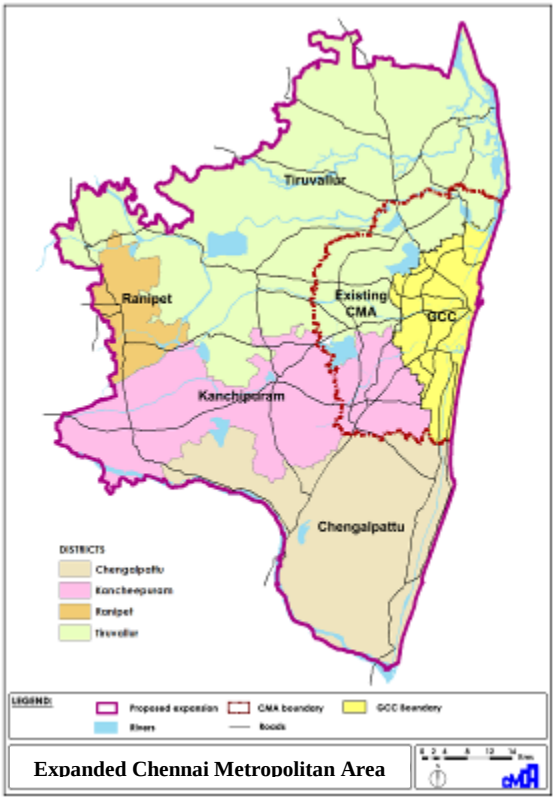
Draft - Terms of Reference (TOR)

Preparation of Detailed Project Report for "Integrating Blue Green Infrastructure in Urban Planning for Climate Change Adaptation and Mitigation in Chennai Metropolitan Area (CMA)".

1. Background

1.1 Chennai Metropolitan Area

Chennai stands as the fourth largest metropolitan city in India. Chennai has been recognized for its world-class medical facilities, manufacturing hub, automobile industries, and software services, worldwide. The Chennai Metropolitan Area (CMA) falls in four districts of Tamil Nadu state viz. Chennai, parts of Thiruvallur, Kancheepuram, and Chengalpattu Districts covering an extent of 1189 sq.km. The Chennai Metropolitan Development Authority (CMDA) was constituted in 1974 as a statutory body under the Tamil Nadu Town and Country Planning Act, 1971. As per the Act, one of the major function of CMDA is to prepare a Master Plan for the Chennai Metropolitan Area.



Map 1. Chennai Metropolitan Area (1189 sq.km) expanded (5904 sq.km).
Source: CMDA

The First Master Plan for CMA was approved by the Government in G.O. Ms.No.2395, RD & LA Department, dated 04.12.1976. The Second Master Plan for CMA is in force since 02.09.2008 and will be effective till 2026. Currently, CMDA has initiated the preparation of the Third Master Plan (TMP) for 2026-2046 under World Bank-assisted Tamil Nadu Housing and Habitat Development Project (TNHHDP) for an extent of 1189 sq.km. Recently, the Government of Tamil Nadu in the Housing and Urban Development Department in G.O.Ms. No. 184, dated 21.10.2022 accorded approval for the expansion of the CMA from 1189 sq.km. to 5904 sq.km. annexing 1225 more villages spread in parts of Thiruvallur, Kancheepuram, Chengalpattu Districts and part of Arakonam Taluk in Ranipet District. The jurisdiction of CMA before and after expansion is shown in Map 1.

Chennai is a shore city along Bay of Bengal. Three rivers viz. Kosathalaiyar, Coovum and Adyar meander through the Chennai city before they drain into the Bay of Bengal. Chennai city is vested with several water bodies, forests and green fields which form the basis for the eco system in CMA.

1.2 Water Bodies in CMA

Chennai River basin comprises four sub-basins namely, Kosasthalaiyar, Cooum, Adayar, and Kovalam which are seasonal in nature and function as primary drainage channels for excess storm water runoff during rainy seasons. Another major channel is the Buckingham canal running north to south of the city artificially constructed by the British by connecting all the coastal wetlands conceived as an inland waterway system by the British. There are three major reservoirs namely Chembarambakkam, Poondi, and Sholavaram Red Hills and are the basic source of drinking water supply to CMA. Apart from the above mentioned rivers & reservoirs several channels,lakes of various dimensions are present across the entire CMA which are maintained by the PWD and some of them by the Local Bodies themselves. On the one hand, securing clean and adequate water for all the people in a metropolitan city is a major challenge whereas on the other hand managing the challenge of disasters caused by flooding as well poses burden on the government. Planning for a balance between these two extremities is the need of the hour in CMA which requires thorough understanding of not only the characteristics of the existing water bodies, permeability of the soil surface, contour of the area, rainfall, ground water, storm water runoff etc., but also the information like rate of population growth in the area, projected population for the area for

about 20 years, future water demand for the projected population and additional sources of water and infrastructure.

1.3 Green spaces in CMA

Forest cover in Chennai has a dubious distinction of having the lowest green cover among all the metropolitan cities in the country and research reports assert that the gap seems to be only widening. Forest Survey of India (2009) reports the green cover of Chennai city is 6.25% including 5 sq.km of moderately dense forest and 4 sq.km of open forest. In the 426 sq. km of Greater Chennai Corporation (GCC) area, only 64.06 sq km (15 percent) accounts for green cover as against the target of 33 percent stipulated in the National Forest Policy. Research reports from the Institute of Remote Sensing, Anna University, Chennai reveal that the green cover of CMA has reduced from 167.46 sq.km in 2005 to 153.03 sq.km in 2012. Pallikaranai marsh is one of the Ramsar sites in Chennai with an overall expanse estimated to be 5500 sq.km in 1972 and has currently been reduced to one-tenth of its original extent as evident from the state planning commissions report on Green Chennai City. One of the biodiversity-rich wetlands is currently threatened due to anthropogenic impacts and urbanization. Effective restoration of marshland would be wise and economically sensible for the natural flood control system in Chennai city. Currently, Chennai city is having about 525 public parks and about 128 traffic islands serving as lung spaces around the city.

2. Major resilience challenges and climate risks in Chennai

Like all other rapidly expanding metropolitan cities, Chennai also has its own share of resilience challenges: the city frequently endures natural calamities such as cyclones, floods, and heat waves, while coping with slow disasters such as droughts, poor waste management, encroachment, traffic congestion, and pollution. According to the Climate Change Vulnerability Index of 2021, Chennai ranks highest among the large Indian cities in terms of exposure to climate change-related threats. Flood risk in Chennai is also expected to worsen as per the climate models projecting a 11% increase in heavy rainfall under the RCP 4.5 and 16% under RCP 8.5 in 2050 which likely will cause more frequent and heavy floods if the drainage infrastructure is not improved. The State Action Plan on Climate Change and the City Climate Action Plan highlight the issues of flooding, sea level rise, water scarcity, and frequent droughts in the city.

Chennai’s urban growth has sometimes taken place at the expense of the region's blue-green systems and open spaces. The loss of farmlands, floodplains, forests, streams, and

wetlands to urban development increases runoff, reduces aquifer recharge and increases the land surface temperature. The built-up area of the CMA has rapidly expanded in the past decades, stretching its infrastructure and service delivery capacity, and particularly creating a backlog in stormwater drainage, wastewater treatment, and disaster risk reduction services. The overall water storage capacity of the region's landscape has diminished due to the complete disappearance/encroachment or silting of water bodies. These changes to the landscape have left Chennai's residents more exposed to the risk of flooding, drought, and heat waves.

Climate change projections indicate that Chennai will face greater threats from extreme storm events, pluvial flooding, sea level rise, water scarcity, heat waves, urban heat islands, and poor air quality. Besides, it is to be noted that Chennai's water risks will aggravate over time unless the natural hydrological flows that sustain the water bodies and aquifers are restored. Delineating the basins is an effective method to identify the landscape units where the surface hydrological flows are self-contained and sustained. It will also provide the base for any river restoration/management planning in the region. The loss of green cover and increase in concretization has led to an increase in land temperatures in the urban landscape. The large waterbodies which are the major resource for water supply such as Red Hills, Sholavaram, Chembarambakkam and wetlands like Pallikaranai and grazing lands (Kazhuveli) are vulnerable for encroachment.

According to the Observed Rainfall Variability and Changes over Tamil Nadu state (2020) report prepared by IMD, Pune, based on the daily rainfall data from 1989 to 2018, the number of heavy rainfall days in the entire year is 3 to 4 days in Chennai while compared to other districts (0.1-3.2 days) in Tamil Nadu. The Chennai Metropolitan Area receives an annual rainfall ranging from 800 to 1400 mm and experiences a tropical wet and dry climate with high humidity. The majority of this rainfall mainly occurs during the monsoon season only for a period of three months between October and December. In the past decade, the city has endured more frequent and intense flood and drought extremes. The hydrology of Chennai is composed of a system of cascading wetlands along with the three rivers. The floods that occurred in the past were severe along the stretches of Adyar, Cooum and Kosasthalayar rivers, Buckingham Canal, and also along the neighboring areas of Pallikaranai wetland.

In the past 50 years, catastrophic floods have occurred in Chennai during the years of 1976, 1985, 1996, 2005, 2015, and 2021. These floods have caused devastating damages to the infrastructure of the city and numerous losses of lives. In 2015, Chennai recorded a rainfall depth of 348 millimeters (mm) over a 24-hour period following multiple torrential rainfall events in the course of a month claiming more than 400 lives. The floods destroyed property and livelihoods due to inundation, particularly of the poor and other vulnerable groups residing next to water bodies.

3. Nature-based Solutions (NbS) and Blue-Green Infrastructure (BGI) for climate resilience and its challenges

The term green infrastructure includes vegetated design elements such as parks, green roofs, greenbelts, alleys, vertical and horizontal gardens and planters whereas blue infrastructure relates to the hydrological functions viz., flow control, detention, retention, filtration, infiltration, reuse and recycling of water, for different sources of water like rainwater, urban storm water systems and groundwater aquifers with resilient provision for water supply and water security. Blue Green Infrastructure (BGI) refers to the systematic integration of blue elements like rivers, canals, ponds , wetlands, flood plains water treatment facilities and green elements such as trees, green fields, forests and parks with built environment in urban ecosystem. The potential benefits of BGI include increase in capacity of flow in rivers and channels, increased recharge of ground water, reduction in discharge of stormwater runoff, prevention of soil erosion and other ecological disturbances. Blue Green Infrastructure offers wide range of support in managing the challenges of climate change in urban areas in terms of economic viability and flexibilty to adopt under different scenarios. Though the effects of BGI are not completely tangible immediately, it will enhance the resilience to climate change and capactity of mitigation in the long run. In this phase of rapid urbanisation and climate change risks, BGI is an efficient nature - based alternative to Grey infrastructure made of concrete and metal to mitigate flood and drainage. BGI creates connection with nature increasing urban biodiversity and provides opportunities for social interaction, well being and recreation. It plays a vital role in making a city more liveable, sustainable and resilient.

As the CMDA is set to prepare the Third Master Plan for the CMA (2027-2046) and the Regional Plan for the expanded CMA region to guide urban and regional development, the integration of blue-green infrastructure (BGI) into planning and implementation processes will greatly help build resilience of the region to flooding, water scarcity, and climate change.

Hence, CMDA envisages to conduct a study on Blue-Green Infrastructure (BGI) mapping to develop an integrated and sustainable approach for climate disaster reduction-oriented spatial planning and management for the Third Master Plan through a detailed assessment, policy recommendation, and applied design guideline, by hiring a consultancy firm. The BGI study will help identify strategies for improving green cover, protecting water bodies, sponge development, urban flood risk control, water quality and storage capacity, open space design, sea level protection, shelterbelts, and heat island effect mitigation, among other co-benefits.

2. Objectives of the Study

The primary objective of this consultancy study is to capture the existing characteristics of the blue green elements in CMA, analyze and identify the problems related to the blue green elements including climate change threats, identify the gaps and weaknesses, and develop suitable contextual BGI and recommendations on implementation strategy for climate-resilient urban and regional development in CMA. The study is also expected to highlight the constraints in implementation of the BGI as well as specifiy implementation strategy on short term and long term basis, indicating enabling conditions including institutional requirements in CMA.

The study should also include the assessment of climate change impacts and risks in Chennai and make recommendations on suitable BGI-oriented infrastructure design and policies for adaptation and mitigation. The design shall include a combination of structural and non-structural (ecological-engineering) techniques to soften the edges of the waterways, lakes, tanks, and ponds to give them a natural appearance (green corridors) and to alter the constructed urban barriers (streets, sidewalks, buildings, or train tracks) to improve the green cover and increase the resilience of the city from climate change impacts.

3. Scope of the study

The study has five components viz.,

(i) Mapping of all blue green elements in the study area

(ii) Assessment of climate change impacts and risks in CMA

(iii) Assessment of current plans and regulations for BGI adaptability and assessment of demographic trend and institutional capacity for BGI in CMA

(iv) Nature-based solutions for protection of existing blue green elements and development of contextual BGI with investment plan and implementation strategy and conceptual land use plan for CMA.

(v) Delivery of final report, summarizing all findings and recommendations out of the study.

The detailed scope of the study is given below:

Component 1: Mapping of all Blue Green elements in the study area.

This component aims to cover the following tasks:

Task 1.1: Preparation of broad contour map for CMA in GIS

Task 1.2: Mapping of all the existing blue green infrastructure including micro drains and small green spaces such as road side parks, parks, traffic junctions, OSR, vertical garden, terrace garden in CMA in GIS using recent satellite images.

Task 1.3: The road network and storm water drain network in urban areas to be included from the database of Greater Chennai Corporation (GCC), Chenni Metropolitan Water Supply and Sewarage Board (CMWSSB) and concerned Local Bodies. Mapping the boundaries of the water courses / water bodies and all the missing links as per Public Works Department (PWD) revenue classification and historic satellite images.

Task 1.4: Mapping the cross sections of all water courses at crucial points with levels.

