1. BRIEF INFORMATION ON THE PROJECT AND BACKGROUND

1.1. Background

India is one of the most vulnerable countries to climate change impacts, according to a risk index released at COP23. According to the Global Climate Risk Index 2016 by German watch, India is ranked 6th among the 10 most affected countries in the world.

It is projected that the per capita emissions will increase by about 130% until 2030 reaching 3.6 tCO2eq (without Landuse, Landuse Changes, Forestry (LULUCF)) (Climate Action Tracker, 2015). One of the main factors for the increasing GHG emissions is the substantial population growth in India. Indian cities are confronted with a comparably high population growth. In the last 30 years the urban population in India has doubled and has reached 31.16% (377 Million people) of the total population. By 2030 the percentage of the urban population could increase to 50%. This will increase the requirement for additional housing, energy, mobility and infrastructure significantly. The social structure as well as the consumption and mobility patterns (increase of private vehicles and energy consumption, etc.) are changing fast.

The implications of a changing climate are particularly severe for India. In 2016, the country reported the highest number of deaths due to extreme weather (2,119 fatalities) and suffered losses of more than INR 1.4 trillion (USD 21 billion) in property damage. This is almost 1% of India's GDP of USD 2.5 trillion, and almost equivalent to the country's whole health budget.

India accounts for about 7% of the global GHG, so it plays a crucial role in combating climate change. As a response to these challenges the Ministry of Housing & Urban Affairs, GoI introduced several missions namely, the ambitious Smart Cities Mission, the AMRUT Mission, Pradhan Mantri Awas Yojna (PMAY) and the Swachh Bharat Mission. Furthermore, India has declared in their Intended Nationally Determined Contribution (INDC) to reduce the emission intensity by 33-35% compared to the 2005 levels by 2030. The development of climate resilient urban centres using the Smart Cities Mission is a major contribution to this mitigation strategy.

Unfortunately, there are currently not enough comprehensive data on the quantitative contributions of cities to the Indian GHG emissions. It still can be assumed that cities will contribute more and more to the increasing emissions and they will play a more important role in the Indian climate policies.

1.2. Climate Smart Cities Programme

The project Climate Smart Cities contributes to the New Urban Agenda (Habitat III) as well as the Sustainable Development Goals (SDG) 11. Especially to the SDG 11.6: to reduce till 2030 the per capita environment impact of cities, especially in the field of air quality and solid waste management and SDG 11.9: till 2020 increase the number of cities that implement integrated policies and plans for more resource efficiency and mitigation and adaptation to climate change as well as disaster resilience. SDG 13 (Integrate climate change measures into national policies, strategies and planning; Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning)

The project targets decision makers in institutions at national and sub-national level responsible for the development and implementation of integrated climate-friendly urban development measures.

At national level the project supports institutions of the Smart Cities Mission (MoHUA, National Institute of Urban Affairs – NIUA, etc.) to implement urban development missions in a result-oriented manner and to make climate relevant impacts of these programmes visible for the public, Indian decision makers and the international political community.

Another important target group of the project are the inhabitants of Indian cities that will benefit from the successful implementation of climate friendly solutions in the Smart Cities Mission leading to healthier and more sustainable living conditions.

The overall objective of the project is that climate friendly solutions for urban infrastructure supply and urban development are anchored in the planning and implementation of projects within the framework of the Indian government's Smart Cities Programme.

The project will primarily have focus in the sectors of Solid Waste Management, Plastic waste management, Wastewater Management, Water Supply including water management, Storm water Management, Building Energy Efficiency/Green Buildings, Urban Green Cover and Renewable Energy.

The project is being implemented with support of three implementing partners National Institute of Urban Affairs (NIUA), German Institute of Urban Affairs (Difu) and The Technical University of Berlin (TUBerlin).

Under this project the key focus area will be Solid waste Management including C&D waste management and Plastic waste management. The non-degradable nature of plastic bags is posing a wide range of serious environmental and health deteriorations and hence are considered to be a big problem in waste management. The C&D waste recycling industry is in a very nascent stage in India and neglecting this waste has consequences for public health as well as the environment. The C&D waste being dumped leads to air pollution and clogging of drains thus leading to water logging. The presence of C&D waste in the mixed waste also reduces the effectiveness of composting or bio-methanation and also reduces the calorific value and combustibility of the MSW. Thus making these sectors very vulnerable considering the climate and environmental aspects.

