



## MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (MOA) is made on 27/11/2019 between NHPC Ltd. And Indian Institute of Technology (Indian School of Mines) Dhanbad (IIT-ISM Dhanbad). The NHPC 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, mining projects, geological projects and consultancy.

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 NHPC within and outside the country. The IIT-ISM Dhanbad is willing to provide Research & Development and Consultancy Services within the below mentioned areas of expertise to NHPC as mutually agreed.

1. New superior erosion resistant materials for Hydro turbine blades and runner
2. Finding non-intrusive methods of assessing the sub-surface geology
3. Quality enhancement of geotechnical investigation utilizing geophysical logging in Hydro Power Projects
4. Study on reservoir triggered seismicity due to Hydro Power Projects
5. Application of Remote Sensing at different stages of Project development
6. Simulation and development of test facility to study the performance of coating material characterizes.
7. Rock stabilization techniques for large size caverns

Each assignment under the MOA given by NHPC 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 NHPC in the aforesaid areas.

### **2.0 Responsibilities of NHPC**

- 2.1 NHPC 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 NHPC for project work.
- 2.3 The details of the project works of NHPC 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, cost and payment details on the terms to be decided.
- 2.4 NHPC shall depute its related officers to IIT-ISM Dhanbad as required under the scope of services.



*[Signature]*  
कार्यपालक निदेशक / Executive Director  
अनुसंधान एवं विकास विभाग / R & D Division  
एन एच पी सी लिमिटेड / NHPC Limited  
(भारत सरकार का उद्यम / A Govt. of India Enterprise)  
सेक्टर-33, फरीदाबाद / Sector-33, Faridabad

### 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 NHPC 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 NHPC 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 NHPC.
- 3.3 IIT-ISM Dhanbad, on receipt of NHPC consent, may publish the results of the investigations carried out for dissemination of scientific and technological knowledge and experience gained from NHPC 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 NHPC, shall be made on individual project basis, for which IIT-ISM Dhanbad will submit separate proposals to NHPC for approval.
- 4.2 On approval of the project proposals, NHPC shall release 50% of the project cost to maximum of five crores as an advance against every individual project. NHPC 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 NHPC.
- 4.3 NHPC 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 NHPC by IIT-ISM Dhanbad or else they will be dealt as per existing laws/rules.
- 4.4 IIT-ISM Dhanbad shall submit Invoice to NHPC against the particular project for release of payment.

5.0 All the Consultancy work transferred to NHPC 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 NHPC. All the Consultancy work transferred to NHPC 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. NHPC 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.



  
काशपालक निदेशक / Executive Director  
अनुसंधान एवं विकास विभाग / R & D Division  
एन एच पी सी लिमिटेड / NHPC Limited  
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## 7.0 Nodal Officers

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

NHPC Ltd  
Executive Director (R&D)



## 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)


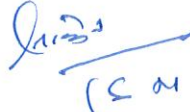
In the presence of Witnesses

1.  27/11/19  
C.R.K. Gangwar
2.  27/11/19  
S.K. Ghosh

Signed for and on behalf of NHPC Ltd

Name :  27/11/19  
Designation :  27/11/19  
Executive Director (R&D)  
NHPC Limited  
Sector-33, Faridabad

In the presence of Witnesses

1.  27/11/19  
R.R. Yadav GM (C) NHPC
2.  27/11/19  
(S.M. HIRA) S.M. HIRA, NHPC