

Memorandum of Understanding Between



Ken-Betwa Link Project Authority, Bhopal

And



Central Water Commission
Department of Water Resources, River
Development & Ganga Rejuvenation
Ministry of Jal Shakti, Government of India

For

Review Design Consultancy of
Phase I of Ken-Betwa Link Project

June 2025



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This Memorandum of Understanding (here-in-after called MoU) is entered on th day of March 2025 between Ken-Betwa Link Project Authority, (KBLPA), Bhopal, a Special Purpose Vehicle (SPV) having its registered office at O/o KBLPA, 2nd Floor, Visvesaraya Bhawan, Kolar Tiraha, Link Road No.3, Bhopal represented by the **Additional Chief Executive Officer(HW), Bhopal** which expression shall include its representatives, successors and assignees (here-in-after referred to as 'KBLPA/First Party') on the one part

And

Central Water Commission, a premier Technical Organization of India in the field of Water Resources and presently functioning as an attached office of the Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India having its Head Quarter at Sewa Bhawan, R.K.Puram, New Delhi which expression shall include its representatives, successors and assignees (here-in-after referred to as "CWC/Second Party") on the other part

WHEREAS the first party have decided to engage CWC as the Review Design Consultant for the works of Phase-I of Ken-Betwa Link Project.



The second party, i.e. CWC, via their File No.T-15022/1/2023-BCD (NWS) DTE dated 28.02.2024 has indicated that they are willing to provide such services to the first party. The above letter/file shall be part of this agreement.

Competent authority of KBLPA, has accepted the terms and conditions mentioned in the letter dated 28.02.2024 and empowered the designated officer to enter into MoU with the CWC.

1. INTRODUCTION

The Ken-Betwa Link Project Phase-I has been planned as a multipurpose project in the districts of Chattarpur & Panna of Madhya Pradesh with irrigation as a major benefit and power, drinking water supply and flood moderation as other incidental benefits.

Phase I of the link project envisages the construction of a 96.70 m high and 2002.45 m long composite dam across Ken River at Daudhan with sluice spillways to pass the design flood of 57202 cumec. The project includes a 221 km long link canal including cross drainage structures, and two tunnels (Lower Level Tunnel of dia. 5.5m, 1.1 km long HRT and Upper level Tunnel of dia. 8.50m, 1.929 km for link canal). Two surface Power Houses (PH-1 at the toe of Daudhan dam (2 x 30 MW) and the other at the exit of the Lower Level Tunnel (PH-II 3 X 6MW) have also been envisaged. However, in the present scheme (Phase-I) of the project, the two powerhouses and their tail race channels have been excluded.

This project will provide irrigation facilities to various districts in Madhya Pradesh and Uttar Pradesh benefitting lakhs of farmer families. The project will also provide drinking water facilities to the people of the region. Along with this, the hydropower projects will contribute more than 100 MW in green energy.

The salient features of the project are appended as **Annexure-A**.



Now, therefore, in consideration of the above, the parties to the MoU agree to the various terms and conditions given as under:

2. SCOPE OF REVIEW DESIGN CONSULTANCY SERVICES

The CWC shall undertake following major activities:

- 2.1 Review/vetting of the design memo/criteria and construction drawings pertaining to Daudhan dam, intake structures, Head Race Tunnels (at lower and upper level), Surge Shaft, Steel penstocks, Gates, Hoists and Tail Race channels submitted by KBLPA, Bhopal.
- 2.2 Review of the physical/numerical hydraulic model studies reports for the various components of the projects. The TOR for carrying out such studies shall be examined by CWC.
- 2.3 Inspection visits to the project site, HM workshop and model study laboratory, as and when required.
- 2.4 Provide clarifications to the queries of the site engineers on the interpretation of drawings with specific reference to site conditions.
- 2.5 Review all designs/drawings submitted by the KBLPA. The designs shall be carried out as per BIS Codes & Guidelines or CWC Manuals and Guidelines.
- 2.6 The opinion and recommendations expressed by the CWC concerning the review/vetting of design & drawing consultancy work under MoU shall be treated as advice to KBLPA. KBLPA, Bhopal considering the suggestions of CWC shall take the final decision and issue Good for Construction drawings for execution at site.
- 2.7 Specific Exclusions:
 - 2.7.1 Preparation of fabrication and erection drawings required for Hydro Mechanical works and penstock.
 - 2.7.2 Planning and Design of Infrastructure Developments works i.e. all roads/bridges, township buildings Labor colony etc./ various service lines viz. water, sewerage, electricity, gas.,
 - 2.7.3 Design of Buildings , Fencing, watchtower, gate complex,
 - 2.7.4 Formwork and bar bending schedule,
 - 2.7.5 Architectural Planning & designs of various Project components.
- 2.8 Any other issue beyond the scope of review consultancy works will not be dealt by CWC.