2. CONTEXT

2.1 General Terms of Reference:

The consultant is responsible for the tasks as described below in the “Scope of work”. The consultant should have experience in handling work of similar nature as mentioned in the “Scope of work”.

2.2 Objective of the contract

The objective of the contract is to support the Smart Cities of Bhubaneswar, Coimbatore and Kochi in Solid waste management including C&D waste and Plastic waste management and to develop MRV systems for GHG emission monitoring for the sectors.
The national team to work in close coordination with the international consultant appointed by GIZ
The detailed scope of work for the consultant is defined in section 2.3

3. GIZ shall hire the contractor from **July 2019 until June 2021.**

4. DESCRIPTION OF THE ASSIGNMENT

The scope of work for the 3 Smart Cities will be as follows:

a) Bhubaneswar & Coimbatore: Focus on C&D waste management and linkages to solid waste management and plastic waste management. This may be in the Smart city area, city wide and/or cluster approach, as required by the city.
b) Kochi: Focus on Solid waste management and linkages to plastic waste management and C&D waste management. This may be in the Smart city area, city wide and/or cluster approach, as required by the city.
c) MRV system to be developed in all the 3 cities for the selected project.

The different activities undertaken by the national team of consultants will need to be undertaken in close collaboration with the GIZ project and the international consultant appointed for the subject. Periodic coordination with the implementation partners under the project may also be required. (The scope of work for the international consultants is attached as annexure I)

The activities to be undertaken for the work are listed below:

4.1. Report on existing situation, gaps and recommendations including a road map for further action for each city

4.1.1. Existing situation analysis in the 3 cities for SWM, C&D waste and Plastic waste management

a. Review the existing system covering all aspects of collection, transportation, treatment and disposal.
b. Review of ongoing and proposed projects in all 3 cities. The consultant needs to review the whole value chain also taking into consideration the climate change aspects. Proposed projects/ studies undertaken by GIZ or any other agencies also need to be considered.
c. Identify the maps available with the cities for SWM, C&D waste and Plastic waste management showing – primary collection routes, secondary collection points, treatment facility/ facilities (decentralized and centralized) and littering hotspots, etc.
d. Review the overall staff strength in the ULB for Waste Management
e. Identify ongoing capacity building trainings given to ULB staff on various subjects of SWM and C&D waste management and the training institutes providing these trainings.
f. Availability of any MRV system for the identified areas for GHG emission accounting.
g. Any other information of relevance for the subject.

4.2. Review of policies and guidelines at national, state & city for SWM, C&D waste and Plastic management and related subjects

a. Review the existing rules at national level - Solid Waste Management, 2016, C&D waste management Rules, 2016; Plastic Waste management Rules, 2016 & any other related rules/ guidelines issued by the Ministry of Environment Forests & Climate Change (MoEFCC), Central Pollution Control, MoHUA, Niti Ayog, Ministry of New & Renewable Energy (MNRE), Bureau of Indian Standards (BIS), etc.
b. Review of State level rules/ guidelines/ policies/ government orders.
c. Review of City level by-laws.
d. Review of any other policies/ rules/ guidelines available at national level/ state/ city level that can have implications for the city in management of solid waste, C&D waste and plastic waste.

4.3. Gap Analysis, Recommendations and roadmap for further action

a. Taking into consideration the existing situation and proposed projects and policies - identify gaps in the system based on long term future demand (20-25 years).
b. Based on the gap analysis provide recommendations for implementable projects. Provide a general road map for implementation of these subjects in the 3 cities and identify the areas for GIZ – CSC project support in issues of SWM, C&D waste and plastic waste management in the 3 cities.

