



Request for Expression of Interest (REoI)

for

Cloud Seeding Program for Artificial Rain to Combat Air Pollution in Mumbai

Website: <https://portal.mcgm.gov.in/> (For public awareness)

Deputy Chief Engineer (Civil), Environment Department, BMC

Office of: 3rd Floor, Worli Transport Garage,
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BRIHANMUMBAI MUNICIPAL CORPORATION
Environment Department

Invitation of Global Expression of Interest (EOI)
For
Cloud Seeding Program for Artificial Rain to Combat Air Pollution in Mumbai

1. Municipal Commissioner of Brihanmumbai Municipal Corporation (BMC) invites **“Global Expression of Interest (EOI) from entities (companies, firms, etc. having a legal status) for initiating a Cloud Seeding Program for Artificial Rain to Combat Air Pollution in Mumbai using suitable technologies”**, in accordance with applicable laws and regulations.

BMC is a local authority for Brihanmumbai area formed under Mumbai Municipal Corporation Act, 1888 and is responsible for providing civic amenities to the citizens of Mumbai. The city of Mumbai is spread over an area of 483 sq.km. and has a population of approx. 12.9 million and a floating population of approx. 5 million. The BMC is in charge of enforcing compliance of relevant state and national environmental legislations, such as Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986, amongst many others.

In the past few years, the Air Quality Index (AQI) of cities have been rising across cities in India. In a study conducted from 2017-2022, 39 cities from India featured as the most polluted in the top 50 most polluted cities of the world.

2. The city of Mumbai has been facing higher pollution levels during the past winter seasons and in response to this, Brihanmumbai Municipal Corporation has ramped up its exercise to control fugitive dust and emissions from its jurisdiction. In this regard, Brihanmumbai Municipal Corporation proposes to initiate a cloud seeding program for artificial rain over the city of Mumbai, to control the air quality metrics in the city, for a period of 3 years and provide clean air to its citizens.

The broad Scope of work is as follows:

- a. Carrying out cloud seeding operations so as to achieve precipitation, and control the air quality index in the city, through use of appropriate delivery mechanism
3. Reputed entities with experience in cloud seeding operations in the last three years (in a single project) in the above mentioned scope or work can submit the Expression of Interest
4. Interested entities will need to include the supporting documents and details provided under Annexure 1 to 4 along with their Expression of Interest (EOI) submissions. Applications for EOI must be clearly marked “Global Expression of Interest (EOI) from entities (companies, firms, etc. having a legal status) for initiating a Cloud Seeding Program for Artificial Rain to Combat Air Pollution

in Mumbai using suitable technologies” and **be submitted along with relevant documents no later than 5:00 PM IST on 14/12/2023 on the email address (dmc.env@mcgm.gov.in)**.

5. In case of any clarifications regarding this Expression of Interest (EOI), the questions may be directed to the officer whose details are mentioned below

Deputy Chief Engineer (Civil), Environment
3rd Floor, Worli Transport Garage,
Dr. E. Moses Road, Worli
Mumbai 400 018, Maharashtra
Email: ee.swm@mcgm.gov.in

6. Only applications submitted as a part of this Expression of Interest (EOI) process, will be eligible for participation in the subsequent RFP stage for the above mentioned work
7. Neither BMC, nor its employees, consultants, advisors accept any liability or responsibility for the accuracy or completeness of, nor make any representation or warranty, express, or implied, with respect to the information contained in the EOI, or on which the EOI is based. Nothing in the EOI should be relied on, as a promise or representation as to the future.
8. The Applicant shall bear all its costs associated with or relating to the preparation and submission of the EOI including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its EOI
9. The interested entities should apply with the following details and relevant supporting documents:
- Annexure I: Details of the entity
 - Annexure II: Experience of carrying out cloud seeding operations for artificial rains
 - Annexure III: Financial Credentials
 - Annexure IV: Project and Technology Management
 - Any other relevant information
10. The applicants will be required to make a presentation of the technology proposed before a select technical group of BMC at a suitable date and time, which will be communicated to them
11. Further information about BMC can be found on the website <http://portal.mcgm.gov.in>

Sd/-
Deputy Chief Engineer (Civil)
Environment Department

**Annexure I
Details of Entity**

Please provide details of the entity which is submitting an Expression of Interest for the project

Name of the entity	Legal status (Public/ Private/ Partnership/ Limited Liability/Sole Proprietorship, etc.)	Country of Incorporation	Date of Establishment of the Entity in MMY format	Principal Place of Business	Presence in India (Y/N)	Contact Details of Designated Representative				
						Name	Designation	Address	Phone No.	Email
1	2	3	4	5	6	7	8	9	10	11

Note:

1. Prospective applicants shall fill out the above form in MS Excel format and submit relevant documents on the email address (dmc.env@mcgm.gov.in), to support their claims

Annexure II
Experience in operating cloud seeding programs for artificial rains

Please provide details of previous projects that you have completed or are in the stage of operation for cloud seeding programs in the last 7 years in the format provided below (mentioned projects in descending order of date of award of contract)

Name of client/ Public Authority	Description of project	Period of contract (in MMY format)	Scope of work		Number of flights undertaken for above mentioned work	No. of successful attempts for artificial rain through cloud seeding
			Name of technology used for cloud seeding	Does the scope of the project include operation (Y/N) If Y, please provide details		
1	2	3	4	5		

Note:

1. Use separate rows for each individual project
2. "Name of Client/Public Authority" (Column 1) should include
 - a. Name(s) of the Client's legal entity(s) for which the work was executed
 - b. Contact details (including Name, Designation, Address, Phone number, and Email Address) of the key client personnel who was in charge of the monitoring the work done on the project by the entity providing the Expression of Interest
3. "Description of Project" (Column 2) should include
 - a. Name of the legal entity which were involved in the execution of the project
 - b. Whether the project is current operational (Y/N)

4. A brief write up on the technology used for the cloud seeding operation should be enclosed separately for each of the projects indicated above
5. **All documents to support the claim for execution of the projects mentioned above, must be submitted on the email address (dmc.env@mcgm.gov.in)**

The applicants may at their discretion provide any additional documents which may enhance the clarity of the scope of work for the projects (including performance certificates) indicating above

Annexure III
Financial Credentials

Please provide details for the last 5 financial years

S.no.	Financial Year Period (from DDMMYY to DDMMYY)	Turnover in INR
1	01.04.2022 to 31.03.2023	
2	01.04.2021 to 31.03.2022	
3	01.04.2020 to 31.03.2021	
4	01.04.2019 to 31.03.2020	
5	01.04.2018 to 31.03.2019	

Note:

1. All applicants shall submit the above details supported by duly attested financial statements and detailed profit and loss statements by a competent authority
2. Applicants submitting turnover in currency other INR, shall use the foreign exchange rate (as declared by Government of India), as applicable on 1st December of the year for which the turnover is submitted.

Annexure IV
Project and Technology Management

Please provide the following details to help us understand your project and technology management plan

1. **Technology proposed for the project**
 - a. Technical specifications of the aircraft to be used
 - b. Materials such as chemicals for inducing artificial rain
 - c. Details for R&D, patenting, licensing of technology, etc.

2. **Operation plan for the cloud seeding program**
 - a. Project management plan for cloud seeding program
 - b. Proposed manpower for the project and their commitments
 - c. Gantt chart for project implementation

3. **Assessment of the key risks perceived by the entity on the project**
 - a. Possible risk mitigation mechanisms

The entities may at their own discretion provide any supporting documents which enhances the clarity of the project and technology management strategy