



**Expression of Interest (EOI)
For setting up Silica sand Beneficiation plant
at Bharuch district, Gujarat.**

EOI No. GMDC/Metal/Silica/01/2022-23

February 2023

Gujarat Mineral Development Corporation Limited

(A Government of Gujarat Enterprise)

CIN No. : L14100GJ1963SGC001206

Khanij Bhavan, 132 ft. Ring Road, Nr Gujarat University Ground, Vastrapur,
Ahmedabad- 380052 India



**Gujarat Mineral Development Corporation (GMDC)
(A Government of Gujarat Enterprise)**

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Ahmedabad- 380052 India

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GMDC invites proposals for captioned activity. Interested parties can download the EOI document from GMDC website (<http://www.gmdcltd.com>) from 10/02/2023 to 03/03/2023 and submit their proposals on the below mentioned address latest by 6:00 pm Dt. 03/03/2023. Parties can send their queries on MJPATEL4@gmdcltd.co.in.

General Manager (Tech 3)
Gujarat Mineral Development Corporation Limited,
Khanij Bhavan, 132-Ring Road,
Gujarat University Ground, Vastrapur,
Ahmedabad- 380052, Gujarat, India

Disclaimer

Gujarat Mineral Development Corporation (GMDC) has prepared this Expression of Interest (EOI) document solely to assist prospective proposers in making their decision of whether or not to bid. While GMDC has taken due care in the preparation of information contained herein and believes it to be accurate, neither GMDC nor any of its authorities, agencies, any of their respective officers, employees, agents, advisors give any warranty nor make any representations, express, implied as to the completeness, accuracy of the information contained in this document nor any information which may be provided in association with it.

This information is not intended to be exhaustive and interested bidder are required to make their own inquiries and do site visits that it may require to submit the EOI. The information is provided on the basis that it is non-binding on GMDC, any of its authorities or agencies, any of their respective officers, employees, agents or advisors.

GMDC reserves the right not to proceed with the EOI process at any stage without assigning any reasons thereof, or to alter the timetable reflected in this document or to change the process or procedure to be applied. It also reserves the right to decline to discuss the EOI further with any party submitting an EOI. GMDC reserves the right to short list party with sound financial background considering overall project cost.

No reimbursement of any cost of any type will be paid to persons or entities submitting the EOI.

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1. BACKGROUND

Gujarat Mineral Development Corporation Ltd (GMDC) is a leading State-owned Mining and Minerals Company in the western Indian State of Gujarat with operational experience spanning nearly 50 years. GMDC's product portfolio spans across mining, value added products and power. Its power portfolio includes clean energy sources such as solar and wind besides thermal power. GMDC is a zero-debt company listed on National and Bombay Stock Exchanges. The Government of Gujarat (GoG) disinvested 26% stake to the public shareholders vide an IPO in 1997 while the balance ownership is held by the Government of Gujarat. It stands around fifth in terms of market capitalization (Rs 2100 Crore/ USD 300 m) among its peers as on July 2021.

GMDC's mining activities are spread across the Gujarat state. It is currently dealing in minerals like Lignite, Bauxite, Fluorspar, Ball Clay, Silica sand and Manganese. GMDC also value addsto minerals through works such as Pyrite removal from Lignite, Beneficiation of Bauxite, Beneficiation of Low-Grade Manganese and Beneficiation of Fluorspar.

The objective of Silica sand beneficiation plant is to cater the glass grade Silica sand demand in the industry. For same, GMDC intends to set up a 100 to 150 TPH silica beneficiation plant and is actively considering beneficiation methodologies including chemical leaching, magnetic separation, gravity separation and other related mechanisms. GMDC is open to different mode of engagement for the plant setup like as an EPC contractor, EPC + OnM contractor, Equity partnership, etc.

GMDC is having more than 200 Lakh MT Silica sand lying at its Rajpardi Lignite Mines, Dist: Bharuch, Gujarat. The Silica Sand is found as overburden during Lignite mining. Primary sampling and testing carried out by GMDC through globally renowned agency recently.

In above respect, GMDC invites Expression of Interest from Globally reputed Vendors/ Technology Service Provider /EPC contractor who can assist GMDC in designing, planning, testing and commissioning of a Silica sand beneficiation plant at Bharuch district, Gujarat.

Silica sand analysis test Report is attached in Annexure 7& 8 of this EOI document.