3. DESIGN UNIT OF CWC

3.1 CWC through its Designs (NW&S) unit shall provide the services of review consultant to the Project.

3.2 Nodal Officer:

CWC	KBLPA
Director, CMDD (NW&S) Dte, 6 th Floor(S), Sewa Bhawan, R.K. Puram, New Delhi	Additional Chief Executive Officer (HW), Ken-Betwa Link Project Authority, Bhopal

3.3 Liaison Officer of CWC: Director, Monitoring & Ken-Betwa Link Project Design Directorate, NBO, Bhopal.

4. CONSULTANCY CHARGES

The review design consultancy work by CWC shall be carried out on an actual time and cost basis plus overhead charges as per the Government of India's Guidelines/ Orders in force and as amended from time to time.

Non-recurring capital expenditure for the purchase of office equipment, other T&P items, software & consumables and AMC will be borne by KBLPA on the actual cost and or requisition basis from the nodal Officer of CWC duly approved by the Chief Engineer (Designs), CWC, Delhi.

The estimated cost of the consultancy work by CWC is Rs. **20,20,10,000/-** (Rupees Twenty Crore Twenty Lakh Ten Thousand Only), which includes salary of staff, equipment, software, stationary & consumables and other misc.—items, costs related to studies & design, overhead charges, etc. Details are given in **Annexure-B**.

Note: -

- CWC shall charge pay & allowances on an actual time & cost basis as applicable from time to time. The actual bill for each quarter in respect of Establishment charges (Pay & Allowances) including overhead charges @ 40% shall be sent by CWC to KBLPA at the end



of each quarter and KBLPA shall make the payment promptly after the receipt of the bill

- b) Any expenditure incurred by CWC on the cost of data/collection will be borne by KBLPA, Bhopal.
- c) KBLPA shall depute the Young Professional/technical/skilled manpower as requested by CWC at the HQ, New Delhi/Bhopal for the project related works. The expenditure on the wages of technical/skilled manpower deputed at CWC shall be borne by the Project Authority. It is not included in this estimate.
- d) The requisite amount for design aids such as technical literature, design software/licensee fee & AMC charges, IT peripherals, stationery, etc., required by CWC for carrying out the consultancy works shall be deposited to CWC by Cheque or DD in favor of Executive Engineer, P&I Division, CWC Faridabad as per estimate and within the estimate given in the Annexure B (2) or the items requested shall be procured and supplied to CWC by KBLPA on a non-returnable basis, and the cost of the same shall be deducted from provision made in the estimate, as per the Annexure B (2).
- e) Actual Expenditure on T.A & D.A towards all the visits of officials of CWC related to the project will be borne by KBLPA, Bhopal directly as per the entitlement of the individual officer and based on the tour program approved by the Competent Authority of CWC. It is not included in this estimate.
- f) All the applicable taxes from time to time shall be payable by KBLPA, Bhopal.

5. RESPONSIBILITY

5.1 Responsibility of KBLPA, Bhopal

- a) To provide the detailed design memos, supporting analysis and construction drawings prepared by the Principal design consultant. The input design parameters shall be duly approved by the concerned authority ie GSI, CSMRS, CEA, etc. If any data/information are required from outside agencies, the same will be made available to CWC by KBLPA, Bhopal.



