

REQUEST FOR PROPOSAL (RfP)

**SOLID WASTE QUANTIFICATION, COMPOSITION, AND MASS
FLOW ANALYSIS
IN MUMBAI, MAHARASHTRA, INDIA**

C40 Cities Climate Leadership Group, Inc.
120 Park Avenue, 23rd Floor
New York, NY 10017
United States of America
February 2024

1. Background

1.1 About C40 Cities Climate Leadership Group Inc. (“C40”)

C40 is a network of nearly 100 mayors of the world's leading cities, who are working to deliver the urgent action needed right now to confront the climate crisis, and create a future where everyone, everywhere can thrive. Mayors of C40 cities are committed to using a science-based and people-focused approach to help the world limit global heating to 1.5°C and build healthy, equitable and resilient communities. Through a Global Green New Deal, mayors are working alongside a broad coalition of representatives from labour, business, the youth climate movement and civil society to go further and faster than ever before.

The strategic direction of the organisation is determined by an elected Steering Committee of C40 mayors which is co-chaired by Mayor Sadiq Khan of London, United Kingdom, and Mayor Yvonne Aki-Sawyerr of Freetown, Sierra Leone. Three term Mayor of New York City Michael R. Bloomberg serves as President of the C40 Board of Directors, which is responsible for operational oversight. A nine-person management team, led by Executive Director, Mark Watts, leads the day-to-day management of C40. C40's three core strategic funders are Bloomberg Philanthropies, the Children's Investment Fund Foundation (CIFF) and Realdania.

To learn more about the work of C40 and our cities, please visit our [Website](#), or follow us on [Twitter](#), [Instagram](#), [Facebook](#) and [LinkedIn](#).

1.2 About the Transforming Cities Waste Management Program in India

Inefficiently managed waste is a major source of greenhouse gas (GHG) emissions across the globe. Considering that cities are primarily responsible for managing solid waste, this project aims to support cities in implementing sustainable waste management solutions. This presents a unique opportunity to dramatically reduce and avoid methane emissions while also contributing toward cleaner, healthier, more resilient, and inclusive cities.

This project seeks to support the city of Mumbai to accelerate the delivery of the Pathway Towards Zero Waste strategy. Guided by the waste hierarchy, this project is aligned with global good-practice and strategic recommendations made by science, technical, policy and advocacy organisations, prioritising closing collection gaps and developing the alternative treatment infrastructure, given the latest findings on the limited efficacy of landfill gas management systems produced by satellite monitoring.

Supporting cities positioned for action, this programme will build on existing political commitments through a combination of on-the-ground technical assistance, data gathering, capacity building, project development support, and peer-to-peer sharing. Additionally, catalytic capital opportunities will be provided to cities, offering essential tools and data to: a) Empower decision-making, b) Improve waste management

operations, and c) Divert food/organic waste from disposal to avoid and reduce methane emissions. These focus areas are selected to provide targeted support required to enable cities to accelerate the delivery of the C40 Pathway's 2030 targets, aligning the ambition and implementation strategy with the Global Methane Pledge Waste.

Programme Targets:

- Providing timely, city-wide waste collection
- Treating at least 30% of organic waste
- Reducing waste disposal emissions by at least 30%

This project would be a modular and scalable phased effort to enable supported cities to contribute towards the Global Methane Pledge goals and significantly reduce their methane emissions by 2030, while laying out a replicable playbook and roadmap to begin phasing out organics disposal and deploy an operational and financing model that can be replicated across the globe.

The programme aims to provide intensive support to strengthen data baseline and its management, build technical and operational capacity amongst stakeholders, and support the implementation of pilot projects and a citywide deployment schedule, achieving highly visible wins, accelerating action and positioning them on the C40 Pathway Towards Zero Waste.

