



HINDUSTAN COPPER LIMITED
(A Govt. of India Enterprise)

Expression of Interest (Eoi) for

**IMPROVING THE PERFORMANCE OF CONCENTRATOR PLANT AT MALANJKHAND
COPPER PROJECT, MALANJKHAND MADHYA APRADESH**

Reference No: HCL/ M&C/MCP/2018

Date of Issue: 22.06.2018

Last date of submission: 23.07.2018

Tamra Bhavan, 1, Ashutosh Chowdhury Avenue, Kolkata - 700 019
Tel: +91 33 2283 2226 ; +91 33 2283 2296



Table of Contents

1. Introduction	3
2. Plant Description.....	3-4
3. Ore Characteristics	
3.1 Ore Mineralogy	4 -5
3.2 Copper Distribution of Ore Samples.....	5
3.3 Crushing work index	5
3.4 Grinding Bond Work Index.....	5
3.5 Tailing Mineralogy.....	6
3.6 Plant Performance.....	6
4. Scope Of Work	6 -7
5. Minimum Selection Criteria	7
6. Pre-Qualification Criteria (PQC)	7 -9
7. General Terms & Conditions	
7.1 Turnkey Project	9
7.2 Execution Methodology	9
7.3 Payment	9
7.4 Request for clarification	9
7.5 Modification/Cancellation	9
7.6 Governing laws/Jurisdiction/Arbitration.....	9 -10
7.7 MCP Visit	10
7.8 EOI Process	10-11
7.9 Further information/ clarifications.....	11
8. Forms	
8.1 Submission of proposal.....	12
8.2 Litigation Impact Statement.....	13
8.3 Site Visit Certificate	14



1) INTRODUCTION:

Hindustan Copper Limited (HCL), a public sector undertaking under the administrative control of the Ministry of Mines, was incorporated on 9th November 1967. It has the distinction of being the nation's only vertically integrated copper producing company as it manufactures copper right from the stage of mining to beneficiation, smelting, refining and casting of refined copper metal into downstream saleable products.

The Company markets copper cathodes, copper wire bar, continuous cast copper rod and by-products, such as anode slime (containing gold, silver, etc.), copper sulphate and sulphuric acid. In normal practice, more than 90% of the sales revenue is generated from cathode and continuous cast copper rods. HCL's mines and plants are spread across five operating Units, one each in the States of Rajasthan, Madhya Pradesh, Jharkhand, Maharashtra and Gujarat are detailed below:

- Khetri Copper Complex (KCC) at Khetrinagar, Rajasthan
- Indian Copper Complex (ICC) at Ghatsila, Jharkhand
- Malanjkhand Copper Project (MCP) at Malanjkhand, Madhya Pradesh
- Taloja Copper Project (TCP) at Taloja, Maharashtra
- Gujarat Copper Project (GCP) at Jhagadia, Gujarat

HCL is operating 2.5 million TPY Ore Treatment plant to produce Copper Concentrate at MCP, Malanjkhand, Madhya Pradesh, India since 1983. The Copper ore is produced in MCP Open Cast mine and transported to plant by dump trucks.

Recently MCP ore has been tested in GTK Finland laboratory and it was found that recovery of copper in flotation circuit can be achieved 94% as against 92.0% presently achieved in concentrator plant operation. HCL is interested to adopt new developments in the mineral technology by retrofitting the existing circuit with state-of-the-art technology and achieve the optimum result of the plant which is indicated in the recent tests.

HCL invites expression of interest from EPC Contractor / Equipment Suppliers for upgrading the MCP Concentrator plant by studying the existing plant operation data, carrying out laboratory / pilot plant study, selection of equipment to guarantee the minimum performance criteria as mentioned under scope of work. After analysing the Bidder capabilities, a tender for the same shall be issued to short listed vendors based on the selection criteria mentioned in this document.