- b) To provide schedule of drawings required and designs calculations (hard copy + soft copy) shall be provided in advance so as to avoid any delays in approvals. CWC shall take 03 weeks for examination and approving the design and drawings. The drawings should be submitted preferably matching with the actual construction schedule at the project site.
- c) To obtain all the Statutory and other clearances, including those from CWC, CEA, GSI, CSMRS, MOEF&CC, etc which inter-alia also involves inter-State clearances as applicable to the above project separately, if the same is not obtained earlier. Acceptance of Review design consultancy works by CWC shall not be construed as any clearance by CWC for the project.
- d) Complete vetting of the geotechnical and foundation aspects of the DPR by CSMRS/GSI or any other reputable organization before submission of designs to facilitate the design of the project.
- e) If required, KBLPA in consultation with CWC engage an independent expert/agency and/or panel of experts/agencies of national or international repute for solution of problems not being addressed adequately by the Contractor.
- f) To provide the detailed updated construction schedule and monthly progress report.
- g) If required, to depute at CWC Delhi/Bhopal technical / skilled manpower to assist in project related works.
- h) To co-ordinate with all the other agencies viz GSI, CWPRS, CSMRS, CEA, MOEFF & CC, etc involved in the project
- i) To arrange/depute CWC officers to technical study tours for benefit of projects.
- j) To coordinate and arrange the tickets, boarding, lodging and transport facilities for the CWC officers, as per their entitlement in the parent organization, during the visits.
- k) All matters related to contracts/price escalation/arbitration/ delays/ monitoring of construction activities, Quality control at site, etc
- l) Any other activity to support CWC for review design consultancy works.



5.2 Responsibility of CWC, New Delhi

CWC shall carry out the work of review design consultancy as defined under para 2.0 within the stipulated time frame subject to drawings/designs /input data is provided by KBLPA, Bhopal in timely manner.

6. TIME SCHEDULE

CWC shall endeavor to complete the job within the time frame provided there is no change in data/ parameters or circumstances beyond control.

In the event of likely delay in the completion of work on account of a change in scope/parameters/force majeure and other situations not attributable to CWC, the matter would be brought to the notice of KBLPA, Bhopal, in writing by CWC regarding impending delays, the likely effect on the time for completion of work and extension in time for completion of the task.

7. RESOLUTION OF DISPUTES/DIFFERENCES

7.1 In the event of any dispute or difference relating to the interpretation and application of provisions of this MoU, either Party shall settle such dispute by mutual agreement, failing which the matter will be referred to the Secretary, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India whose decision shall be final and binding on both the parties.

7.2 To the fullest extent of the law, KBLPA shall indemnify, defend and hold harmless the CWC & DoWR, RD&GR, MoJS, its officers, employees, representatives from and against any and all loss contemplated by this MoU, costs, penalties, fines, damages, claims, expenses or liabilities arising out of, resulting from, or in connection with the services.

8. INTELLECTUAL PROPERTY RIGHTS

The designs and drawings vetted by the CWC shall be the joint property of Ken-Betwa Link Project Authority, Bhopal and CWC. Also,



CWC shall be free to publish any research paper/report based on the design/drawing issued to the KBLPA, Bhopal. The work done by CWC shall invariably be acknowledged by KBLPA and the same shall also reflect in the final design, drawings and reports, by way of retaining the CWC name therein along with its logo.

9. AMENDMENTS

Amendments to the terms and conditions of the contract, including any modification of the scope of services, shall be made by the mutual agreement between the parties. The modifications/changes shall be effective from when they are made/ executed unless otherwise agreed to.

10. VALIDITY AND TERMINATION

10.1 This MoU shall be deemed to have come into force with effect from the date of signing of this MoU. The existing MoU will remain valid for three years or till the completion of the work, whichever is earlier, from the date of signing. This MoU shall be reviewed in the penultimate year regarding its scope of arrangement, further extension as well as further value addition. If both parties agree, it can be further extended for agreed number of years. Arrangements set forth in this MoU may be modified upon mutual agreement of the parties to be reflected in writing by duly authorized representatives of the parties.

10.2 Any compelling reasons warrant a premature termination of the MoU, either party would propose the same by giving one month's notice.

10.3 Upon MoU's termination, all the outstanding bills of Second Party shall be paid by the First Party.

11.0 FORCE MAJEURE

The CWC shall not be liable for the delay in performance or other failure to perform the obligations under the MoU if it is the result of an event of Force Majeure. For purposes of this clause, "Force Majeure" means an event beyond the control of the CWC and not involving their fault or negligence and not foreseeable. Such events



may include, but are not restricted to, wars, riots, revolutions, hostility, acts of public enemy, civil commotions, sabotage, fire, explosions, epidemics, earthquakes, strikes, terrorist incidents, etc. Should the occurrence of force majeure last more than 15 days, an extension of time will be given with the mutual consent of CWC, New Delhi and KBLPA, Bhopal.

Notwithstanding above, the decision of Ministry of Jal Shakti shall be final and binding on both the parties.

MEMORANDUM OF UNDERSTANDING is signed on day of March, 2025.

Signature:

Signature:

R K Misra
Additional Chief Executive
Officer(HW)
Ken-Betwa Link Project Authority, Bhopal.

S S Bakshi
Chief Engineer, Design(NW&S)
CWC,
New Delhi.

For and on behalf of Ken-Betwa Link
Project Authority, Bhopal.

For and on behalf of CWC.

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Seal

Witness

Witness



ANNEXURE-A

SALIENT FEATURES OF THE PROJECT

A. LOCATION		
I.	State	M.P. / UP.
II.	District	Panna and Chhatarpur (M.P.)
III.	River	Ken
IV.	Dam Site	Panna and Chhatarpur (M.P.)
V.	Nearest BG Rail Head	Khajuraho (40 km)
VI.	Nearest Airport	Khajuraho (40 km)
VII.	Latitude	24° 36' 51" N
VIII.	Longitude	79° 50' 30" E
B HYDROLOGY:		
I.	Catchment Area	19633 Km ² (River length = 427 Km)
II.	Avg Annual Rainfall at Daudhan Dam	1124.0 mm
III.	Annual avg yield at Daudhan dam	9289 MCM
IV.	for 50% dependable year	8431 MCM
V.	for 75% dependable Year	6590 MCM
VI.	for 90% dependable Year	4979 MCM
VII.	Maximum Observed discharge	20150.0 m ³ /sec in 2005 at Madla
X.	Wind Speed	16.1 km/hr (Max.) & 1.0 km/hr (Min.)
XI.	Evaporation	1.8352 m or 91.9 Mcm
C RESERVOIR:		
I	Full reservoir level (FRL)/(MWL)	EL 288.0 m
II	Minimum draw down level (MDDL)	EL 246.0 m
III	Dead Storage Level	240.0 m
IV	Gross Capacity at FRL	2853 MCM (Area=9000 Ha)
V	Capacity at M.D.D.L	344.75 MCM
VI	Live Storage	2683.74 MCM
VII	Dead Storage	169.27 MCM
VIII	Sediment Load	329.8 m ³ /sqkm/year
D STAGE DIVERSION:		
I	Diversion Discharge	1200 m ³ /sec through the concrete portion
II	No. of Stages	Multiple [as per requirement]



E. DAM		
I	Type	Composite dam with concrete spillway & NOF and earthen right flank
II	Dam Top elevation	EL 293.0 m
III	Height of concrete dam above deepest Foundation level	92 for Overflow portion & 96.70 m for Non-overflow portion
IV	Maximum Height of Earth dam above Ground level	96.70 m
V	Length of Dam at top	2002.45 m (Earth Dam-524.20 m, NOF Dam-982.80 m & Spillway portion- 495.45 m)
F. SPILLWAY		
I	Type	Sluice
II	Maximum probable flood (PMF)/ Design Flood	57202.0 m ³ /sec
III	Number of bays	27 Nos.
IV	Gate size	8.350 m X 11.250 m
V	Crest of spillway	EL 236.0 m
VI	Energy dissipation	Ski-jump bucket with plunge pool type
G. INTAKE		
1. FOR POWERHOUSE-I		
I	Number and size of Gate	Two, 3.8 m (w) X 4.5 m (h)
II	Invert level at inlet	EL 240.75 m
2. FOR POWER HOUSE II/ LOWER LEVEL TUNNEL:		
I	Number and size of Gate	Two, 4.6 m (w) X 5.5 m (h) (one for service & one for Emergency)
II	The invert level at inlet	EL 244.60 m
3. UPPER LEVEL TUNNEL:		
I	Number and size of Gate	Two, 6.0 m (w) X 6.0 m (h) (one for service & one for Emergency)
II	Invert level at inlet	EL 256.00 m
H. TUNNELS:		
1.HRT FOR POWER HOUSE II / LOWER LEVEL TUNNEL		
I	Number	One
II	Size (finished diameter)	5.5 m
III	Shape	Modified horse shoe
IV	Length	1.10 km



2 UPPER LEVEL TUNNEL:		
I	Number	One
II	Size (finished diameter)	6.0 m
III	Shape	D-shape
IV	Length	1.93 Km long
I SURGE SHAFT		
For Power House I:		No Surge Shaft
For Power House II:		
I	Number and Type	One, Restricted Orifice Type
II	Size (finished diameter)	18 m
III	Shape	Circular
IV	Height of surge shaft	60 m
V	Top elevation	EL 305.0 m
J PENSTOCK:		
For Power House I: (NOT IN SCOPE)		
I	Number	2 nos
II	Type	Steel lined
III	Shape	Circular
IV	Diameter	4.5 m
V	Length	84.35 m
For Power House II		
I	Number	3 nos.
II	Type	Shape Circular Steel lined
III	Diameter	2.4 m
IV	Length	120 m
K MAIN INLET VALVE: (NOT IN SCOPE)		
For Power House I:		
I	Type	Butterfly
II	Diameter	4.0 m
2 For Power House II:		
I	Type	Butterfly
II	Diameter	2.4 m
1. Power House I: (NOT IN SCOPE)		
I	Location	Chhatarpur (M.P.)
II	Type	Surface



III	Installed capacity	60 MW
IV	Number and capacity of units	Two of 30 MW each
V	Size of Power House	88.5 m X 22.0 m X 53 m
VI	Type of turbine	Vertical Shaft, Kaplan
VIII	C/L of Turbine EL 222.0 m	Turbine Discharge 82.00 m ³ /sec (each unit)
IX	Maximum Gross head	54.0 m
X	Nos. and size of Draft Tube gates	Two, 5.0 m x 4.4 m
2 Power House II: (NOT IN SCOPE)		
I	Location	Chhatarpur (M.P.)
II	Type	Surface
III	Installed capacity	18 MW
IV	Number and capacity of units	Three of 6 MW each
V	Size of Power House	82.5 m X 29.0 m X 37.8 m
VI	Type of turbine	Vertical Shaft, Kaplan
VIII	C/L of Turbine	EL 240.0 m
IX	Turbine Discharge	20.33 m ³ /sec (each unit)
X	Maximum Gross head	42.0 m
M TAIL RACE CHANNEL (NOT IN SCOPE)		
For Power House I:		
I	Length	405 m
II	Width	32 m
III	Maximum tail water level (TWL)	EL 234.0 m
For Power House II:		
I	Length	255 m
II	Width	40 m
III	Maximum tail water level (TWL)	EL 246.0 m
N SWITCH YARD (NOT IN SCOPE)		
1 For Power House I		
I	Type of switchyard	Outdoor
II	Size and step-up capacity	70.0 m X 85.5 m, 132 KV
2 For Power House II:		
I	Type of switchyard	Outdoor
II	Size and step-up capacity	30.0 m X 63 m, 33 KV



ANNEXURE-B

TENTATIVE ESTIMATE FOR CONSULTANCY WORKS

Item	No's	Rate	Approx Amount (in Rs.)
(1) Establishment Charges (Pay & Allowances): It is estimated that approx. 540 numbers of equivalent drawings shall be examined by CWC.			15,20,10000/-
(2) a) Non-Recurring Capital Expenditure and Official Equipment i. Desktop (Work Station & Monitor), Laptop, Scanner, Printer (Color+ Black & White), Plotter (Color+ B/W), etc. ii. Design Software, License & AMC b) Consumable & Maintenance of Equipment i. Stationary, Cartridge, Portable HDD, Pen-drive. ii. Reference Books, International Codes etc. iii. Office furniture (Steel Rack, Book Shelf, etc.,) and miscellaneous items.		LS	5,00,00,000/-
(3) Travelling Expenses towards visits, training, study tours etc as per actual to be borne by project Authority [Refer para 4.0 Note (e)]			As per actuals
Total (1 + 2)			20,20,10,000/-

Note:

- The estimate of Rs. 20,20,10,000/- (Rupees Twenty Crore Twenty Lakh Ten Thousand Only) is for vetting of design & drawings of Review design consultancy work of Phase-I of Ken-Betwa Link Project.
- The Establishment Charges shall be paid by cheque/DD drawn in favour of DDO-II, CWC.