2. Background of SWM in Mumbai

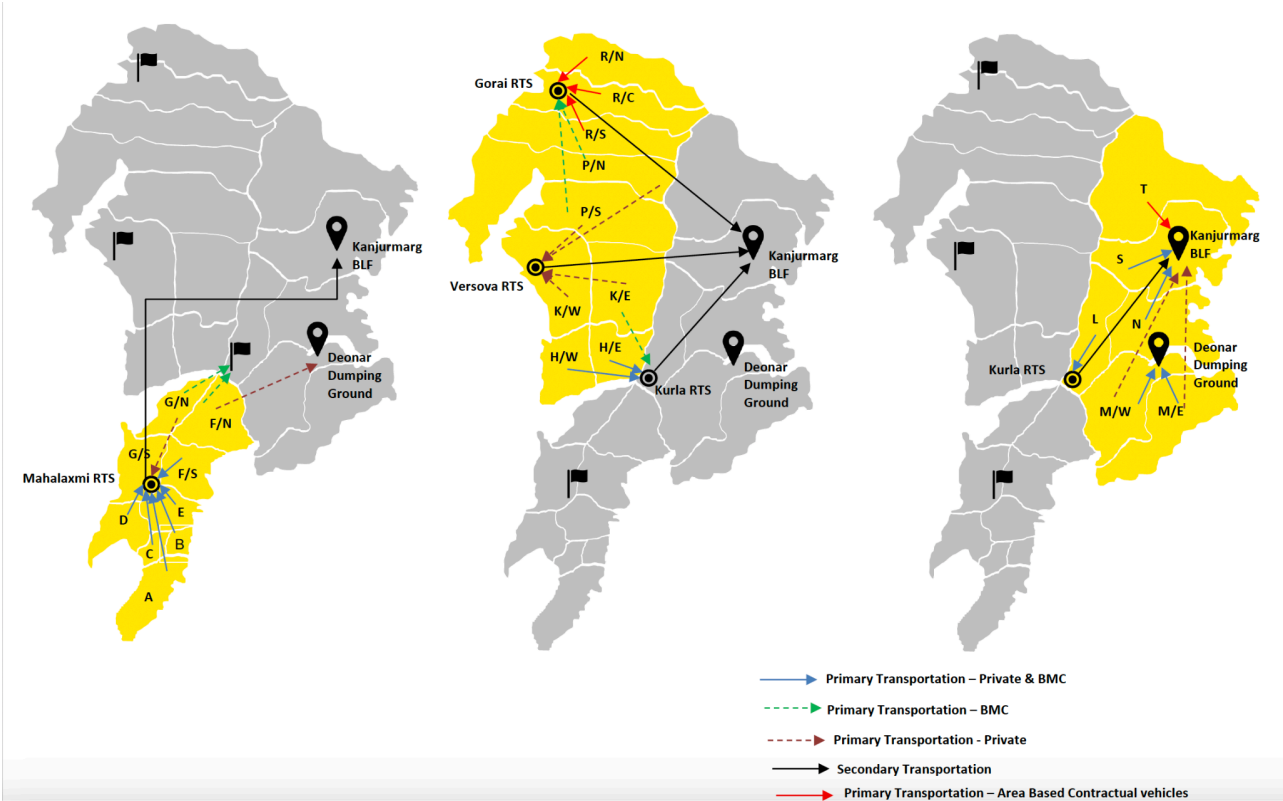
The city of Mumbai is categorised into 7 administrative zones and 24 wards which cumulatively generate about 7200 Tonnes per day (TPD) of municipal solid waste. The waste collection is managed by about 1586 vehicle trips as detailed in the table below:

S.no	Vehicle Type	Municipal	Private	Total
1	Compactor (Large)	136	399	535
2	Compactor (Mini)	76	322	398
3	Small Closed Vehicle	0	505	505
4	Watch & ward	0	38	38
5	Stationary Compactors	110	0	110
Total		322	1264	1586

Waste Primary and Secondary Transportation Mapping

There are a total of 4 Refuse Transfer Stations in Mumbai with a total capacity of 1850 TPD (Gorai 300 TPD, Versova 300 TPD, Kurla 650 TPD, Mahalaxmi 600 TPD). Cumulatively, about 1500 vehicle trips transport the collected waste to; a) the 4 RTs, and b) directly to the processing/disposal facilities. About 100 vehicle trips are used to

transport waste from RTSs to the processing/disposal facilities as secondary transportation.