2. BIDDING PROCESS

To select the right technology partner/ Vendor/ EPC contractor, GMDC is adopting a two-stage selection process comprising of a technical Expression of Interest (EOI) Stage and a priced Request for Proposal (RFP) stage. The first stage includes an Expression of Interest (EOI), where Proposers having technological expertise in Silica sand Beneficiation are invited to present their technological solutions for before-mentioned problem faced by GMDC, testing requirements, business model, broad timeline for commissioning of plant, statutory and environment compliance requirements, Approx. Project commissioning cost, Operation & Maintenance Cost.

The purpose of EOI stage is to solicit inputs/comments of Vendors/ Technology Service provider. Basis the inputs /suggestions received during EOI stage from interested vendors, the RFP documents shall be prepared. The RFP document shall specify detailed Scope of Work, Bidding structure, roles and responsibilities, Technology specifications, Service Levels/ desired output, payment and related commercial terms. During the RFP stage priced proposals against this scope shall be requested from the experienced and eligible vendors. The RFP proposals will be evaluated to select the Vendor for setting up Silica sand beneficiation plant.

3. SCOPE OF WORK AND GMDC ASSISTANCE

Tentative Scope of Work

A key role of the vendor shall be selection of efficient, cost effective & state-of-the-art technology judiciously considered to fetch higher yield of desired quality. A tentative Scope of Work of Vendors /technology service provider/EPC is specified below. It is provided here to solicit comments of the EOI participants.

- The scope of work of the Vendor/ technology service provider will broadly cover design, planning, engineering, recommendation of flow sheet and setting up beneficiation plant for Silica sand for GMDC of 100 to 150 TPH capacity. Additionally install all allied activities for supporting operation of Silica sand Beneficiation Plant.
- Proposed Technology/solution shall comply with statutory and regulatory requirements as prevalent time to time in India including environmental regulations and safeguards as per Environment Management Plan (EMP) duly approved by State/Central Govt. agencies/departments concerned. This shall also comply with social, health and safety related aspects as per the best industry practices.
- Monitor reliable, uninterrupted supply of desired quantity & quality of Silica sand.
- Plant complex in general needs to include the provision of raw Silica sand receiving and sizing arrangement; main plant; delivery arrangement of Silica sand products and by products.
- The plant is proposed to be located at Bharuch district, State: Gujarat, Country: India.
- The ownership of raw Silica sand, finished silica sand product, middling and rejects including slurry (if any) shall remain with GMDC.
- Tentative Specification of finished Silica sand product are as below. In addition for reference tentative Silica sand input characteristics and analysis test Report are attached in Annexure 7& 8 of this EOI document

Size (+106 μ to -600 μ)	Chemical Analysis									
	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	TiO ₂	CaO	MgO	K ₂ O	Na ₂ O	SO ₃	LOI
	%	%	%	%	%	%	%	%	%	%
Finished Silica sand product	>99.2	<0.02	<0.03	<0.05	Trace	Trace	Trace	Trace	Trace	<0.2

GMDC assistance

GMDC will assist in the following:

- Land free of any obstruction such as abandoned structures, overhead electrical lines, debris/ dump materials, hillocks etc. with approach road for setting up of plants.
- Soil investigation report and contour map of the Project site.
- Supply of power at a single point of the proposed plant site on chargeable basis.
- Land for disposal of rejected Silica sand and other impurities.
- Assured supply of raw Silica sand.

4. EOI PROCESS

GMDC has adopted the two-stage process since it intends to understand the following through the first stage of the bidding process (EOI):

- a) Vendor landscape – identify potential and interested vendors who understand Silica sand beneficiation technology and having similar successful experience.
- b) Identification of suitable technology for Silica sand beneficiation process
- c) Typical time frame required for setting up the plant
- d) Broad magnitude of the Costs associated with the proposed plants, say at different levels of capacity
- e) Discuss on proposed models of engagement by the bidders Ex. EPC contractor, EPC + OnM contractor, Equity partnership, etc.

At the end of this exercise, GMDC wishes to connect with the vendors who have the capability and interest to provide technical services/ assistance to GMDC in setting up the proposed Silica sand Beneficiation plant.

