**INVITATION FOR**

**EXPRESSION OF INTEREST**

**(EOI)**

**FROM INTERESTED PARTIES**

**FOR**

**SETTING UP OF CENTER OF EXCELLENCE (COE) FOR CERAMIC AT BIKANER IN THE STATE OF RAJASTHAN**



**DEPARTMENT OF MINES & PETROLEUM,**

**GOVERNMENT OF RAJASTHAN**

**DIRECTORATE OF MINES & GEOLOGY,**

**KHANIJ BHAWAN, SHASTRI CIRCLE, UDAIPUR**

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# Introduction

The ceramics industry has been a cornerstone of human civilization, offering both functional and artistic contributions for thousands of years. In India, particularly in regions like Rajasthan, ceramics have a rich history and cultural significance, with Bikaner emerging as a pivotal hub for traditional and contemporary ceramic art. Despite the deep-rooted heritage and the growing global demand for high quality ceramics, the industry faces several challenges, including the need for innovation, skill enhancement, and sustainable practices.

To address these challenges and harness the full potential of this industry, the establishment of a Centre of Excellence for Ceramics in Bikaner is both timely and essential. This proposal envisions the creation of a state-of-the-art facility dedicated to research, development, and education in the field of ceramics. The Centre will serve as a beacon of innovation, fostering collaborations between artisans, scientists, and leading industry to push the boundaries of ceramic technology and artistry.

The Centre of Excellence for Ceramics aims to provide a comprehensive platform that integrates traditional knowledge with modern technological advancements. It will support the ceramics community through various initiatives, including skill development programs, quality testing laboratories, research and development projects, and market linkage support.

It highlights the immense potential of this initiative to transform the ceramics industry in Rajasthan and beyond, creating a sustainable ecosystem that benefits artisans, businesses, and the economy as a whole. Centre will become a catalyst for innovation, excellence and growth in the ceramics sector.

The Center of Excellence (CoE) is dedicated to several study different branches of earth science, including environmental geochemistry, economic geology, pure and applied geochemistry, volcanology and the exploration of prospective minerals.

The Aravalli Mountain Range is part of the oldest mountain range in the Indian subcontinent. It is notable for having a relatively well-preserved record of 3.6 to 0.6 Ga, or roughly three billion years, of the planet's Precambrian evolutionary history, contained within three major chrono stratigraphic polycyclic terrenes. Each of these terranes has a distinct history of cratonization, basin development, deformation, metamorphism, magnetism, and mineralization, which enables their characteristic classification under the Basement Banded Gneissic Complex, Aravalli, and Delhi super groups, respectively.

# Details of Expression of Interest (EOI)

## 2.1 Objective

There is a need for Research and Development of Ceramics in the state, therefore an institution such as Centre of Excellence comprising scientific infrastructure with high-tech analytical instrument and pilot plant for beneficiation study & metallurgical study.

* To provide Sophisticated Instruments facility at Divisional level to promote Quality Research in Rajasthan
* To develop modern digitally equipped laboratories.
* To develop local need-based technology useful for ceramic and other industry.
* To train manpower for ceramic and other industry.
* To impart need based training on instruments which are directly beneficial for industry and other stakeholders.
* To develop Bridging platform for interaction of local industry and academic institute
* To provide a common instrumentation and research centre for the researchers of different subjects viz Chemistry, Physics, Botany, Zoology and Geology etc.
* The technology and instruments are frequently used by the researchers of these subjects, hence a common research centre will not only cater the needs of researchers but it will also be easier to maintain the expensive instruments usage for different target groups.

# Scope of Work

A Centre of Excellence (CoE) for ceramics is a specialized facility dedicated to advancing the science, technology, and application of ceramic materials. These centers typically focus on research, development, education and innovation within the field of ceramics. Here are some key aspects of a CoE for ceramics:

1. **Research and Development:** Conduct cutting-edge research on ceramic materials, including their properties, manufacturing processes, and potential applications. This can involve both fundamental science and applied research.
2. **Innovation and Technology Transfer:** Develop new ceramic technologies and processes and facilitate their transfer to industry. This helps in creating new products, improving existing ones, and enhancing manufacturing techniques.
3. **Testing and Analysis:** Offer advanced testing and analysis services to evaluate the performance, quality, and reliability of ceramic materials. This includes mechanical, thermal, chemical, and other types of testing.