In terms of waste processing, BMC has established an integrated waste processing facility at Kanjur, catering to about 5500 TPD. The facility comprises three processing centres, i.e., a Material Recovery Facility, Composting Facility, and a Bioreactor Landfill. About 800 TPD of waste is sent to Deonar for controlled disposal.

3. Purpose of RfP

The purpose of this Request for Proposal (RfP) is to solicit proposals for consultancy services from firms or consortiums (this assignment is not for individuals) to conduct a study on solid waste quantification, composition, and mass flow analysis for the city of Mumbai for two seasons (Pre Monsoon: April-May & During Monsoon: July-August)

Deliverable 1: Waste Quantification and Composition

Assessing the quantity of waste for different waste streams flowing in Mumbai city is the crucial first step towards ensuring sustainable waste management operations. With this background, the consultant would need to design and implement waste quantification and composition study for the waste that is being collected in Mumbai by the BMC. It is crucial to note that the study is focused on waste collected and not on waste generated or waste disposed. Therefore the sampling needs to be done at

places where the collected waste is first offloaded. The study shall cover all types of waste generators including but not limited to various household categories (low, mid, and high-income levels), commercial establishments, institutions, small and medium-sized enterprises, hotels, function halls, vegetable and other produce markets, malls, places of worship (temples, mosques, etc.); and other significant waste generators. The appointed consultant would need to submit a detailed plan presenting strategies for achieving representative sampling and the framework for reporting findings before commencing the actual work. This plan will undergo consultation with BMC officials for finalisation. Based on the findings, the consultant shall also produce a set of recommendations for further improvement in the solid waste management system of the city and opportunities for increasing organic waste treatment.

Deliverable 2: Mass Flow Analysis (MFA) for collected waste

Waste management operations in the city involve collection, transportation, processing, and disposal of waste. A comprehensive Mass Flow Analysis (MFA) showcasing the journey of waste once it is collected till its final destination is to be developed under this deliverable. The consultant will also be required to assess and analyse these waste flows and identify opportunities for targeted interventions to divert waste from landfill. The existing record keeping/ datasets with the BMC in this regard shall also be useful in undertaking this activity and the same shall be made available to the consultant post appointment.

3.2 Study process

This work will be anchored by the **C40 Cities in partnership with the Brihanmumbai Municipal Corporation (BMC)**. The process of developing the reports needs to be participatory and shall involve engagement with relevant stakeholders at various levels. This will include close engagement with officials of the BMC, various concessionaires appointed by BMC and working in the SWM sector, and team members of C40.

The assignment will kick off in April 2024 and considering the need of analysing waste composition for 2 seasons under the study, the sampling shall be done in the month of (Pre Monsoon: April-May & During Monsoon: July-August). Detailed project timelines are given under section 5.2.2 in this RFP. The appointed consultant needs to optimally plan for managing resources, budgeting expenses, and ensuring timely report delivery. This plan should account for breaks in the study that will occur due to the analysis of two seasons' samples.

The bidders need to submit a comprehensive proposal with activities, timeline and key deliverables based on the Project Scope of Work described in this RfP. This response will constitute the standard for what C40 can expect to find in the detailed project plan in terms of resources, breadth of scope and timeline.

3.3 Meetings

- Kick-off meeting with C40 project team and concerned BMC officials and concessionaires.- This will be held at the BMC office.

- Bi-weekly update meetings and progress meetings - Online OR Offline. In the case of a physical meeting, the consultant needs to arrange the same.
- Other meetings as necessary to co-produce a report
- Project close-out meeting, with presentation on the final findings.- Physical meeting in presence of BMC officials.

4. Detailed Activities and Deliverables

Deliverable 1: Waste Quantification and Composition

Activities	<ul style="list-style-type: none"> ● Develop a comprehensive strategy to conduct solid waste quantification and composition study for the waste being collected by the BMC. Finalise the strategy in consultation with C40 and BMC officials. <ul style="list-style-type: none"> ○ Since the study focuses on the waste collected, the sampling locations shall be the key logistics and infrastructure points where the collected waste is first received ; Transfer Stations, Treatment facilities, and Disposal sites. Samples shall be collected from the point of waste offloading. ○ Based on the route mapping, certain vehicles transport waste to the four RTS (having weighbridge facilities), while the remaining vehicles directly transport waste to their respective treatment/disposal facilities. Accordingly, these locations shall be considered for sampling. ○ About 1500 vehicle trips shall be considered as a sampling universe to ascertain the number of samples to be considered for the study (vehicles transporting waste from wards to RTS and from wards to direct processing/disposal facilities. Vehicles from RTSs to processing facilities need not be considered). ○ Based on the waste collection schedule and defined routes, produce an analysis that presents ward-wise/route-wise findings for further granular assessment of different areas in the BMC, types of waste generators, and their contribution to waste generation, especially major organic waste generators, waste diversion opportunities, etc. Detailed information on vehicle trips, capacity, and routes shall be shared with the consultant post-appointment. ● Ensure that the approach provides highest possible comparative compatibility with the most recent waste composition analyses available with the BMC to analyse trends. ● The approach of study shall account for aspects as detailed below
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but not limited to:

- Assessing waste quantity and its composition across categories of **waste generators** including residential, commercial, institutional, bulk waste generators etc.
- Covering all **wards** within the BMC's jurisdictions
- Samples to be collected for **5 continuous days minimum** (including weekends, festive holidays if any)
- National and State government's manual/ guidelines/ policies to be followed as relevant to the study (e.g SBM Manual 2016, SBM2.0 Guidelines etc.) and in consultation with the C40 team.
- Design sampling plan to enable the delivery of a **statistically significant and most accurate representation** of the waste collected and managed by the BMC at the Mumbai city level..
- The sampling strategy to comprehensively explain the following:
 - Clear objective of the sampling exercise.
 - The total number of samples considered, weight per sample (which can vary and should be commensurate with the vehicle type being sampled and its capacity), approach to sampling, sorting categories, and all methodologies to be followed during sampling that ensures the results are representative of the entire city.
 - To ensure accuracy in sampling, the offloaded waste needs to be either adequately mixed prior to sample collection or picked in such a way that a homogeneous sample is achieved every time.
 - Consideration of all shifts/timings of operations of waste collection vehicles
 - **Categories** shall **include but not limit to**; organic waste (food, produce market, garden etc.), paper and cardboard, plastic, metal, glass, domestic hazardous waste, sanitary waste, e-waste, textiles, tyres/rubber etc. to be finalised in consultation with the C40 team.
 - Method of measuring the quantity of different waste streams identified, including consideration of moisture-free quantity of dry categories of waste, and moisture content in the waste.
 - Collection and handling techniques to avoid contamination and efficient weighment of sorted waste

	<ul style="list-style-type: none"> o Framework of results and timelines • Liaise with C40 and BMC officials on support requirements to carry out the sampling analyses according to location, timing, and methodology. • This includes visiting ward / zonal offices, meeting relevant officials, gathering data and necessary information for efficient the execution of the study. • Final Report and Presentation with analysis of the findings, trends in form of charts/graphs as appropriate, gaps identified and strategies/ recommendations thereof for improving the SWM system in Mumbai. • A professionally designed summary report with appropriate graphics in English as well as in Marathi, covering crucial findings, trends, recommendations, etc.
Output	<ul style="list-style-type: none"> • Detailed work plan with timelines • Sampling Strategy • Weekly progress reports (including geotagged pictures of sites and sampling exercise) • Waste Quantification and Composition report of 2 seasons along with detailed analysis and category-wise quantification of different waste streams, and recommendations as relevant to the programme. • Professionally designed summary report in English and Marathi • Raw and analysed data-sets in excel for ward-wise, zone wise, and route wise analysis.

Deliverable 2: Mass Flow Analysis (MFA) for collected waste

Activities	<ul style="list-style-type: none"> • Develop a Quantified Mass Flow for the collected waste & present graphically (Sankey Diagrams) to provide a comprehensive overview of how waste is handled from its initial collection to its final destination in Mumbai. <ul style="list-style-type: none"> o Existing record-keeping systems (weighbridges at in & out points of RTS) shall be useful in undertaking this activity, and the same shall be made available to the consultant post-appointment. • The Mass Flow thus developed shall represent the journey of collected waste at the Mumbai city level; from collection to its final destination.
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	<ul style="list-style-type: none"> ● The mass flow analysis shall also consider waste managed at 46 dry waste collection centres, waste collected through dedicated wet waste collection vehicles, and the remaining mixed waste collection. ● The findings of the waste composition study, which quantifies different waste categories, shall also be applied to the Mass Flow analysis. This shall present mass flow of different categories of waste in the city; from collection to processing/disposal, and associated by-products offtake wherever applicable. This addition will enable an understanding of category-wise waste flow and potential diversion opportunities, leading to strategies for more effective waste processing and reduced reliance on landfills. ● Identify areas that are potentially underserved for waste collection in the city basis the route maps. Recommend strategies for universal collection as relevant. ● Work with C40 team and BMC officials to <ul style="list-style-type: none"> ○ Identify gaps (short term and long term) and opportunities basis the mass flow ○ Accordingly, make contextual recommendations for improving waste collection efficiency, waste processing, and overall SWM planning for BMC.
Output	<ul style="list-style-type: none"> ● Mass Flow Analysis report, outlining findings and recommendations (to be also included in the summary report as mentioned under outputs of deliverable 1) ● Final Presentation for C40 and BMC officials

The final outputs including spatial data must be submitted to BMC and C40 team in editable formats (GIS, PSD, PPTx, Word doc files).

5. Proposal Guidelines

5.1 Submission Details

This Request for Proposal represents the requirements for an open and competitive process. This Request for Proposal is specifically for firms/ consortiums to apply and not individual consultants. Proposals will be accepted until *5 pm Indian Standard Time on or before 18 March 2024* Any proposals received after this date and time will not be accepted. All proposals should include clear timetables, how you will work with C40, clear costs and detail on experience in this area.

This RFP represents the requirements for a restricted tender with a competitive process, where a minimum of three (3) service providers are invited to respond. C40 cities reserve the right not to appoint.

The proposal should give C40 evaluators all the information they need to assess your bid. Please clearly indicate:

- Relevant information about the service provider and contact details
- A timeline, indicating the different stages, milestones, proposed work plan to deliver the outline objectives, and with adequate C40 review periods and stakeholder consultations should be included.
- An overview of expertise and experience on the topic of waste management including references to previous work on implementation of SWM related projects in India (especially Mumbai or Maharashtra) preferable. Please also highlight any international experience.
- The firm/consortium will require an onground team/office in Mumbai
- Details of the organisation and proposed project team – please include relevant experience and expertise and limit CVs to two pages per person; clearly indicate the project lead, the role of each team member and whether the person will be stationed in Mumbai The project team must ideally include:
 - 1) 1 Team Leader with 10+ years of experience
 - 2) 1 Project Manager with 5+ years experience
 - 3) 2 Research Associates with 2+ years experience
 - 4) Necessary Staff for onground sampling (Skilled and Unskilled)
- Work approach and coordination with C40, specifying required input and resources
- Clear cost break-down structure and explanation of expenses - please see Section 7 “Project budget” for more details.
- Any risks and assumptions made in planning this work - where risks are identified, appropriate alternatives and mitigation strategies should be outlined.
- At least two recent references with phone and email contact details.
- Confirmation of adherence to C40’s terms and conditions.
- Any additional deliverables and/ or information relevant to this tender

All documentation should be provided in an editable and portable document format, compatible with computer software used by C40 and C40 cities. Editing, formatting, and presentation of electronic files should be of a consistent, professional, and publishable standard.

