

RESEARCH CO-OPERATION AGREEMENT

Between

एनएमडीसी



NMDC

NMDC Limited

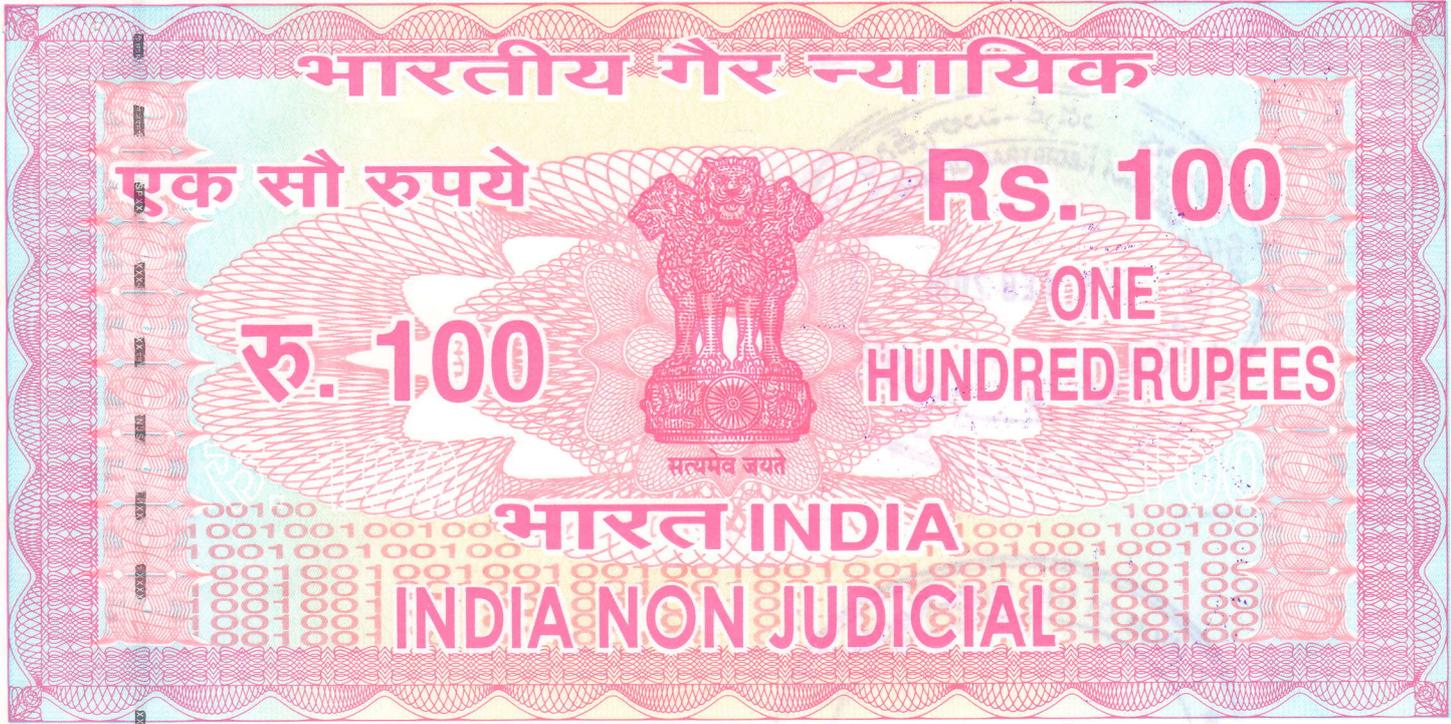
and



NIT, Raipur

for

**Feasibility Studies
on Removal of Contaminants
from Surface and Ground Water of
Bailadila Iron Ore Mine Project & Peripherals**



తెలంగాణ తెలంగాణ TELANGANA
S.No. 2022 Date 19/04/2018

Sold To Rajan Kumar

S/o.D/o.W/o Sachidanand Sahai

For Whom Sey R/o Hyd

P 691521

P. PRABHAKAR

Licensed Stamp Vendor
L.No.15-27-014/1999
RL.No.15-07-009/2017, H.No.4-70/B/2,
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Agreement for "Feasibility Studies on Removal of Contaminants from Surface and Ground Water of Bailadila Iron Ore Mine PROJECT and Peripherals"

1.0 The Agreement

THIS AGREEMENT made and entered into on this 24th April 2018 between NMDC Limited, A Public Sector Company registered under Indian Companies Act, 1956 and having its registered office at Khanij Bhavan, 10-3-311/A, Castle Hills, Masab Tank, Hyderabad, **Telangana State** 500 028 [hereinafter called the "NMDC" which expression shall where the context so admits include its successors and permitted assigns] of the one part

AND

National Institute of Technology Raipur, which is **declared as an Institute of National importance under NITSER Act, 2007 (No. 29 of 2007)** having its registered office at GE Road, Raipur (hereinafter referred as "NITRR"), through Director, National Institute of Technology, GE Road, Raipur, Chhattisgarh 492 010 [hereinafter referred as NITRR, which expression shall where the context so admits include its successors and permitted assign] of the other part.