The Testing and Analysis facility will provide following services to industries and academia fostering R&D and product Innovation: -

**Physical Testing:** This includes tests to determine properties like density, porosity, dimensions and surface quality. Techniques such as microscopy, scanning electron microscopy (SEM), Particle size distribution, TGA/DSC test, Thermal expansion by Dilatometer, Water absorption, Green and Fired Shrinkage, Fired Colour, Grit Content, Moisture Content, Reflectance and surface pro-filometry may be used for these evaluations.

**Mechanical Testing:** Mechanical properties such as strength, hardness, toughness, and elasticity are assessed through tests like tensile testing, compressive testing, flexural testing, and impact testing. These tests help determine the structural integrity and performance of ceramic materials under different conditions.

* Visual examination
* Verification of dimensions.
* Tempera re cycle test
* Electro- Mechanical failing load test (For string insulator units type B only)
* Mechanical failing load test
  + Bend
  + Torsion
  + Tensile & Compression.
* 24-hour Mechanical strength test
* Porosity test
* Galvanizing test
* TMT bar/angle plate/pipe tensile test, bend-rebend test  Hardness and toughness tests
* Compression of tile/brick/cube etc.
* Insulator type test as per Indian standards.

**Chemical Analysis:** Chemical composition analysis is crucial to ensure that ceramic materials contain the right elements in the desired proportions. Techniques like X-ray fluorescence (XRF),X-ray diffraction (XRD), and atomic absorption spectroscopy (AAS) are commonly used for chemical analysis.

* Beneficiation of the ceramic raw material
* To optimize process parameter for controlling the quality of raw materials
* Work with close collaboration of mine owners & Scientists for quality control of raw material
* Gradation of quality of raw material as per different industries requirements
* Physical & Chemical properties of green and fired Ceramic raw materials.
* Physical & Chemical properties of finished products
* Development of body and glaze for production of tiles, HT, LT insulators, decorative items, table wares, sanitary items etc.
* Chemical Composition of product testing
* To solve problems during production

**Thermal Analysis:** Thermal properties like thermal conductivity, thermal expansion, and thermal stability are evaluated to understand how ceramics respond to temperature changes. Differential scanning calorimetry (DSC), thermal gravimetric analysis (TGA), and dilatometry are examples of techniques used for thermal analysis.

**Electrical Testing:** For ceramic materials used in electronic applications, electrical properties such as di-electric strength, resistivity and capacitance are important. Electrical testing equipment is used to assess these properties accurately.

**Durability Testing:** Ceramics are often subjected to durability tests to simulate real-world conditions and assess their performance over time. This may include tests for wear resistance, chemical resistance, corrosion resistance and environmental stability.

**Quality Control:** Ceramic testing facility also play a vital role in quality control by conducting routine tests on incoming raw materials, inprocess samples, and finished products. This helps identify any deviations from specifications and ensures consistent product quality.

Overall, ceramic testing & analysis facility employ arrange of sophisticated equipment, techniques and expertise to assess the performance, reliability, and safety of ceramic materials across various applications and industries.

**Core Function of Centre:**

**Manufacturers:** Ceramic product manufacturers rely on testing labs for quality assurance, performance evaluation and compliance with standards.

**Mining Industry:** Characterization of minerals for quality consistency.

**Research and Development (R&D) Centers:** Industries like aerospace, automotive, electronics, healthcare and construction use testing facilities for material characterization and innovation.

**Government Agencies:** Regulatory bodies engage labs for product certification, compliance testing and quality control.

**Academic Institutions:** Universities and research centers collaborate with labs for academic research, material analysis, and student training programs.

**Improved Quality:** Lab censure better product quality, reliability and consistency, enhancing customer satisfaction and market competitiveness.

**Innovation Support:** Labs facilitate R&D efforts by providing data, insights and validation services, accelerating innovation in ceramic materials and applications.

**Market Growth:** Reliable testing services drive market growth by enabling the introduction of advanced materials, expanding market opportunities and driving technological advancements.

# Eligibility Criteria & Selection Process

**Eligibility Criteria:**

All Central Government, State Government and Corporates from Research and Development Institutes , Universities, and Industrial Associations, which are having prior experience of working or currently working in the field of Ceramics.