Please note: Proposals should be written in English, saved in pdf format and should not exceed 5 pages of text. Reference material may be placed in annexes. Individual CVs should not exceed 2 pages.

Contract terms and conditions will be negotiated upon the selection of the winning bidder for this RfP. All contractual terms and conditions will be subject to review by

C40's legal department and will include scope, budget, schedule and other necessary items pertaining to the project.

You must include adequate information about how your costs were calculated to enable evaluation of cost reasonableness. The costs must be provided in USD.

C40 may choose to conduct proposal discussion calls with shortlisted consultants to ask more detailed questions about the proposed approach, expertise, and to clarify any remaining questions

5.2 RFP and Project Timeline

5.2.1 RFP Timelines

RFP Timeline	Due Date
Request for Proposals published by C40	27 February 2024
Questions submitted to C40	06 March 2024
C40 responds to questions	12 March 2024
Deadline for Proposal submission	18 March 2024
Evaluation of Proposal	26 March 2024
All Potential Suppliers notified of outcome	28 March 2024

5.2.2. Project delivery timelines

Project Timeline	Due Date
Kick off meeting with C40 & BMC Officials	18 April 2024
Sharing of necessary data with consultant and clarification on queries if any	22 April 2024
Submission of detailed strategy by consultant for both seasons and mass flow analysis	24 April 2024
Discussion and finalisation of strategy with BMC officials and C40 team	26 April 2024
Sampling and fieldwork period (Pre-Monsoon Season)	28 April - 02 May 2024

Draft Report for Season 1 : Pre Monsoon	13 May 2024
Commenting period till	16 May 2024
Final 1st Season Waste Composition and Mass Flow Analysis Report, and Presentation	23 May 2024
BREAK IN STUDY	Upto 25 July 2024
Sampling and fieldwork period (During-Monsoon Season)	31 July- 04 August 2024
Draft Report for Season 2: During monsoon	13 September 2024
Commenting period till	17 September 2024
Final Composition and Mass flow analysis (both seasons), Presentation, Professionally Designed Summary report (English & Marathi), and Project Closure meeting	25 September 2024

5.3 Supplier Diversity

C40 is committed to supplier diversity and inclusive procurement through promoting equity, diversity and inclusivity in our supplier base. We believe that by procuring a diverse range of suppliers, we get a wider range of experiences and thoughts from suppliers and thus are best able to deliver to the whole range of our diverse cities and the contexts that they operate within.

We strongly encourage suppliers that are diverse in size, age, nationality, gender identity, sexual orientation, majority owned and controlled by a minority group, physical or mental ability, ethnicity, and perspective to put forward a proposal to work with us.

Feel welcome to refer to C40's Equity, Diversity, and Inclusion Statement as supplier diversity and inclusive procurement is one element of applying equity, diversity and inclusion to help the world limit global heating to 1.5°C and build healthy, equitable and resilient communities.

5.3.1 Contract

Please note this is a contract for professional services and not a grant opportunity. Organisations unable to accept contracts for professional services should not submit bids. The work will be completed on the [C40 Standard Service Provider Agreement](#). These terms and conditions are non-negotiable. Organisations unable to accept them

as drafted should not submit bids in connection with this opportunity.

If C40 are unable to execute a contract with the winner of this competitive process, we reserve the right to award the contract to the second-highest Potential Supplier.

5.3.2 Subcontracting

If the organisation submitting a proposal needs to subcontract any work to meet the requirements of the proposal, this must be clearly stated. All costs included in proposals must be all-inclusive of any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organisations being contracted

5.3.3 Programme management

The Senior Manager from C40 will oversee the project and be an active partner, along with the waste technical lead. The successful bidder will be expected to foster close and constructive working relations with the project manager.

6. Proposal Evaluation Criteria

Submissions will be evaluated against the following criteria:

Criteria	Weighting
Relevant expertise and understanding of topics outlined in the proposal; waste composition and quantification studies, mass flow analysis, and references to previous similar projects and methods used, discussion of how this knowledge will be applied, and possibly expanded upon in this project.	40%
Project delivery and management approach proposed (ability to deliver outputs on time and with quality), including sampling strategy that is commensurate with the budget and is statistically representative of the sample universe	30%
Value for money <ul style="list-style-type: none">• Economy: Assessment of the cost efficiency & budget consciousness of the proposals - Consideration of whether the proposal costs aligns with the expected outcomes & deliverables• Efficiency: Examination of proposed project management approach, resource allocation and timelines• Effectiveness: Assessment of appropriateness and viability of chosen methods and tools to achieve the objectives	20%

<p>Equity and ethical alignment considerations:</p> <p>C40 is looking to appoint an organisation that shares our values and is grounded in the context of the local community. Consideration will focus on:</p> <ul style="list-style-type: none"> • Location of organisation (preference will be given to locally based organisation) • Women, Youth minority, or other historically disadvantaged group ownership will be given preference. • Organisation mission alignment with C40. 	10%
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7. Project Budget

The proposal should indicate a cost break-down structure, outlining the costs for each component. All costs included in the proposal must be all-inclusive, including any VAT/GST, copyright or bank fees, transportation, venue charges, translation etc. Costs should be stated as one-time or recurring costs. C40 does not pay contractors more frequently than once per month.

A budget of **USD 60,000** is available including all taxes and other 'hidden' costs. Bids must not exceed this value. all types of costs to be included in all expenses, and identify what support they need from the BMC and C40.

All costs incurred in connection with the submission of this RfP are non-refundable by C40.

7.1 Payment Terms

Component & Activity	Payment
After finalising contract from both parties	15%
Final 1st Season Waste Composition and Mass Flow Analysis Report and Presentation	40%
Final Composition and Mass flow analysis (both seasons), Presentation, Professionally Designed Summary report (English & Marathi), and Project Closure meeting	45%

*Please note this schedule might change while finalising the contract.

8. C40 Policies

C40 expects third parties to be able to abide by these C40 policies:

- Non-Staff Code of Conduct Policy [here](#)
- Equity, Diversity, and Inclusion Policy [here](#)

9. Submissions

Each Potential Supplier must submit 1 copy of their proposal to the email addresses below by **5:00 PM IST on or before 18 March 2024**.

- **Dhiraj Santdasani**, Technical Advisor, Waste and Methane.
dsantdasani@c40.org

Any pre-bid queries must be submitted to the above email address by **5:00 PM IST on 06 March 2024**.

Anonymized responses to questions will be provided [at this link](#) by the 12th of March 2024.

9. Terms and Conditions

C40 Cities Climate Leadership Group reserves the right to change or cancel the above requirements at any time, without incurring any liability towards any interested party and/or any obligation to inform any interested party of the grounds for its action. All costs incurred in connection with the submission of this RFP are non-refundable by C40 Cities Climate Leadership Group.

Confidentiality and Non-Disclosure:

All data shared during the course of this project will be considered confidential and proprietary information. The appointed consultant and its representatives shall not disclose, publish, quote, or use any of the provided data for any purpose other than this study and for the explicit consumption of C40 and Brihanmumbai Municipal Corporation. This obligation of confidentiality extends to all individuals involved in the project and shall remain in effect both during and after the completion of the project. Any breach of this confidentiality clause may result in legal action and the termination of the agreement

Disclaimer

C40 will not accept any liability or be responsible for any costs incurred by Potential Suppliers in preparing a response for this RFP.

Neither the issue of the RFP, nor any of the information presented in it, should be regarded as a commitment or representation on the part of C40 (or any of its partners) to enter into a contractual arrangement. Nothing in this RFP should be interpreted as a commitment by C40 to award a contract to a Potential Supplier as a result of this procurement, nor to accept the lowest price or any tender.