

# **Expression of Interest for Development and Implementation of Geo-synthetic Cement/Concrete Mats (GCM) in Mines and Other Areas**

## **1. Background:**

CSIR-Central Institute of Mining and Fuel Research (CSIR-CIMFR) requires an Implementation Partner for collaborative project to develop and implement Geo-synthetic Cement/Concrete Mats (GCM) in mines and other areas on turn-key basis as per the requirement of industry. GCM should be flexible concrete impregnated fabric that will harden when hydrated to form a thin durable waterproof and fire resistance concrete within 24 hours. GCM may be used for ventilation and isolation of stoppings in underground mines, separation/retaining walls, lining for drains/channels/culverts, slope stabilization in opencast mines, bund lining, and other purposes.

## **2. Objectives of Joint Collaboration**

- Development of modified GCM material for application in Indian geo-mining conditions;
- Development of GCM application procedure in different Indian mining conditions, field trials in different mining conditions, and performance evaluation of GCM; and
- Implementation of GCM in different mines and other areas on turn-key basis in the form of Industry Sponsored Project jointly by CSIR-CIMFR and Implementation Partner.

## **3. Application of GCM**

- Ventilation and isolation of slopping,
- Separation walls,
- Lining for drains / channels / culverts,
- Slope stabilization,
- Bund lining, etc.

## **4. Major Specifications of GCM**

- *Strength:* Compressive strength of the material should be 40 MPa or more
- *Flexural strength:* The material should be able to carry minimum 3.4 MPa stress in any direction before showing initial break
- *Abrasion resistance:* 0.10 g/cm<sup>2</sup> or less
- *Fire resistant:* The material should resist temperature upto 1200 °C
- *Impervious:* Co-efficient of permeability for water more than 1x10<sup>-9</sup>
- *Chemical resistance:* The material should resist acids upto pH 1.0, alkaline upto pH 13.0, hydrocarbons and sulfates
- *Crack proof:* The material should be crack proof
- *Thickness and mass:* The material should be 5-13 mm thick with a mass of 7-19 kg/m<sup>2</sup>

- *Dimension:* Material should be in the form of roll having width more than 0.9 m
- *Flexibility:* The material should be flexible enough to accommodate any required shape
- *Life span:* The material should last long for at least 25 to 30 years and pass different environmental tests.

## 5. Role of Implementation Partner

- Joint development of a modified GCM with CSIR-CIMFR as per the requirement of Indian geo-mining conditions.
- Participation in field studies to analyze requirement of various projects based on site specific conditions of different industries as per the requirement.
- Participation in discussion/meetings with industries, regulatory authorities and ministries.
- Preparing work proposals, quotations, etc.
- Submission of tender document/quotation (on-line or hard copy) along with Earnest Money Deposit (if required) and representing during tender opening.
- Supplying material, accessories, manpower and machinery for field installation of GCM as per the proposal/tender specification of respective industries.
- Field installation of GCM in mines and others area as per the requirement on PAN India basis.
- Training/demonstration, maintenance and repairing at the installation site as per the proposal/tender of the respective industry.
- Submission of performance bank guarantee (if required as per the tender document) to the industries.
- Regulatory clearance of GCM in association with CSIR-CIMFR (wherever required).
- Obtaining satisfactory field installation, training/demonstration and material delivery certificates from the respective industry after completing installation work.

## 6. Eligibility Criteria for Selection of Implementation Partner

- (i) The firm should comply the specification of GCM to be supplied as an Implementation Partner as mentioned in point no. 4 of EoI.
- (ii) The firm should accept the role of Implementation Partner as mentioned in the point no. 5 of EoI.
- (iii) The firm should have experience for implementation of GCM in mines **or other areas**.
- (iv) Annual turnover of the company should be minimum of Rs. 50.00 lakhs.
- (v) Only the original manufacturer or its authorized agent should submit the EoI.

- (vi) The selected firm should sign an agreement with CSIR-CIMFR for developing, supplying, installation and maintenance of GCM as an Implementation Partner of CSIR-CIMFR.
- (vii) The agreement should be valid for 5 years agreement period and which may be renewed based on mutual consent.
- (viii) The firm should give an undertaking for implementation of GCCM in any mine/ industry/location throughout the country on PAN India basis.
- (ix) The selected firm has to pay royalty (minimum 3%) to CSIR-CIMFR for technical support based on selling price (excluding taxes) of GCM and its implementation and maintenance costs. The technically qualified firm offering maximum royalty will be selected for licensing agreement.

## **7. Expression of Interest**

The interested firms should submit their EoI with following information and documents in 2 bids system:

### **(i) Technical Bid:**

- a) Company profile.
- b) Return of the company certified by Chartered Accountant showing minimum Rs. 50.00 lakhs annual turnover during last 2 financial years.
- c) Authorization certificate from Original Manufacturer of GCM, if the firm is not the Original Manufacturer.
- d) Point-wise comply statement of specification of GCM to be supplied as an Implementation Partner as mentioned in point no. 4 along with mentioning respective page number of the enclosed leaflet of GCM where this specification complied. Test certificates should also be submitted in support of compliance of relevant specification (wherever applicable).
- e) Letter of the firm accepting the role of Implementation Partner as mentioned in the point no. 5.
- f) An undertaking by the firm for implementation of GCM in any mine/ industry/location throughout the country on PAN India basis.
- g) Experience details and successful field installation certificates for GCM from users.
- h) Acceptance letter of the firm for signing an agreement with CSIR-CIMFR supply, installation and maintenance of GCM in the field as an Implementation Partner of CSIR-CIMFR for 5 years period.
- i) Registration details of the company:
  - Company registration certificate copy
  - PAN copy
  - GST certificate copy

## (ii) Financial Bid:

- a) Royalty rate agreed to pay by the firm for technical support of CSIR-CIMFR based on percentage of selling price (excluding taxes) of GCM and its implementation cost. It should be minimum of 3% of total material and its delivery, installation and maintenance costs, i.e. project cost of the Implementation Partner.
- b) The firm should submit the minimum rate for GCM and its delivery, installation and maintenance costs in different fields during next 5 years agreement period considering mass scale requirement in the field as per the details given below along with a copy of past purchase orders for various thickness of GCM:

Sl. No.	Item	Rate	Rate justification document w.r.t. recent past PO of Government or Autonomous Body or PSU organization
(A)	Material cost		
	(i) GCM - Thickness - 5 mm (rate per m <sup>2</sup> )	Rs.	
	(ii) GCM - Thickness - 8 mm (rate per m <sup>2</sup> )	Rs.	
	(iii) GCM - Thickness - 13 mm (rate per m <sup>2</sup> )	Rs.	
(B)	Delivery and installation cost including accessories, manpower and machine (% of total material cost)	%.....of (A)	
(c)	Annual maintenance cost (% of A+B)	%....of (A+B)	

**Note:** The firm manufacturing other thickness of GCM may quote as an optional item.

- c) The minimum rate quoted by the technically qualified firm will be selected as an Implementation Partner. The minimum rate will be calculated based on the overall cost of GCM implementation [i.e. total cost as mentioned in point no. 7(ii)(b) minus royalty amount as per point no. 7(ii)(a)].

## 8. Submission of Eol

The interested firms should submit their Eol in a sealed envelope mentioning in top “Eol for GCM” and inserting sealed Technical Bid envelope and Financial Bid envelope in the said envelope. Eol should be submitted to the following address:

The Head, BDIL,  
CSIR-Central Institute of Mining and Fuel Research,  
Barwa Road, Dhanbad – 826001, Jharkhand, India