4.1 EOI Documentation Requirements

Respondents to the EOI are required to provide the following:

1. Vendor's Credentials:
 - a. Financial Turnover/Revenue of last 3 years ended on March 2022
 - b. Technological Background
 - c. Experience in setting up and operating a plant for Silica sand Beneficiation.
2. Comments on the Scope of Work.
3. Suggestions on Roles and responsibilities of Vendor and GMDC
4. Propose an efficient, cost effective and state of the art judicially compliant technology and flow sheet to be used to obtain desired results. Vendor shall also provide rationale for proposed Technology Solution.
5. Vendor shall also provide performance of proposed Technology with suitable case study indicating expected quality and yield of final product
6. Complete description of the plant and appropriate technology to the extent possible supported by flow sheet to be used for raw Silica sand to produce specified quality & quantity of performance of Silica sand & by products.
7. Testing Requirements
 - a. Risks, challenges and requirements for test.
 - b. Proof of Concept.
 - c. Is a pilot project required prior to initiate commissioning of the Plant?
8. Tentative Project Plan (timeline for Project Development and Phasing).



9. Business model mentioning tentative project commissioning costs, operation and maintenance costs.
10. Comments on whether proposed Technology solutions comply with Environmental, health and safety requirements.
11. Comments on support required from GMDC.

Feedback on the above-mentioned requirements would be used as inputs to finalize the detailed scope, system functionalities and components, roles and responsibilities, and terms and conditions for the project for RFP stage. No suggestions would however be binding.

GMDC reserves the right to shortlist participants meeting its requirements and commission pilot/POC before short listing.

EOI Opening

- a) GMDC will open the EOI on the date, time and place specified in Key Dates Section.
- b) GMDC shall verify whether EOI submitted by Proposers are responsive with regards to timely submission, format of submission (as per EOI) and mode of submission (i.e. submitted through either Registered Post with Acknowledge Due (RPAD), Speed Post, courier or Hand delivery).

EOI Submission

The proposal for Expression of Interest (EOI) with details as specified in clause 4.1 and Annexure, Suggestions/inputs as specified in section 4.1 shall be submitted in a single copy format along with soft copies in Word, Excel and PDF format in portable Hard drive in sealed envelope to GMDC office at address given below.

The General Manager (Tech 3)
Gujarat Mineral Development Corporation Limited,
Khanij Bhavan, 132-Ring Road,
Gujarat University Ground, Vastrapur,
Ahmedabad- 380052, Gujarat, India

The sealed Envelope shall bear the following identification:

- Notice No (if any):
- Name of the Work:
- Indicate the name, address and contact details of the Proposer.



Proposal for EOI and other details shall be submitted at above specified address and submission format on or before the Due Date and time for EOI submission specified in Key Dates section. The EOI shall be submitted through Registered Post with Acknowledge Due (RPAD)/Speed Post/Courier/Han delivery only. Late proposal shall not be accepted and summarily rejected.

5. KEY DATES

Date for Downloading of EOI, Submission Date and Date of Meeting with prospective Proposeris specified in table below.

Event	Date and Time
Download EOI Document	EOI Document may be downloaded from website between 10/02/2023 to 03/03/2023 from GMDC Website: https://www.gmdcltd.com/en
Queries by Email	Queries if any may be sent by Email to MJPATEL4@gmdcltd.co.in , by 16/02/2023 up to 17:00 hrs IST . For further queries or help, contact General Manager (Tech-3) on 079-27913200 / 6357442001
Pre EOI submission Meeting with Prospective Proposer	Meeting with Prospective Proposer shall be held on 21/02/2023 at 12:00 hrs IST online the video link. The video link for the meeting shall be uploaded on GMDC website in due course.
Due Date for EOI Submission (i.e Last Date for EOI submission)	Complete EOI in sealed envelope with relevant details shall be submitted through Speed Post or Registered Post with Acknowledge Due (RPAD) or courier or hand delivery by 03/03/2023 up to 18:00 hrs IST at following address; The General Manager (Tech 3) Gujarat Mineral Development Corporation Khanij Bhavan, 132-Ring Road, Gujarat University Ground, Vastrapur, Ahmedabad- 380052, Gujarat, India.
Date of Opening of EOI	The EOI shall be opened 04/03/2023 at 11:00 hrs IST in the office of General Manager (Tech-3) at Gujarat Mineral Development Corporation

6. OTHER INSTRUCTIONS

1. EOI Validity period

The EOI validity period shall be 180 days from the date of submission of EOI.

2. Extension of Period of EOI Validity

In exceptional circumstances, the GMDC may solicit the Proposer's consent for an extension of the period of EOI validity. Any such request by the GMDC and the response there-to shall be made in writing and such extension of Bid validity period by the Proposer should be unconditional. A Proposer may refuse GMDC's request for such extension. A Proposer accepting the request of GMDC shall not be permitted to modify its Bid.

3. Cost of Submitting EOI

The Proposer shall bear all costs associated with the preparation and submission of his EOI and the GMDC will in no case be responsible or liable for those costs.