**Selection Process:**

The Interested Parties based on their response to “Expression of Interest (EOI)” may be shortlisted for next round of participation for which the detailed Request for Proposal (RFP) will be released by DMG Rajasthan separately for further participation and final selection.

* Initial Round of Shortlisting: - Grading/ Scoring/ Ranking Methodology
* Final Round of Shortlisting: - Grading/ Scoring/ Ranking Methodology

# Information Required

1. Documents pertaining to financial strength of the organization submitting EOI are required. For e.g., audited financial statements - Balance Sheet, Profit & Loss statement, and Cash flow statement of last three financial years etc.
2. Document supporting the other technical capabilities of the organization submitting EOI are required. For e.g., details of any Ceramic-related patents or proprietary technologies held by the organization, and experience of the team and personnel in the Ceramic sector.
3. In case of a new entity submitting the EOI, financial strength of promoters and consortium partner is required to be established. **(Annexure A)**
4. Comprehensive account of past or ongoing projects in Ceramic or similar fields. **(Annexure B)**.
5. Financial details such as expected total capital investment, time frame for commissioning and infrastructure requirement for the proposed project. **(Annexure C)**
6. Proposed team structure for the proposed CoE. **(Annexure D)**
7. List of laboratory instruments and their estimated cost for the proposed CoE. **(Annexure E)**
8. Infrastructure requirements with estimated cost for the proposed project. **(Annexure F)**

# General Terms & Conditions

1. DMG Rajasthan reserves the right to change the scope or foreclose the EOI without short listing of any agreement at any time, without giving any reason thereof.
2. The issue of this document does not in any way commit or otherwise oblige DMG Rajasthan to proceed with all or any part of the EOI & further process associated with it.
3. The EOI request is not the subject of any process contract or any contractual obligations between DMG Rajasthan and Proponents or potential proponents.
4. DMG Rajasthan may, at its absolute discretion, decide to abandon any part or whole of the process without giving prior notice to the Proponents or potential Proponents.
5. DMG Rajasthan reserves the right to short- list proposal by way of evaluation Criteria determined internally in alignment with its strategic needs.
6. DMG Rajasthan reserves the right to ask the interested parties to furnish other details/ documents related to the company/ proposed project.
7. The party submitting the EOI shall be bearing all costs associated with the preparation and submission of the EOI and DMG Rajasthan will, in no case be responsible or liable for these costs, regardless of the conduct or outcome of the assessment/ evaluation process.
8. The total cost of Establishment of Centre of Excellence with instrument, beneficiation & pilot plants etc. up to final stage is to be bear by EoI holders.

# Schedule of Events

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Event** | **Date** |
| 1. | Publication of Expression of Interest (EOI) | 30.11.2024 |
| 2. | Pre-Bid Meeting for Query Resolution | 13.12.2024 |
| 3. | Last date and time for submission of EOI | 18.12.2024 |
| 4. | Opening of EOI documents | 24.12.2024 |
| 5. | Approval of Successful Bidder | 31.12.2024 |

# Submission of Expression of Interest (EOI):

Interested parties are required to submit all required documents complete in all respects with one original and one authenticated copy for each in hard copy format through the registered post or hand delivered to the below address:

Directorate Of Mines & Geology,

Khanij Bhawan, Shastri Circle, Udaipur

------------------------------------------------- End of Document ------------------------------------------

# Document Checklist

|  |  |  |
| --- | --- | --- |
| Annexure 1 | Expression of Interest Letter |  |
| Annexure 2 | Company details |  |
| Annexure A | Financial strength of promoters and consortium partner (for new entity) |  |
| Annexure B | Experience details |  |
| Annexure C | Proposed Financial details for the project |  |
| Annexure D | Proposed team and personnel details |  |
| Annexure E | List of laboratory instruments |  |
| Annexure F | Tentative cost/ expenditure |  |
| Financial Documents | Balance Sheet, Profit and Loss Statement, Cash flow statement |  |
| Technical Documents | Experience in Ceramic sector, Intellectual Property (IP) and Patents, Relevant Cases Studies |  |

# Annexure 1

Standard Format for Expression of Interest

(Company’s Letter Head)

Directorate Of Mines & Geology,

Khanij Bhawan, Shastri Circle, Udaipur

Email:

**Sub:** - Setting up of Center of Excellence (CoE) for Ceramic at Bikaner in the State of Rajasthan

Dear Sir,

In response to your public advertisement in (Insert the names of the newspaper and/or website) on (Insert date of the advertisement) inviting Expression of Interest (EOI) for Setting up of Center of Excellence (CoE) for Ceramic at Bikaner in the State of Rajasthan, we hereby submit our EOI.