(Signature)

(Signature)

2.0 Preamble

Whereas NMDC has shown interest and appreciated NITRR initiation for undertaking "Feasibility Studies on Removal of Contaminants from Surface and Ground Water of Bailadila Iron Ore Mine PROJECT and Peripherals" [hereinafter called PROJECT];

Whereas NITRR has represented that they have the updated technical knowhow and knowledge of removal of contaminants from water;

Whereas NITRR assured the proposed research will be applicable to Indian Iron Ore processing industries especially to NMDC for taking care of water related issue(s) in its mining areas;

Whereas the proposed pilot plant facility and expertise developed thereof will be utilized in imparting training to NMDC personnel and further work at NMDC Limited;

Whereas the fund requirement has been mentioned as Rs. 66.59 lakhs (Rupees Sixty Six lakhs Fifty Nine thousand only including GST) to execute the Activities at NITRR with the condition of participating of user industry, for which NITRR has approached NMDC for financial support & R&D inputs;

Whereas NMDC has agreed to take care of funding of up to Rs. 66.59 lakhs (Rupees Sixty Six lakhs Fifty Nine thousand only including GST) for the **PROJECT** and It is agreed that the duration of the PROJECT will be THREE years, which can be extended based on mutual consent between the parties.

Now, therefore in consideration of the premise and mutual covenants hereinafter contained, the parties hereto agree as follows:

3.0 Objective

"Feasibility Studies on Removal of Contaminants from Surface and Ground Water of Bailadila Iron Ore Mine PROJECT and Peripherals".

4.0 Scope of the Agreement

The Agreement contains details of the Scope of Work, Work Plan, Time Schedule, Financial Arrangements, Intellectual Property Rights, Responsibilities and Obligations of NMDC and NITRR pertaining to the PROJECT sponsored by the NMDC.

4.1 Action plan for implementation of the proposed PROJECT

Methodology:

4.1.1 Literature survey on the subject

4.1.2 Detailed characterization studies including physico-chemical analysis and heavy metal analysis of surface and ground water analysis

4.1.3 Design of experiment

- 4.1.4 Evaluating the characteristics of various methods and medium for the experiment
- 4.1.5 Chemical analysis and characterization of water from various areas as identified based on tests carried out
- 4.1.6 Evaluating the efficacy of methods and medium including re-use
- 4.1.7 Installation of major and minor equipment and other instrumentations.
- 4.1.8 Installation of Pilot plant and carrying out studies
- 4.1.9 Measurement of contaminants concentration and distribution
- 4.1.10 Data analysis & Development of model for validation in pilot plant
- 4.1.11 Comparison of pilot plant data
- 4.1.12 Optimization of operational parameters
- 4.1.13 Data analysis and
- 4.1.14 Report preparation

4.2 Organization of work elements:

The work elements involved in the PROJECT are given below

- 4.2.1 Recruitment of PROJECT staff in consultation with NMDC as per the requirement
- 4.2.2 Sample collection and characterization of water
 - 4.2.2.1 NMDC operating/ under development mines in Bailadila region
 - 4.2.2.2 Peripheral area of NMDC mines
- 4.2.3 Design, Fabrication and installation of test facility.
- 4.2.4 Procurement of equipment/instruments
- 4.2.5 Sample preparation and measurements of concentration of suspended matter and other deleterious elements
- 4.2.6 Studies on concentration and deposition for the suspended matter and other deleterious elements using the collected water samples
- 4.2.7 Data analysis, Model development & optimization of parameters
- 4.2.8 Basic design and engineering for pilot plant filter
- 4.2.9 Preparation of PROJECT report

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5.0. Time frame of the project: Total duration: 36 months