2) PLANT DESCRIPTION:

MCP is having Chalcopyrite Ore which is fed to 3 stage crushing followed by grinding circuit which consists Ball Mill, hi-chrome balls used as grinding media. Primary crushing is done by Gyratory Crusher and Secondary & Tertiary crushing is achieved in Cone Crushers. Total 4 ball mills are in operation each mill is working in close circuit with exclusive hydro-cyclone classification system. Underflow of the hydro-cyclone gravitates to the mill feed and



overflow gravitates to rougher flotation circuit. Flotation circuit consists roughing, scavenging and cleaning sections. Scavenger tail is pumped to the tailing dam and cleaner concentrate is dewatered in high rate thickener and ceramic disc filter.

3) ORE CHARACTERISTICS:

A brief detail of MCP ore mineralogy and characteristics are provided below:

3.1 Ore Mineralogy:

<u>Mineral</u>	<u>M feed-Wt%</u>
Chalcopyrite	3.86
Cubanite	0.00
Chalcocite	0.07
Digenite	0.03
Covellite	0.02
Sphalerite	0.01
Pyrite	1.36
Pyrrhotite	0.00
Molybdenite	0.01
Quartz	81.89
Plagioclase	2.54
K-feldspar	4.37
Epidote	1.02
Tourmaline	0.15
Almandine	0.04
Ferrosilite	0.01
Tremolite	0.00
Actinolite	0.24
Ferroactinolite	0.00
Cumingtonite	0.01
Anthophyllite	0.00
Hornblende	0.14
Ferropargasite	0.04
Pyrochlore	0.02
Biotite	0.21
Chlorite	1.91
Muscovite	0.11
Kaolinite	0.10
Clay	0.02
Titanite	0.03
Ferropyrosmalite	0.00
Marialite	0.02
Andalusite-Kyanite	0.00



Allanite	0.03
Calcite	0.05
Ankerite	0.00
Corundum	0.00
Apatite	0.05
Magnetite	1.03
Ilmenite	0.01
Goethite	0.17
Native_Copper	0.03
Iron	0.05
Unknown	0.35
Total	100.00
Number of measured points	38345

3.2 Copper Distribution of Ore Samples:

Mineral	M_feed- Cu (%)
Chalcopyrite	91.3
Cubanite	0.1
Chalcocite	3.6
Digenite	1.7
Covellite	1.0
Goethite	0.1
Native_Copper	2.3
Total	100.0

3.3 Crushing work index:

Sample Identity	Sample SG (kg/dm ³)	Bond Impact Crushing Work Index (kWh/t)	
		Average	+/-
Malanjkhand	2.68	9.7	5.4

3.4 Grinding Bond Work Index:

BondBallMillWorkIndexTest Work					
SampleIdentity			Average Product	Test Aperture Pi	BondBallMillW orkIndex
	F80	F80	(g/rev)	(µm)	(kWh/t)
Malanjkhand	2290	79	1.0	100	18.6



3.5 Tailing Mineralogy:

<u>Mineral</u>	<u>Wt%</u>
Copper_sulphides	0.08
Sphalerite	0.00
Pyrite	0.25
Pyrrhotite	0.01
Molybdenite	0.00
Pentlandite	0.00
Violarite	0.00
Silicates	97.74
Carbonates	0.05
Corundum	0.27
Apatite	0.03
Gypsum	0.00
Magnetite	1.00
Ilmenite	0.02
Rutile	0.01
Monazite	0.00
Goethite	0.37
Jarosite	0.00
Native_Copper	0.01
Iron	0.04
Unclassified	0.12
Total	100.0

3.6 Plant Performance: Currently plant performance is as under

- | | |
|----------------------------|-----|
| 1. Concentrate Grade (Cu%) | 27% |
| 2. Overall Recovery (Cu %) | 92% |

4) SCOPE OF WORK:

The brief scope of work as follows:

1. Process Audit:
 - a. Study of the plant process flow sheet and operating parameters.
 - b. Collection of sample for analysis of plant operating parameters.
 - c. Assessment of the performance of the individual equipment/unit with reference to their rated capacity.



