that make up maximum culturable command area with minimal displacement of humans/livestock along the project corridor. Eventually, the project reduces agrarian distress prevailing in the project area i.e., Adilabad district, Telangana and Yavatmal district, Maharashtra for the last two decades.
- b. The Baseline Data for Air, Water, Soil & Noise was collected during Monsoon, Post monsoon & Pre-Monsoon Seasons from September 2016 to August 2017. The ambient air quality levels for all the parameters monitored are well within the standards. This may be due to no industrial/mining/commercial activities prevailing in the study area. The water quality of the study area is suitable for usage in irrigation and the same waters can be used for drinking purposes after disinfection.
- c. As per the Impact Matrix method carried out, the proposed Channakha- Korata barrage project would result in a number of positive permanent impacts on availability of irrigation water, drinking water, rising of ground water table, aesthetics and socio-economic status of the region. The adverse impacts anticipated are marginal, temporary and reversible mainly during Land acquisition and construction period. These adverse impacts can be mitigated by adopting suitable R&R package and suitable mitigation measures.

- d. There will be a positive impact by On Farm Developmental (OFD) works due to construction of distributaries channels which serve the water till tail end of the command area and also the command area less than 40 ha will be served. An amount of 247.5 lakhs is included in the capital cost of the project towards OFD Works.
- e. Very minimal impact on the floral and faunal species present in the Tippihshwar WLS is envisaged through measures like depositing 2% of project cost to the Pench Tiger Foundation (for strengthening of existing anti-poaching infrastructures, monitoring, habitat management activities etc.), providing competent training for workers & technical staff for the protection of the species in the WLS area and monitoring of flora and fauna including Tigers. Accordingly, budgetary provision of Rs.8.00 Crores has been made in EMP for implementing Biodiversity and Wildlife conservation including Tiger Conservation Plan.
- f. Decommissioning of cofferdam will be carried out with proper Engineering and Environmental measures in order to avoid any adverse impact on the environment. A detailed plan is prepared for the same and will be adhered during construction phase. Engineering measures include dewatering procedure to protect the uncured masonry or concrete and Environmental measures include Erosion & Sediment control measures, Turbidity monitoring and Post Construction Restoration and Re-vegetation.

EAC after detailed deliberations, and considering all the facts of the project as presented, by the PP, recommended for grant of environmental clearance subject to submission of the following information along with some additional information:

1. Declaration by way of affidavit that construction of any component of the proposed project had not been carried so far without prior approval from the MoEF & CC.
2. EIA/EMP report be prepared as per the Generic structure (Appendix III of EIA Notification, 2006). Public hearing detail shall be submitted in the chapter of Additional studies.
3. Content of the summary EIA be made as per the Appendix III A of EIA Notification and therefore should be reframed accordingly.
4. An undertaking as a part of the EIA report stating that the contents (information and data) of the EIA report have not been copied from any other EIA reports.
5. The KML file of above said proposal submitted cannot be opened and therefore proper KML file having polygon feature should be submitted.

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**Item No. 24.6 Construction of Adi Badri Dam on Somb Nadi and its piped link to Saraswati Nadi and Saraswati Reservoir by Irrigation & Water Resources Department, Government of Haryana-Regarding reconsideration of ToR.**

**File No. J-12011/20/2018-IA.I(R) Proposal No. IA/HR/RIV/76129/2018**

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

The committee noted that in order to restore water of Somb Nadi to Saraswati Nadi, it is proposed to construct Adi Badri Dam on Somb Nadi and its piped link to Saraswati Nadi and Saraswati reservoir. Adi Badri dam reservoir and Saraswati reservoir would help in recharging the ground water in Himachal Pradesh and Haryana. Recharge will also take along the course of Saraswati Nadi. The project involves construction of 33.4 m high and 160 m long dam and a pipe link of length of 8.82 km to Saraswati reservoir having a capacity of 861 ha-m. The catchment area of Somb Nadi up-to Adi Badri dam is about 29.50 km. About 31.16 ha of forestland diversion is involved. There is no displacement of family in the project and land required for pipe-link. The Saraswati reservoir is already in possession. The Kalesar Wildlife Sanctuary is approximately 8.529 km from the dam site. The estimated cost of the project is about Rs.108.70 crores.

It was also mentioned that the proposed project is not a direct irrigation project. The outcome of the project is rejuvenation of Saraswati Nadi, flood control and ground water recharge. The EAC observed that the aim of the project is not clear as it was mentioned that indirect irrigation is involved and diversion of water during monsoon period shall be carried out to rejuvenate Saraswati Nadi.

EAC in its 17<sup>th</sup> meeting advised that the PP should firm-up the objectives of the project clearly at the first instance and come back to Ministry for consideration for scoping/TOR clearance. The project cannot be accepted in the present form as it is not having any definite objectives. Hence, the project was deferred and shall be considered after submission of detailed information regarding quantum of culturable command area taken up for irrigation along with PFR.

Project proponent vide letter dated 25.03.2019 submitted the detailed objectives of the project to the Ministry as sought by the EAC in the 17<sup>th</sup> meeting. Accordingly, proposal was listed in the present meeting (27.05.2019) and PP made the detailed presentation before the EAC. EAC after the presentation observed that present project aimed for the purpose of revival of Saraswati Nadi as a heritage project with following additional benefits:

- i) Ground Water Recharge
- ii) Flood Control
- iii) Fish Farming
- iv) Recreation/Tourism

The EAC further observed that the instant project does not involve any components of irrigation/hydropower generation which are listed in the 1(c) of the schedule of EIA, Notification, 2006. The EAC, based on the information available found that the project involves infrastructure development. The above project activity in the present form may not be considered in Category 1(c) by this committee and therefore may be **returned** as it does not require EC under 1(c) of the schedule of EIA, Notification, 2006.

**Item No. 24.7 Any other item with the permission of the Chair**

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

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Subject: Re: Draft 24th EAC Meeting (RVP & HEP) 28.05.2019

Date: 06/19/19 08:29 AM

To: Dr S Kerketta [s.kerketta66@gov.in](mailto:s.kerketta66@gov.in)

From: Dinkar More [dnkrmore@yahoo.co.in](mailto:dnkrmore@yahoo.co.in)

It is ok.

Regards

On Wednesday, 19 June, 2019, 6:27:24 am IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Dear Sir,

PFA for kind approval at your end.

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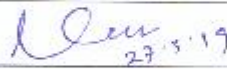
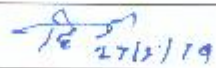



regards,

Dr. S. Kerketta  
Director- IA (Thermal, River Valley & HEP)  
MoEF&CC, New Delhi  
Phone: 011-24695314 (O), 26113096 (R)

**LIST OF MEMBERS**

**24<sup>th</sup> MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) FOR  
RIVER VALLEY & HYDROELECTRIC PROJECTS**

**DATE** : 27<sup>th</sup> May 2019  
**TIME** : 10:30 am onwards  
**VENUE** : Brahmaputra Hall, Indira Paryavaran Bhawan, New Delhi

Sl.No.	Name of Member	Signature
1.	Prof. Sharad Kumar Jain, Chairman	ABS.
2.	Shri. T. P. Singh Member	ABS.
3.	Shri. Sharvan Kumar, Member	ABS
4.	Shri N. N. Rai, Member	
5.	Dr. J.A. Johnson, Member	
6.	Dr. AK Sahoo, Member	 27/5/19
7.	Dr. Vijay Kumar, Member	
8.	Prof. Govind Chakrapani, Member	
9.	Dr. Chetan Pandit, Member	ABS.
10.	Dr. Dinkar Madhavrao More, Member	 27/5/19
11.	Prof. R.K. Kohli, Member	
12.	Prof. S.R. Yadav, Member	
13.	Dr. Jai Prakash Shukla, Member	ABS.
14.	Dr. Poonam Kumria, Member	
15.	Dr. Kerketta, Member Secretary Director (IA-1)	 27/5/19