We have also attached information according to the standard form as per Annexure. The information furnished by us in this EOI is true, correct and accurate to the best of our knowledge.

Sincerely yours,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/Mobile No.:

E-mail address:

# Annexure 2

**Company Details**

(On Company’s Letter Head)

* + - 1. **Name and address**
         1. Name of the Firm/Company/Organization:
         2. Corporate Address:
         3. Registered Address:
         4. Contact No:
         5. Website:
      2. **Key Contact Person:**
         1. Name:
         2. Designation:
         3. Contact No./ Mobile No.:
         4. Email:
      3. **Company Profile:**
         1. Date of incorporation:
         2. CIN No:
         3. GST No.:
         4. PAN No.:
         5. Shareholding Pattern:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure A

**Financial strength of promoters and consortium partner (for new entity)**

(On Company’s Letter Head)

Date: DD/MM/YYYY

To,

Directorate Of Mines & Geology,

Khanij Bhawan, Shastri Circle, Udaipur

Email:

Dear Sir,

Consortium Details:

|  |  |
| --- | --- |
| Total no. of partners in the Consortium proposed |  |
| Name and address of Consortium Partner 1 |  |
| Scope of work of the Consortium Partner 1 |  |
| Name and address of Consortium Partner 2 |  |
| Scope of work of the Consortium Partner 2 |  |

The Net worth and the Turnover of the interested party for last three financial year as per audited statement is as under:

|  |  |  |
| --- | --- | --- |
| **Financial year** | **Net worth (INR Crore)** | **Turnover (INR Crore)** |
|  |  |  |
|  |  |  |
|  |  |  |

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Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure B

**Format for providing comprehensive account of past or ongoing projects in Ceramic or similar fields**

(On Company’s Letter Head)

|  |  |  |
| --- | --- | --- |
| **Sr No** | **Particulars** | **Details** |
| 1 | Name of the major project/ projects |  |
| 2 | Client Details |  |
| 3 | Project/Projects Details |  |
| 4 | Work ongoing/ completed in last 5 years |  |
| 5 | Total Net worth of the Project/ Projects |  |
| 6 | Any other relevant information |  |

Note: Copy of the Work Orders/Completion certificates to be enclosed

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure C

**Format for providing company’s financial details such as expected total capital investment, time frame for commissioning and infrastructure requirement for the proposed project.**

(On Company’s Letter Head)

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Proposed Project Detail** | **Response** |
|
| 1 | Total Capital Investment  (INR Crore) |  |
| 2 | Time frame to start project |  |
| 3 | Proposed timeline with milestones and deliverables |  |
| 4 | Infrastructure Requirements of project and their expected commissioning dates |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure D

**Format for providing company’s proposed team and personnel details**

**for the proposed project.**

(On Company’s Letter Head)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Resource to be deployed** | **Domain of Experience** | **Year of Exp** | **Number of Post** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure E

**Format for providing company’s proposed** **list of laboratory instruments for the**

**proposed project.**

(On Company’s Letter Head)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Instrument** | **Justification / Purpose of**  **Requirement** | **No of Instrument** | **Approx Cost** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address:

# Annexure F

**Format for providing company’s** **tentative cost/expenditure for the proposed project.**

(On Company’s Letter Head)

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Particulars** | **Details** | **Approx Cost** |
| A | Phase I |  |  |
| 1 | Land Area & Land Cost |  |  |
| B | Phase II |  |  |
| 1 | Building Infrastructure with Laboratory,  Conference Hall, Training Hostel, Staff Quarters, Faculty/Officers Quarter, Technology Block, Boundary Wall of land etc |  |  |
| C | Phase III |  |  |
| 1 | Instrumentation Cost with accessories and  installation Solar Power Plant, Water Supply,  Power Generation Plant, Central AC Plant,  Chiller Plant, Water Harvesting System,  Campus Road etc. |  |  |
| 2 | Vehicles for field and R&D work |  |  |
|  | **Total (Estimated Cost)** |  |  |

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Signature of Authorized Signatory (with official seal)

Name:

Designation:

Address:

Telephone/ Mobile No.:

E-mail address: