



MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (MOA) is made on May 15, 2020 between SJVN Ltd. and Indian Institute of Technology (ISM) Dhanbad (IIT-ISM Dhanbad). The SJVN is an organization in the field of Power Sector with pioneering contribution in the field of generation of Hydro Power and IIT-ISM Dhanbad is an institution with pioneering contribution in the field of research, geophysical, mining and geological projects.

This MOA desires availing the services of the IIT-ISM Dhanbad as Consultant for undertaking the below mentioned studies within its expertise of ongoing and future projects at various sites of SJVN within and outside the country. The IIT-ISM Dhanbad is willing to provide Research & Development within the below mentioned areas of expertise to SJVN as mutually agreed.

1. An Airborne Transient Electro-Magnetic (ATEM)/ Airborne time-domain EM (ATDEM) and LIDAR Survey.
2. High Resolution greater depth of investigation for characterization of Geophysical structure using TDEM/TEM/FDEM
3. Magnetic study for geological fault /lineament structure mapping.
4. Electrical resistivity Tomography (ERT).
5. Seismic Refraction Tomography (SRT).
6. Tunnel Seismic Prediction for safe tunneling /rock mass characterization ahead of tunnel face.
7. Cross-hole Tomography for high resolution rock mass characterization.
8. Multichannel Analysis of Surface Waves method (MASW).
9. Down-hole Shear velocity tomography (DHT) for dam design.
10. Well logging for detail subsurface structure /stratigraphic interface mapping.
11. Single station Microtremor survey for H/V analyses leading to predominant frequency distribution and evaluation of 1 D shear wave velocity.
12. Numerical Modeling for reservoir RIM lope stability analysis. Underground openings and slopes.
13. Dam Embankment.
14. Capacity Building for various Cadres.
15. Any other Geotechnical study required at SJVN project.

Each assignment under the MOA given by SJVN to the IIT-ISM Dhanbad will be considered in the form of individual project.

Under this MOA, both the organizations agree to the following broad scope of services and terms & conditions.

1.0 Scope of Services

IIT-ISM Dhanbad shall provide research, development and advisory services to SJVN in the aforesaid areas.

2.0 Responsibilities of SJVN

- 2.1 SJVN agrees to provide restricted access to the adequate information of the project works as available with them where services are to be provided by IIT-ISM Dhanbad.
- 2.2 Necessary infrastructure, office assistance and logistical support including accommodation, etc. will be made available to IIT-ISM Dhanbad officials to be deputed at site/office within reach of SJVN for project work.



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- 2.3 The details of the project works of SJVN requiring services will be discussed with officials of IIT-ISM Dhanbad, and once agreed, will be awarded on case to case basis with scope of work, time schedule for completion, IPR issues cost and payment details on the terms to be decided.
- 2.4 SJVN shall depute its related officers to IIT-ISM Dhanbad as required under the scope of services

3.0 Responsibilities of IIT-ISM DHANBAD

- 3.1 IIT-ISM Dhanbad agrees to take all such identified projects of services and coordination of various projects assigned by SJVN and shall submit the required documents, drawings, designs, reports developed under the scope of services.
- 3.2 IIT-ISM Dhanbad will depute its experts to SJVN and to the sites/offices as required for the assigned work and will carry out all field and laboratory-based tests, analyze the available data/information using the advanced & state-of-art techniques and prepare the comprehensive reports, which would also provide specific & important recommendations for implementation in the field by SJVN.
- 3.3 IIT-ISM Dhanbad, on receipt of SJVN consent, may publish the results of the investigations carried out for dissemination of scientific and technological knowledge and experience gained from SJVN projects for betterment of the hydro sector elsewhere.

4.0 Payment for Services

- 4.1 The payment for studies/investigations to be undertaken by IIT-ISM Dhanbad, on the requirement of SJVN, shall be made on individual project basis, for which IIT-ISM Dhanbad will submit separate proposals to SJVN for approval.
- 4.2 On approval of the project proposals, SJVN shall release 50% of the project cost to maximum of five crores as an advance against every individual project. SJVN shall release 30% of the project cost on submission of the draft report. Balance 20% of the amount shall be released after submission of the final report by IIT-ISM Dhanbad for every individual project and subsequent acceptance thereof by SJVN.
- 4.3 SJVN will release payments to IIT-ISM Dhanbad including GST and/or any other tax as applicable under the State/Central Government rules. GST/TDS can only be exempted, if the necessary exemption certificate issued from the concerned authority is provided to SJVN by IIT-ISM Dhanbad or else they will be dealt as per existing laws/rules.
- 4.4 IIT-ISM Dhanbad shall submit Invoice to SJVN against the particular project for release of payment.

5.0 All the work transferred to SJVN by IIT (ISM) Dhanbad including reports, deliverables, know-how, will be undertaken using standard industry protocols and equipment based on the material/data/information given by SJVN. All the work transferred to SJVN by IIT (ISM) Dhanbad shall be on as-is-where-is basis.

6.0 Duration of the MOA/tenure

This MOA shall be deemed to have come into force for a period of five (5) years with effect from the date of signing. SJVN and/or IIT-ISM Dhanbad can terminate the MOA by giving one year written notice to each other. Any amendments to the MOA are subject to approval in writing by both parties.

7.0 Nodal Officers

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Prof Shalivahan
Dean (R&D)
IIT-ISM Dhanbad



Sri B K Gupta
DGM (Geology)
CHQ Shimla, SJVN Ltd

8.0 Force Majeure

- 8.1 In the event of either party being rendered unable by force majeure to be performed by them under the MOA the relative obligation of the party affected by such force majeure shall up on notification to the other party be suspended for the period during which the cause lasts. The terms of force majeure shall include but not be restricted to natural calamity, earthquake, flood, war, riots, revolts, fire, sabotage and law and other situations due to terrorist activities.
- 8.2 All payments due for work done before the period of interruption due to force majeure shall be payable as scheduled. IIT-ISM Dhanbad would hand over all the field data and reports generated till the date of occurrence of force majeure.
- 8.3 Either party reserves the right to terminate the MOA after a lapse of forty-five days if force majeure continues.
- 8.4 Upon occurrence of such force majeure, the affected party shall notify the other party in writing within 45 days of the beginning of incident, giving full particulars and satisfactory evidence in support of its claim.
- 8.5 Time for performance of the relative obligations suspended by the force majeure shall then stand extended by the period for which such cause lasts.

9.0 Arbitration

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between central public sector enterprises (CPSEs) / port trusts interse and also between CPSEs and Government departments / organizations (excluding disputes concerning railways, income tax, customs and excise departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No 4(1)/2013-DPE (GM)/FTS-1835 dated: 22.05.2018.

Signed for and on behalf IIT-ISM DHANBAD

Name

Shalivahan

Designation

*Dean (R&D)
Dean (Research & Development)
Indian Institute of Technology
(Indian School of Mines)
Dhanbad - 826004 (INDIA)*

In the presence of Witnesses

1.

B.K. Gangwar
C.R.K. Gangwar

2.

Sagar
(Sagar Pr)

Signed for and on behalf of SJVN Ltd

Name :

Designation :

In the presence of Witnesses

1.

2.