Site Visit

GMDC shall arrange site visit if the Proposer so desires.

Amendment to EOI document

- a) Before the deadline for submission of EOI, the GMDC may modify the EOI document by using addenda/Corrigendum.
- b) Any addendum thus issued shall be part of the EOI documents. The addendums shall be posted on GMDC website: <https://www.gmdcltd.com/en>. Proposers are required to regularly check the website for such addendum.
- c) To give prospective Proposers reasonable time in which to take an addendum into account in preparing their EOIs, the GMDC may its sole discretion, extend as necessary the due date for submission of EOI.

Late Proposal for EOI

Any proposal for EOI received by the GMDC after the due date and time for submission of EOI prescribed in Key Date Section will be rejected returned unopened to the Proposer.

Corrupt and Fraudulent Practices

- a) The GMDC requires that Proposers under this EOI, observe the highest standard of ethics during the procurement and execution of this contract. In pursuance of this policy, the GMDC defines, for the purpose of these provisions, the terms set forth below as follows:
 - (i) **Corrupt practice** means the offering, giving, receiving or soliciting of anything of

value to influence the action of a public official in the procurement process or in contract execution; and

- (ii) **Fraudulent practice** means a misrepresentation of facts in order to influence a procurement process.
- b) The GMDC will reject a EOI proposal if he determines that the Proposer has engaged in corrupt or fraudulent practices.

Clarification of Proposal Submitted for EOI

To assist in the examination, evaluation and comparison of EOIs, the GMDC may, at his discretion, ask any Proposer for authentication the correctness of the information/ details furnished by him in his bid or request for further clarifications/information as may be required for Evaluation. Such request by the GMDC and the response by Proposer shall be in writing.

GMDC reserves its right to amend, modify, cancel and or otherwise annul the EOI and or any of its contents at any time without assigning any reason whatsoever.

Selection Process of an Agency for the scope of work under the present Expression of Interest may be incorporated.

Annexure

Annexure 1: Cover Letter

Date:

To,

General Manager (Tech 3)
Gujarat Mineral Development Corporation
Khanij Bhavan, 132-Ring Road,
Gujarat University Ground, Vastrapur,
Ahmedabad- 380052, Gujarat, India

Subject: Submission of Expression of Interest for setting up of Silica sand Beneficiation Plant in Bharuch, Gujarat.

Dear Sir,

With respect to above mentioned subject, we are pleased to submit the EOI. Our EOI proposal is subject to all terms and conditions contained in the EOI document. In addition to terms and conditions of this EOI, we are not given any written or oral promise from the GMDC.

We are fully aware that the GMDC has right to accept any EOI or reject any/all EOI without giving any reason and upon rejection of EOI, we shall not be entitled to any right with related to the GMDC.

We have thoroughly read and understood all the terms and conditions of this EOI and we promise to observe all the terms and conditions of this EOI. We have signed and sealed each and every page of this EOI document.

(Signature and stamp of the Proposer with date)

Annexure 2: General Information

{On Proposer's letterhead}

Proposers name and contact details.

Name of the Proposer Organization:

Nature of Entity:

Name of the Concerned Person:

Address of Registered Office:

Country:

Phone:

Fax:

E-mail:

Main Line of Business with experience:

(1) Copy of the Registration of the Proposer: Certificate of Incorporation/Registration certificate as per relevant laws of respective countries where in Proposer is involved in Business activities. If the registration certificate is in other language other than English then such certificate should be accompanied with translation in English language.

Annexure 3: Financial Capability Statement

I hereby declare that the Financial Turnover and Net worth of the Proposer (name of the Proposer) as per Audited statement is as follows:

Financial Year	Financial Turnover	Net worth
2019-20		
2020-21		
2021-22		

(Signature and stamp of the Proposer with date)

ENCL.

(1) Copy of latest available Audited annual reports for last three years as applicable or as per Financial Year/Calendar Year followed by the Proposer firm.

Annexure 4: Experience Statement

Proposer to provide brief description on following items

1. Technological Background
2. Experience in setting up and operating a plant for **Silica sand Beneficiation**.

Annexure 5: Proposed Technology and its details

1. Complete description of the proposed technology in terms of plant and appropriate technology to the extent possible supported by flow sheet to be used for raw Silica sand to produce specified quality & quantity of finished silica sand product and rejects.
2. Vendor shall also provide rationale for proposed Technology Solution.
3. Vendor shall also provide performance details of proposed Technology with suitable case study indicating expected quality and yield of final product details on Testing Requirements
 - a. Proof of Concept.
 - b. Risks, challenges and requirements for test.
 - c. Is a pilot project required prior to initiate commissioning of the Plant?
4. Tentative Project Plan : Timeline for Project Development and Phasing
5. Broad/Approx. cost of Technology
 - a. Project Commissioning costs
 - b. Operation and maintenance costs
6. Comments on whether proposed Technology solution comply with Environmental, health and safety requirements.