2. Collection of representative sample to carry out laboratory/pilot plant test to find the optimum performance if required by the Bidder.
3. Develop suggestive flow sheet for debottlenecking of the existing operation to achieve optimum performance.
4. Prepare the list of new equipment required with their specification data sheet as required in the suggested flow sheet.
5. Prepare requirement of material and schedule to retrofit the proposed flow sheet in the existing plant with least stoppages and modification work required.
6. Prepare water & mass balance based on the suggested flow sheet.
7. Work out the power requirement for suggested flow sheet.
8. Suggest performance guarantee that shall be better than the minimum selection criteria parameters.
9. This project shall be executed on turnkey basis that shall include engineering including as stated above, specification of equipment and other items, supply of equipment and other items, erection, commissioning and performance guarantee test to prove the performance as guaranteed by the Bidder.

5) MINIMUM SELECTION CRITERIA:

It is envisaged to improve the plant performance in all areas of operation, but as a minimum following are expected:

- | | | |
|------|------------------------------|-------|
| i. | Throughput/capacity increase | > 15% |
| ii. | Recovery | > 94% |
| iii. | Concentrate Grade | > 27% |
| iv. | Reagent Consumption | TBA |
| v. | Specific Power Consumption | TBA |
| vi. | Specific water consumption | TBA |

6) PRE-QUALIFICATION CRITERIA (PQC):

The Bidder (i.e. Single Bidder/ Consortium) should have minimum 05 year of experience in providing Copper / Zinc / Lead or Nickel concentrator plant process audit and carrying out retrofitting work for process performance optimization in running concentrator plants. Bidder should have executed at least ONE such project along with men, material and equipment either in separate contracts or one contract during the last five years reckoned from the due date for submission of requisite documents against this EoI.



To this effect, Bidder shall submit copies of respective contracts, along with documentary evidence in respect of satisfactory execution of each of those contracts, in the form of copies of any of the documents (indicating respective contract number), such as -

Satisfactory completion / performance report

(OR)

Any other documentary evidence that can substantiate the satisfactory execution of each of the contracts cited above.

Consortium:

Where consortium bids are allowed, leader and members of consortium should themselves jointly meet the experience criteria covering the respective activities of work to be performed by them on their own and not through any other arrangement like through Supporting Company, Parent / Subsidiary / Sister Subsidiary / Co-Subsidiary / Technical Collaboration / Sub-contracting. Necessary documentary evidence to this effect should be submitted with PQC. The members of consortium shall decide the Leader of consortium. The leader of consortium shall have minimum 50% stake in terms of proposal value, as reflected in the MOU executed by the consortium members. Each member of consortium shall remain jointly and severally liable to HCL.

For this purpose the role and scope of work to be performed by the respective consortium members expressed as a percentage of proposal value should be indicated in the Memorandum of Understanding (MOU) submitted along with PQC documents.

- a) Notwithstanding the provisions that the members of consortium shall be jointly and severally liable to HCL, the leader of consortium should undertake unconditional acceptance of primary responsibility of executing the entire 'Scope of work' of this project. This confirmation shall be submitted along with the PQC.
- b) A constituent of the Consortium shall not be permitted to participate either in an individual capacity as a Bidder or as a member of another Consortium in this EoI.
- c) Only that consortium member who has undertaken a particular activity in execution of a contract shall be considered as having technical experience of that particular activity.
- d) Financial details and audited annual report of last 3 years.
- e) Equipment supply capability, if it is proposed to supply own make equipment.



7) GENERAL TERMS & CONDITIONS:

7.1 TURNKEY PROJECT: This will be a turnkey project, Bidders have to carry out engineering, prepare flowsheet, specification, supply of equipment, erection & commission of equipment, trial and Performance Guarantee test to prove the success of the project.

7.2 EXECUTION METHODOLOGY: Bidders shall submit execution methodology and time required to execute the project and the time required to shut down the existing plant while retrofitting and trial and commissioning of the new equipment (Preference shall be given to a Bidder who can implement the proposed system in the running plant or with minimum stoppage)

7.3 PAYMENT: Payment will be linked to the success of the project. HCL proposes to pay to the Bidder after the successful commissioning and performance guarantee demonstration by the Bidder.

7.4 REQUESTS FOR CLARIFICATION:

If at any time during the EoI process, HCL requires any clarification on the EoI proposal submitted by the interested Bidder, it reserves the right to request such information from any or all of the interested Bidders and such Bidders will be obliged to respond and supply the same within such reasonable time frame as may be required.

7.5 MODIFICATION/CANCELLATION:

- i. HCL reserves the right to amend/modify/delete any of the above conditions and/ or the process as may be deemed necessary in the light of the facts and circumstances of the cases.
- ii. HCL reserves the right to proceed with/ cancel the process irrespective of the response to EoI.
- iii. HCL at its discretion may extend the last date for submission of proposal to the EoI.
- iv. Interested parties are advised to keep themselves informed by checking HCL website www.hindustancopper.com regularly for any such modification/ cancellation that may be notified. HCL shall not be notifying any such modification separately through any other media.
- v. Decision of HCL in respect of the above would be final and binding on the parties.

7.6 GOVERNING LAWS/JURISDICTION/ARBITRATION:

All matters relating to the EoI and selection of interested Bidder shall be governed by the laws of Union of India. Only courts at Kolkata (with exclusion of all other courts) shall have the jurisdiction to decide or adjudicate on any matter, which may arise out of or in connection of the EoI process.



7.7 MCP VISIT:

Though adequate care has been taken while issuing this **EoI** document. HCL shall not be responsible for any consequences due to misprinting. It is mandatory for interested Bidders to visit MCP plant and carryout a pre-bid inspection and take the current operating details from the site and discuss with the operations team for better understanding the scope of the work. **HCL will arrange a pre-bid meet at MCP for the interested Bidders on 09.07.2018.**

7.8 EoI PROCESS:

Following completion of the initial process, all shortlisted parties fulfilling eligible criteria will be provided with an opportunity to hold further discussions with the HCL team. HCL will provide all the information relevant to the **EoI** and are in its possession, if required by Bidder. However, providing information will be the sole discretion of HCL.

- i. The proposal to the **EoI** shall be submitted at the following address on or before **23.07.2018 before 3:00 PM** during the working days and working hours through **E-mail / courier**

Executive Director (Materials & Contracts)

Hindustan Copper Limited

3rd Floor, Tamra Bhawan

1, Ashutosh Chowdhury Avenue

Kolkata - 700 019

Email dkmahajan@hindustancopper.com

Tel: +91 33 22900397

Mobile: +91 94330 01147

The covering envelope containing aforesaid documents submitted should be clearly marked:

IMPROVING THE PERFORMANCE OF CONCENTRATOR PLANT AT MALANJKHAND COPPER PROJECT, with Reference No: HCL/M&C/MCP/EOI/2018 dated 22.06.2018

- ii. **Opening of the proposal:** Bidder may remain present personally or may depute anauthorized representative at the time of opening of proposal.
- iii. The parties who have applied for **EoI** and qualify the criteria may be considered for participation in main tender. However, HCL reserves the right to accept or reject any or all proposals, re-invite **EoI** or go for open tender without assigning any reasons whatsoever.



- iv. Mere participation & qualification in **EoI** will not automatically mean those Bidders are considered qualified for tender participation.
- v. Though adequate care has been taken while issuing this **EoI** document, HCL shall not be responsible for any consequences due to misprinting or any wrong translation by the newspaper/magazine/web portal concerned. The respondent shall satisfy itself that document is complete in all respects. The respondent shall visit MCP and verify facts in case of confusion, before submission of **EoI**.
- vi. HCL may, in its sole and absolute discretion, independently verify any information submitted with the EoI proposals by Bidders.
- vii. This **EoI** does not create a tender process. By this **EoI**, HCL reserves to itself the right to consider and analyze the proposals received against **EoI**, short-list select respondents without limiting the generality of the foregoing, HCL reserves the right to:
 - a. Reject any EoI, whether or not complete and whether or not it contains all the required information.
 - b. Require clarification of any EoI; request additional information on any EoI.
 - c. Reject any or all EoIs without any obligation, or any compensation or reimbursement to the respondents.
 - d. Modify the terms and conditions of the EoI and subsequent processes.