4.4. Technical and implementation support for the cities

(Detailed scope of technical and implementation support will be defined closely by GIZ in consultation with the partners, before commencing activity)

4.5. Provide technical inputs/ support for planning and implementation:

a. Review of DPRs/ tender documents to provide technical inputs as well as climate change related aspects in the DPRs/ tender documents in the 3 cities – upto 4 DPRs/ tender documents.
b. Developing conceptual studies including pilot testing of the concept in a pilot area as identified by the city (eg. – efficient collection and transportation route plan) for implementation of the different subjects in the cities as identified during the gap analysis undertaken by the consultant – upto 3 conceptual studies to be undertaken (concepts to include technical, financial, administrative, capacity building, digital, awareness aspects, etc. on the subject). Relevant data to be depicted on maps, formats to be used as available with the city.
c. Development Standard Operating Procedures (SOP) for different subjects identified in the situation analysis – upto 3 SOPs to be developed and then testing in identified pilot area for adapting to local conditions.

d. Develop MRV systems for the projects identified for implementation and for documenting the GHG emission reduction – upto 3 MRV systems to be developed and tested for application in the cities.

4.6. Implementation support through training and capacity building

a. Undertake technical workshops/ trainings: The consultant to undertake trainings in each city to support the ULB staffs and/ contractor on topics identified during the contract period for implementation support. – upto 3 trainings (1 day) to be conducted per city, total of 10 trainings.
b. Identify similar cases implemented within India and provide material on the same, to be used during trainings
c. Provide technical inputs for training modules on the SWM and C&D waste developed by GIZ Implementation partners on the project.
d. Awareness generation aspects to be included in the implementation support, if so required by the city.

4.7. Template preparation/ documentation of work undertaken in case study format

a. Develop templates from the different work undertaken in the project eg. SOPs, MRV concepts, etc. for the purpose of upscaling – upto 3 templates developed
b. Documentation of the 3 concepts developed and implemented in the cities, post discussions with GIZ on various aspects of SWM, C&D waste and Plastic waste management as implemented in the cities.

5. ELIGIBILITY OF CONSULTING FIRMS

5.1. Financial eligibility

a. The firm must have an average annual turnover of at least EUR 200.000 in last three financial years and have technical staff strength of at least 10.
b. The firm must have worked in at least 4 projects in the SWM sector /C&D waste management /plastic waste management of values more than EUR 25.000 and at least 2 projects should be in the last three years.

5.2. Technical eligibility

a. Atleast 10 years' experience in Solid waste management sector and its reuse
b. Atleast 3 years' experience in C&D waste and plastic waste management
c. Atleast 5 tender documents and/or SOPs developed
d. Conducted atleast 5 trainings and developed 2 training modules
e. Atleast 5 years' experience in working with Urban Local bodies

6. ELIGIBILITY OF EXPERTS

6.1. Experts Profile

a) **Solid Waste expert/Team Leader**: The Team Leader/Solid Waste expert will be responsible for the overall management of the assignment. He/She must have a post graduate in Engineering/Environmental sciences or other related field with more than 12 years of experience in the solid waste management sector. The expert must possess experience in plastic waste and C&D waste management and should have experience in working with Urban Local Bodies in India. Working experience in implementing Climate change measures and having experience in the project cities will be an advantage.

b) **Legal expert:** A legal expert must be Masters/bachelor's in law having additional expertise in environmental law/Solid waste management with 10 or more years' overall experience with atleast 4 years' experience in

working with Urban Local Bodies or other government organizations in urban infrastructure sector looking at solid waste management aspects, eg., developing tender documents for a city in the field of solid waste management/plastic waste management/C&D waste management. Experience in the project cities will be an advantage

c) **Climate Change Expert**: The climate change expert must have master's in planning/Climate change studies/Disaster management/Engineering/Environmental science or other related fields with atleast 5 years' experience in Climate Change/Urban Environment related studies with focus on GHG emission analysis, GHG projections, MRV systems etc. Working experience in the solid waste management sector and experience in the project cities will be an advantage

d) **Junior Expert:** A junior expert must have Master's in Engineering/Planning/Environmental sciences or other related field with at least 3 years of experience in data collection and analysis, review of technical documents, report writing etc. Experience in the project cities and knowledge of the local language will be an advantage

6.1.1. Tentative person-days

The tentative total *person-days envisioned for this assignment is 322 days. The person-days planned for each expert is as mentioned in the table below

Expert	Tentative person-days
Team Leader/ Solidwaste management expert	105
Legal expert	12
Climate Change Expert	40
Junior Expert	166

*One person day = 8 hours

7. REPORTING & DELIVERABLES

Deliverables:

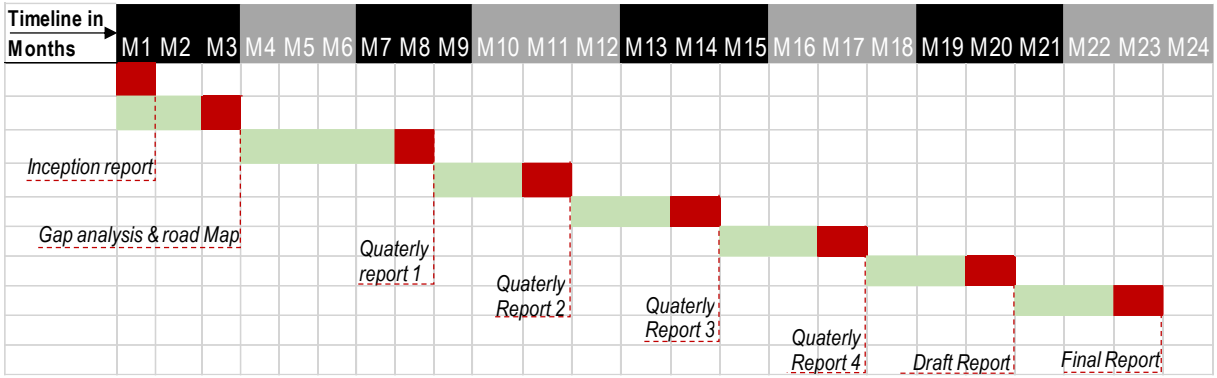
7.1. ***Inception report****: The report will contain the detailed methodology adapted by the consultant to undertake the study along with timelines. The report template for further deliverables to also be submitted at time of inception report. The report should not be more than 15 pages, annexures to be separate*

7.2. ***Report on existing situation, policy analysis, gaps, recommendations and roadmap****: will include Section 4.1 of the scope of work. The consultant to provide separate report on the policy document review. The report should not be more than 30 pages, annexures to be separate.*

7.3. ***Quarterly reports*** *to be submitted by the consultant: this will include Section 4.2 of the scope of work. Separate outputs in word formats as well as ppt will be required for each of the outputs listed under Section 4.2, which should be included as annexures to the relevant quarterly report. Formats for the reports will be as per GIZ formats. The reports should not be more than 20 pages, annexures to be separate.*

7.4. ***Draft final report****: will include all outputs developed under Sections 4.1& 4.2 of the scope of work. The report should not be more than 100 pages,annexures to be separate.*

7.5. ***Final Report****: Will include all the sections with comments from GIZ incorporated. The report should not be more than 100 pages. Annexures separate. 5 hard copies along with 5 pendrives containing the soft copies.*



The outputs of each of the assignment to be presented to GIZ team in Delhi in the form of a powerpoint presentation/ original document. All the templates to be discussed and finalized with GIZ.

The consultant will also have to do presentation of the findings to the city officials as and when requested by GIZ.

All the data collected by the consultant (in soft & hard copies) must be submitted to GIZ. GIZ templates and GIZ logos are to be used in the appropriate manner for the reports.

Reporting:

The consultant will report to with Ms. Vaishali Nandan, Project Manager, Climate Smart Cities

8. LOCATION AND TRAVELS

The project will be supporting three Smart Cities - Cochin (Kerala), Coimbatore (Tamil Nadu) & Bhubaneshwar (Orissa).

Based on the project deliverables and input requirement from the experts upto sixteen trips to each city with a stay duration of 4-5 days per city and four meetings in Delhi is envisaged in the assignment.

The envisaged trips for each expert is as below

Expert	Number of trips envisaged			
	Kochi	Coimbatore	Bhubaneswar	Delhi
Team Leader/ SWM expert	7	7	7	4
Legal expert	0	0	0	1
Climate Change Expert	2	2	2	1
Junior Expert	7	7	7	4

The consultant team is responsible for arranging for his/her own travel and logistics. All travels, accommodation & per diem to be reimbursed / paid as per GIZ rules.

9. ADMINISTRATIVE INFORMATION

The consultant team is responsible for arranging for his/her own travel and logistics. All travels, accommodation & per diem to be reimbursed / paid as per GIZ rules. Travel and administrative guidelines from GIZ attached in contract.

Minor printing of workshop materials and other materials if required to be distributed for workshops to be borne by the consultant. Expenses upto EUR 65 for audio-visual arrangements or refreshments for workshop to be arranged by the consultant. The costs to be included in the financial proposal. All the expenses shall be reimbursed on production of actual bills.

The consultant to preferably organize the workshops within the Corporation office premises. All food expenses and the expense for workshop being organized outside the corporation premises will be borne by GIZ.

9.1. Presentation of technical proposal

The firms shortlisted based on technical evaluation will have to make a presentation to the GIZ team in Delhi on the

- Suggested concept and workplan
- Technical backstopping/knowledge management
- Consideration of local resources
- Proposed staff and qualification

The financial proposal will be evaluated after the technical evaluation and presentation by the shortlisted consultants.

10. SPECIFICATION OF INPUTS

Fee days	**Number of days up to**	**Comments**
• Preparation/debriefing	20	
• Implementation	244	
• Travel days	58	
Travel expenses	**Number of days/nights up to**	**Comments**
• Per diem	212	
• Accommodation allowance	212	
Other travel expenses		**Comments**
• Number of domestic trips	58	To and fro
• Number of trips abroad	0	
• Ancillary travel expenses (e.g. visa, airport transfers)		
Flights	**Number of flights up to**	**Comments**
• International flights	0	
• Domestic flights	58	To and fro
Other costs		**Comments**
Workshop expenses		Total 10 workshop planned

ANNEXURE I:

Scope of Work of International Consultant for the study "Support for SWM including C&D waste and plastic waste management under Climate Smart Cities project"

1.1. Report on existing situation, gaps and recommendations including a road map for further action for each city

1.1.1. Review of International best policies and guidelines for SWM, C&D waste and Plastic management and related subjects

a) Review and document 3 relevant international policies available at national/state/city level for SWM, C&D waste and Plastic management and related subjects
b) Identify and document key points in the policy review which can be have a possible replication in India and in the project cities.

1.1.2. Review internatonal best practises

a) Identify and document atleast 5 international best practises with atleast one each in the domain of SWM, C&D waste and plastic waste management with possible replication in India

1.1.3. Review of the Gap Analysis, Recommendations and roadmap for further action

a) Review the gap analysis and recommendations identified by the national consultancy team and suggest measures for further strengthening the suggestions also taking into consideration the climate change aspects. Provide additional recommendations if any.
b) Develop a road map based on the recommendations for short medium- and long-term actions.

1.2. Technical and implementation support for the cities

(Detailed scope of technical and implementation support will be defined closely by GIZ in consultation with the partners, before commencing activity)

1.2.1. Provide technical inputs/ support for planning and implementation:

a. Review of DPRs/ tender documents to provide technical inputs as well as climate change related aspects in the DPRs/ tender documents in the 3 cities – upto 4 DPRs/ tender documents, jointly with the national team.
b. Support and provide inputs to the national team in developing conceptual studies and also testing the concepts on any pilot region identified by the city (eg. – efficient collection and transportation route plan) for implementation of the different subjects in the cities as identified during the gap analysis undertaken by the consultant – upto 3 conceptual studies to be undertaken (concepts to include technical, financial, administrative, capacity building, digital, awareness aspects, etc. on the subject). Relevant data to be depicted on maps, formats to be used as available with the city.
c. Develop atleast one Standard Operating Procedures (SOPs) and also support and provide inputs to the national personal to develop Standard Operating Procedures (SOPs) for different subjects identified in the situation analysis and also further testing in pilot area identified.
d. Provide inputs to the national personal in developing MRV systems for the projects identified for implementation and for documenting the GHG emission reduction – upto 3 MRV systems to be developed and tested for application in the cities.

1.2.2. Implementation support through training and capacity building

a. Identify training needs for capacity development of the ULB staffs based on the inputs from National team

b. Provide inputs to the national team in the training development and also conduct trainings when available.
c. Provide technical inputs to the training modules on the SWM and C&D waste developed by GIZ Implementation partners on the project.

1.2.3. Template preparation/ documentation of work undertaken in case study format

a. Support and inputs to national team in developing templates from the different works undertaken in the project eg. SOPs, MRV concepts, etc. for the purpose of upscaling – upto 3 templates developed
b. Provide inputs in any other templates/ inputs for guidelines/ bylaws, etc. as requested by GIZ

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