Annexure 6: Comments on Scope of Work and Proposed Business Model

1. Comments on the Scope of Work.
2. Suggestions on Roles and responsibilities of Vendor and GMDC and proposed BusinessModel
3. Comments on support required from GMDC

Annexure 7: Silica sand Specification, Rajpardi, Bharuch

Representative sample collected from referred Silica sand stack G-13 at Amod G-19 extension Lignite Mine, Rajpardi. Entire stack was divided into 100 imaginary lots. Approximately 100 Kg. of sample collected from each lot and 100 sub sample prepared. Further step wise coning quartering carried out to reduce sample size and final sample prepared. Entire sampling activity was carried out by third party M/s. Mitra S.K. Private Limited.

Indicative Raw silica sand sample analysis is as below.

Fraction	% Mass		Assay (% , unless specified)									
	to stage	to feed	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	Cr ₂ O ₃ (ppm)	CaO	K ₂ O	MgO	SO ₃	TiO ₂	LOI ₁₀₀₀
+1mm*	9.4	9.4	97.5	0.360	0.43	5	0.010	0.010	0.030	0.010	0.37	0.25
-1mm+0.045mm	88.9	88.9	97.5	0.360	0.43	5	0.010	0.010	0.030	0.010	0.37	0.25
-45µm	1.7	1.7	56.5	10.90	20.1	250	0.170	0.080	0.140	0.090	2.44	9.28
Total	100.0	100.0	96.8	0.542	0.77	10	0.013	0.011	0.032	0.012	0.41	0.41

Annexure 8: Silica sand Analysis Report, Rajpardi, Bharuch

Complete bench scale test report of Silica sand attached separately for reference.



7. Summary of Metallurgical Characterisation

A summary of the mass distribution and assays for each sequential separation stage simulating standard silica sand beneficiation techniques is shown in Table 9.

Table 9: Metallurgical Characterisation Summary

Product Description	% wt to feed	Assay (%)								
		SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	CaO	K ₂ O	MgO	Na ₂ O	TiO ₂	LOI ₁₀₀₀
As-received Feed	100	96.8	0.542	0.77	0.013	0.011	0.032	0.00	0.408	0.41
De-slimed Feed (-1.0+0.45mm)	88.9	97.5	0.360	0.43	0.010	0.010	0.030	<0.01	0.373	0.25
Sized Ore (-0.6+0.106mm)	76.8	97.6	0.330	0.43	0.010	0.010	0.030	<0.01	0.320	0.24
Gravity Product (2.7sg float)	76.1	98.6	0.150	0.34	0.010	0.010	0.010	<0.01	0.040	0.20
Attrition Product	75.2	98.6	0.120	0.28	0.010	0.010	0.010	<0.01	0.040	0.17
Non-magnetic Product	74.6	99.4	0.092	0.26	0.006	0.006	0.002	0.003	0.033	0.20
Acid Leach Product	73.8	99.7	0.018	0.10	0.006	0.005	0.002	0.003	0.029	0.12

Salient observations are:

- Over 25% of the feed mass was rejected during the sample preparation stages through trash screening (>1mm) and desliming (<45µm) and the initial -600+106µm fraction had an Fe₂O₃ content of 0.33%.
- Over the remaining separation stages, only 3% of the feed mass was further rejected.
- Major impurity levels Fe₂O₃, TiO₂, and Al₂O₃, progressively decrease as the sample moved through the processing stages.
- The largest proportional drop in terms of Fe₂O₃ was a result of the feed preparation, with approximately 60% of the iron rejected while the gravity separation stage contributed to >18% rejection of the iron.
- Most of the TiO₂ is shown to be rejected through gravity separation
- Significant Al₂O₃ is contained in the slimes / fines and is also successfully removed by the leach process.

A full suite of the assays and a sequential flow diagram with mass distributions, Fe₂O₃ content and operating conditions has been included in the appendices.

The interpretations and conclusions contained within this report pertain to the sample as received, and any variations in feed type or specification are beyond the scope of this report.