Sl. No.	Broad Activity	Activity in months																							
		02	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36						
1.	Recruitment of PROJECT fellow and Literature survey on the subject	█																							
2.	Laboratory set-up, Collection of samples and detailed characterization studies				█																				
3.	Procurement of precision instruments, Chemicals, glassware / plasticwares and adsorbents	█																							
4.	Characterization of samples at varying concentrations & flow levels				█																				
5.	Water behaviour studies for samples at higher concentrations, Data Analysis, model design & installation of pilot plant									█															
6.	Report preparation																█								

Dr. Arun Kumar

6.0 Stages of Activities in the PROJECT:

Activity	Time in months from commencement of period		Agency
	Start	Finish	
Stage 1: Recruitment of PROJECT fellow& literature survey	0 months	6months	NIT Raipur
Stage 2: Laboratory set-up, collection of samples and detailed characterization studies	6 months	30 months	NIT Raipur
Stage 3: Detailed characterization of samples at varying concentrations and flow rate	6 months	24 months	NIT Raipur
Stage 4: Design and installation of pilot plant	12 months	24 months	NIT Raipur
Stage 5: Data analysis and optimization of pilot plant	24 months	30 months	NIT Raipur
Stage 6: Report preparation and publications	26 months	36 months	NIT Raipur

7.0 Financial Arrangement

The total estimated PROJECT cost is Rs. 66.59 lakhs (Rupees Sixty Six lakhs Fifty Nine thousand only including GST). NMDC will pay the entire estimated cost of Rs. 66.59 lakhs (Rupees Sixty Six lakhs Fifty Nine thousand only including GST) to NITRR for undertaking the above PROJECT as per the Payment Terms as mentioned in Clause 9.0.

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Heads	Total PROJECT cost
a) Capital Equipment: Testing Equipment	15,00,000/-
b) Pilot plant/Prototype	
i) Pilot plant equipment(in process industries) or components and sub-assemblies for building prototypes (in Engineering industries) - Indigenous	12,00,000/-
ii) Tools, Jigs, Fixtures, Dies required for prototype/ pilot plant	
iii) Consumables used for prototype or pilot plant - Indigenous - Imported	
iv) Work subcontracted outside	NIL
v) Manpower i. Literature Surveys and lab works	10,80,000/-
c) Cost of testing and trials of prototype or pilot plant i) Materials ii) Consumables / materials = 9,00,000-00 iii) Contingency = 1,50,000-00 (Purchase of Desktop and Laptop)	10,50,000/-
d) R&D/Engineering consultancy for prototype/pilot plant/trials and testing, if any -Indian -Foreign	NIL
e) Travel cost	3,00,000/-
f) Overhead expenses (~@10% of the PROJECT cost)	5,13,000/-
g) Any other costs	NIL
TOTAL	56,43,000/-
Taxes (GST @ 18%)	10,15,740/-
GRAND TOTAL	66,58,740/-
*Rs 66.59 lakh of the amount to be contributed by NMDC Ltd [industry]	

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[Signature]

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[Signature]

9.0 Payment Terms

9.1 Payment will be made in three installments as mentioned below:

S.No	Installment	Amount Rs. in lakhs
1	After signing of the agreement, 1 st year installment: For i. PROJECT fellow salary ii. Consumables iii. Major and minor equipments iv. Contingency v. Travel grant vi. Overhead charges	25,41,000/-
2	2 nd Year installment for For i. PROJECT fellow salary ii. Consumables iii. Design and installation of pilot plant iv. Contingency v. Travel grant vi. Overhead charges	22,11,000/-
3	3 rd year installment: For i. PROJECT fellow salary ii. Consumables iii. Contingency iv. Travel grant v. Overhead charges	8,91,000/-
	TOTAL	56,43,000/-

10.0 Responsibilities of NITRR

10.1 The NITRR undertakes the PROJECT in accordance with the Scope of the Agreement as mentioned at 4.0. NMDC officials will be associated during the entire PROJECT.

10.2 NITRR undertakes to provide access to NMDC of up to THREE MONTHS every year for next THREE years towards access to library and utilization for testing facility created as a result of the PROJECT of the "Feasibility Studies on Removal of Contaminants from Surface and Ground Water of Bailadila Iron Ore Mine PROJECT and Peripherals" created during the PROJECT. After completion of the PROJECT, the pilot plant will be shifted to NMDC R&D Centre, the cost of which will be borne by NMDC.

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- 10.3 NITRR will make available its manpower and consumables to NMDC to carry out the tests.
- 10.4 It is also agreed that NMDC will be liable to make payment only for the consumables utilized during the period mentioned at 10.2 and 10.3.

11.0 Period of Completion of PROJECT

The period of Completion of PROJECT shall be 36 months from the date of signing of the Agreement, which could however, be extended to such further period, as may be required based on exigencies of the situation on account of unforeseen circumstances and mutually agreed by both the parties.

12.0 Reports

NITRR and NMDC shall jointly submit Mid Term Draft Report and copies of detailed final report on completion of the PROJECT to NMDC Limited, Hyderabad as per requirement.

13.0 Responsibilities of the NMDC

The NMDC shall extend stage wise support as per Clause 6.0 and provide the water samples as per requirement by the NITRR laboratory for undertaking the PROJECT.

Nodal officers for single point contact for overall PROJECT coordination and monitoring

For NITRR	<p>Dr. Prakash Dhekne</p> <p>Associate Professor, Department of Mining Engineering, National Institute of Technology, GE Road, Raipur, 492 010 Phone: 0771-2252700 & 2254200 Fax: 0771-2254600 Email: pdhekne@nitrr.ac.in</p>
For NMDC Limited	<p>Shri Rajan Kumar</p> <p>Jt.General Manager [R&D] R&D Centre, NMDC Limited Uppal Road, Hyderabad 500 007 Phone: 040 – 27170224 & 2717 4093 Fax: 040-27172569 E-Mail: rajankr@nmdc.co.in</p>

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14.0 Effective Date Duration & Termination

The Agreement shall be effective from the date of signing of the Agreement and shall remain in force for a period of 36 months unless it is terminated with the mutual consent by both the parties.

15.0 Settlement of dues in case of Termination

For termination of the Agreement, the parties should give one month notice in writing. The issues between the parties shall be settled by mutual discussion, taking into account the expenditure incurred and committed.

16.0 Confidentiality

During the tenure of the Agreement and Five years thereafter both NITRR and NMDC undertake to maintain strict confidentiality in respect of data/information transferred.

17.0 Intellectual Property

Inventions arising from the PROJECT under this Agreement shall be the joint property of the Parties. In case an invention is made, a patent may be applied for in the name of both NMDC and NITRR ("joint IPR"). Prior to the filing or as soon as possible thereafter, NMDC and NITRR shall jointly make application and arrangements for registration on such of subjects. The expenses for registration of patent shall be borne by NMDC and coordinated by NITRR as both the parties would get equal rights over the subjects being patented.

18.0 Background Technology

The Parties agree that all right, title and interest in Background Technology shall remain the sole property of the respective **PARTIES** by whom it is made available for the PROJECT.

19. Results of PROJECT

If the results of the PROJECT (Intellectual property/know-how; collectively known as technology) are such that it can be commercialized, NMDC shall be given the first right for commercial exploitation of the technology. However, the right shall be exercised by a written communication by NMDC to NITRR within 3 years of successful demonstration of the technology. In case NMDC fails to exercise this option within the specified time (or a mutually agreed time) or having done so fails to commercially exploit the intellectual property/know-how within 2-3 years, NITRR shall be free to license the technology to third parties after getting written consent from NMDC Ltd. The money accruing therefrom shall be shared equally between NMDC and NITRR.

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20.0 Completion of PROJECT

The PROJECT shall be deemed successfully completed on successful demonstration of the technology by NITRR to NMDC.

21.0 Publications

Any publication arising out of the work done under the Collaborative Agreement shall require NMDC's written consent/ clearance. In all publications/reports done as research articles in reputed scientific journals/ seminar/ conference proceedings due acknowledgements shall be registered in respect of collaboration/funding support from NMDC.

22.0 Force Majeure

Neither of the parties shall be held responsible for non-fulfillment of their respective obligations under this Agreement due to the exigency of one or more of force majeure events such as but not limited to Acts of God, war, food, earthquakes, strike, lockouts, epidemics, riots, civil commotion etc., provided on the occurrence and cessation of any such events, the affected party thereby shall give a notice in writing to the other within one month of such occurrence of such event. If the Force Majeure conditions continue beyond six months the parties shall then mutually decide about the future course of action.

23.0 Notices

All notices and other communications required to be served on NMDC under the terms of Agreement shall be considered to be duly served if the same shall have been delivered if it is sent by registered post to NMDC at its last known address of business. Similarly, any notice to be given to the NITRR shall be sent by registered post to last known address of NITRR.

24.0 Amendments to the Agreement

No Amendment or modifications of the Agreement shall be valid unless the same is made in writing by either parties or their authorized representatives and specifically stating the same to be an amendment of this Agreement. The modifications/changes shall be effective from the date on which they are made / executed, unless otherwise mutually agreed to.

25.0 Assignment of the Agreement

The rights and / or liabilities arising out of this Agreement shall not be assigned except with the written consent of the NMDC and subject to such terms and conditions as may be mutually agreed upon by both the parties.



26.0 Dispute Resolution and Arbitration:

In the event of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual consultation or through the good offices.

- 26.1 Except as otherwise specifically provided in the AGREEMENT, all disputes concerning questions of facts arising under the AGREEMENT shall be decided by the NMDC subject to a written appeal by the NITRR to the NMDC, whose decision shall be final to the parties hereto.
- 26.2 Any disputes or differences including those considered as such by only one of the parties arising out of or in connection with the NITRR shall be to the extent possible settled amicably between the parties.
- 26.3 If amicable settlement cannot be reached, then such disputed issues shall be settled by arbitration as provided in the Clause 26.4.
- 26.4 Settlement of all disputes through Arbitration: All disputes or differences which may arise between the NMDC and the NITRR in connection with this AGREEMENT (other than those in respect of which the decision of the NMDC is expressed in the AGREEMENT to be final and binding) shall after written notice by either party to the other and to the Chairman-cum-Managing Director of the NMDC Limited (who will be the Appointing Authority) be referred to for adjudication to a Sole Arbitrator to be appointed hereinafter provided.
- 26.5 The Appointing Authority will send within ninety days of the receipt of the notice, a panel of three names of persons not directly connected with the work to the NITRR who will select any one of the persons to be appointed as a Sole Arbitrator within 30 days of receipt of the names. If the Appointing Authority fails to send to the NITRR the panel of three names as aforesaid within the period specified, the NITRR shall send to the Appointing Authority a panel of three names of persons who shall also be unconnected with the organization by which the work is executed. The Appointing Authority shall on receipt of the names as aforesaid select any one of the persons named and appoint him as the Sole Arbitrator. If the Appointing Authority fails to appoint him as the Sole Arbitrator within 30 days of receipt of the panel and inform the NITRR accordingly, the NITRR shall be entitled to invoke the provisions of the Indian Arbitration & Conciliation Act, 1996 as amended from time to time.
- 26.6 The venue of the Arbitration shall be NMDC Limited, Hyderabad, Telangana State, India.
- The Sole Arbitrator shall decide the cost of Arbitration also.

Dr. Anand

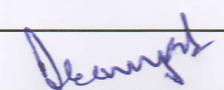


26.7 The arbitration award shall, in addition to dealing with the merits of the case, decide which of the parties shall bear the costs of arbitration or in what proportion the costs shall be borne by the parties.

The parties shall continue to perform their obligations under this AGREEMENT during the arbitration proceedings.

26.8 The Courts of Hyderabad (Telangana State) shall also have exclusive jurisdiction in all matters arising under this AGREEMENT.

Seal of Parties

For & on behalf of NITRR		For & on Behalf of NMDC	
Signature		Signature	
Name	Dr. S. SANYAL	Name	RAJAN KUMAR
Designation	Dean (R&C)	Designation	Jt. GM (R&D) NMDC Limited
Address	NIT Raipur	Address	राजव कुमार RAJAN KUMAR संयुक्त महाप्रबंधक (अनु. एवं विकास) Jt. General Manager (R & D) अनु. एवं विकास केन्द्र/R & D CENTER एच.एम.डी.सी. लिमिटेड हैदराबाद/Hyderabad-500007.
Seal		Seal	

Signed for and on behalf of NMDC

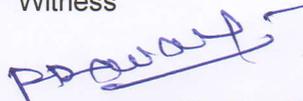
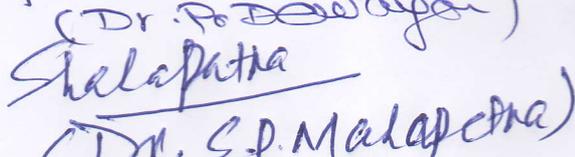
Signed for and on behalf of NITRR.

On this the 24th day of April, 2018 at Raipur, CG.

Witness

1.  (Pradeep Khanna)
2.  (P. JAYA PRAKASH)

Witness

1.  (Dr. P. Dewangan)
2.  (S.P. Malapatna)