7.9 Further information/ clarifications:

Any request for further information or clarification relating to the contents of this EoI document, may be submitted in writing to:

To,
Shri Dilip Kumar Mahajan,
Executive Director (Materials & Contracts)
Corporate Office
Hindustan Copper Limited
Email: dkmahajan@hindustancopper.com
Tel: +91 33 22832226

8.0 Forms: Respondents are requested to fill up all the mandatory forms.



8.1 Submission of proposal

Form no-1

(To be forwarded on the letter head of the interested party submitting the Eoi)

Ref: HCL/Form1/EOI/2018

Date:

To,
Shri Dilip Kumar Mahajan
Executive Director (Materials & Contracts)
Tamra Bhavan,
1, Ashutosh Chowdhury Avenue,
Kolkata - 700 019
INDIA

Sub: IMPROVING THE PERFORMANCE OF CONCENTRATOR PLANT AT MALANJKHAND COPPER PROJECT.

Please refer to the invitation for Expression of Interest issued in respect of the above mentioned subject matter. We have read and understood the contents of the invitation for EOI & interested in submitting our proposal.

We believe that our Company satisfies the eligibility criteria set out in the relevant sections of the Eoi. The litigation impact statement of legal capacity as per the format indicated in the EOI duly signed by us are enclosed.

You and your authorized representatives may contact the undersigned. The undersigned is (are) fully authorized to act on behalf of the respondent.

We shall be glad to receive further communication on the subject.

Signature

Name

(For <Respondent/Bidder>)



8.2 Litigation Impact Statement

Form no. 2

(To be forwarded on the letter head of the interested party submitting the Eoi)

Ref: HCL/Form2/EOI/2018Date

To
Shri Dilip Kumar Mahajan
Executive Director (Materials & Contracts)
Tamra Bhavan,
1, Ashutosh Chowdhury Avenue,
Kolkata - 700 019
India.

Sub: IMPROVING THE PERFORMANCE OF CONCENTRATOR PLANT AT MALANJKHAND COPPER PROJECT.

Sirs,

We have read and understood the contents of the Eoi document and pursuant to this hereby confirm that we satisfy the eligibility criteria laid out in the Eoi.

We hereby confirm that we shall not share any information with pertaining to HCL which will be provided to us during the process of EOI or prior to the process of EOI.

Further, the authorized signatory is vested with requisite powers to furnish such letter and Request for Qualification and authenticate the same

Yours faithfully,
(_____)
Authorised signatory
for and on behalf of



Form No 3. (Site Visit)

DECLARATION OF SITE VISIT

(To be forwarded on the letter head of the interested party submitting the Eoi)

Ref: HCL/Form3/EOI/2018

Date

To
Shri Dilip Kumar Mahajan
Executive Director (Materials & Contracts)
Tamra Bhavan,
1, Ashutosh Chowdhury Avenue,
Kolkata - 700 019
India.

Sub: IMPROVING THE PERFORMANCE OF CONCENTRATOR PLANT AT MALANJKHAND COPPER PROJECT.

I hereby certify that my representatives have visited the site at Malanjkhanda Copper Project (MCP), a unit of Hindustan Copper Limited (a Govt. of India Enterprise), situated at Malanjkhanda, Post Office - Malanjkhanda, District- Balaghat, Madhya Pradesh and sought all necessary clarifications with respect to the scope of work on the above subject & certify that all data furnished in the Invitation of Offer proposed under different sections and information pertaining to the scope has been verified and considered in our offer covered by our Proposal no..... .

Seal

Signature

Date

Name

Designation

Name of the Organization