Component 2: Assessment of climate change impacts in Chennai Metropolitan Area (CMA) for planning of Blue Green Infrastructure

Task 2.1: The scope includes collection of primary and secondary data, a review of all available secondary information/reports/bulletins/related journal articles, etc. and benchmark the best practices to protect and develop Blue Green Infrastructure in urban areas more specificaly in coastal cities and conducting necessary field surveys as required. Detailed tasks include the following:

Task 2.2: Conduct a preliminary assessment of the historic trend of climate risks and the climate change impacts on the urban environment in the study area, including the weather data, extreme climatic events, climate hazards, as well as vulnerability and risk assessment of

the study area, with special focus on spatial planning for flood, coastal erosion, water scarcity/droughts, and heat waves.

Task 2.3: Investigate the roadways, metrorail network, railway lines, bridges, culverts, causeways, surplus channels of waterways and other urban infrastructure, public works, and/or built facilities that influence the landscape of the BGI system and identify critical points and areas of risk in the study area.

Task 2.4: Conduct a landscape assessment from the mapping in component-1. To estimate the urban green cover and existing natural infrastructure (land use modeling) infrastructure potential map by overlaying the digitized.

Task 2.5: Identifying all the possible impacts of climate change that Chennai Metropolitan Area would be exposed to and the role of Blue Green Infrastructure in mitigating such climate changes.

Task 2.6 Summary of basin-level BGI strategies including wetland protection, riparian conservation, water body restoration, canal rejuvenation, flood plain enhancement, and green corridors as ecosystem-based adaptation pathways. A regional development plan at the basin level with a proactive conservation agenda (including greening along the river corridor) has to be prepared in consideration of sponge basins in Chennai to protect the upstream riverways and waterbodies in the study area.

Component 3: Assessment of current plans and regulations for BGI adaptability and assessment of demographic trend and institutional capacity for BGI in CMA

Task 3.1: Review the existing city development plans, land use regulations, Building regulations and sectoral plans, infrastructure investment plans that are related to the management of the BGI system, including the community green spaces, green cover, open spaces, green networks, and water resources viz., water supply, water quality, stormwater drains, rainwater harvesting structures and preservation of natural ecosystems. Using best practices around the world as a benchmark, identify the gaps and weaknesses in these current plans concerning climate resilience and BGI system strengthening.

Task 3.2: Review the current national and international land use planning/management policies and guidelines w.r.to waterways/waterbodies and develop suitable land use planning policies integrating nature based solutions for the waterways/waterbodies in CMA.

Task 3.3: Analyze the demographic growth trend and socioeconomic development prospects of the study area to assess the urban development trajectory and gaps in the current plans in terms of BGI system. Using urban settlement upgradation plans/redevelopment schemes (including PMAY schemes) within the study area to identify and assess the impacts/scale of informal housing enchroachment on natural drains/ BGI in the city. Where necessary, the consultant may need to carry out modeling of spatial urban growth and land-use change scenarios, with an assessment of how different growth scenarios may impact/threaten the existing blue-green systems as well as identification of priority areas with high BGI potential for ecosystem-based adaptation. Areas of high ecological/environmental significance/value that are critical for BGI system enhancement should also be identified as conservation areas to inform the preparation of the TMP.

Task 3.4: Assess the current institutional framework, policies, plans and operational arrangement, and manuals/rules for decision-making in the maintenance of green infrastructure, waterbodies/ waterways, and management of floods. Also consider projects/programs in the pipeline, including institutional strengthening activities and technical assistance needed.

Component 4: Explore the potential for the application of nature-based landscape components and propose contextual BGI along with investment plan and implementation strategy and conceptual land use plan for CMA.

Task 4.1: Based on the urban green infrastructure and waterbodies/waterways in the study area, projected population and climate risk forecasts the Consultant shall generate scenarios of BGI application and its effect on climate mitigation in CMA

Task 4.2: The consultant shall develop suitable contexual BGI-oriented infrastructure design and policies for adaptation and mitigation. The design shall include a combination of structural and non-structural (ecological-engineering) techniques.

Task 4.3: The consultant shall give recommendations on implementation strategy for climate-resilient urban and regional development in CMA highlighting the constraints in implementation of the BGI, implementation strategy on short term and long term basis, indicating enabling conditions including institutional requirements in CMA and policies for adaptation of BGI.

Task 4.4: Validation of the strategy and proposal of its operationalization/implementation plan with phasing, in consultation with key stakeholders, including the citizen groups and developers/owners/management entities of the urban infrastructure in the study area, like, GCC, PWD, WRD, CMWSSB, Highways Department, Municipal Administratin Department, Rural Development Department, CUMTA.

Component 5: Delivery of final report, summarizing all findings and recommendations out of the study.

The final report should include an Executive Summary, the main text that includes chapters that summarize findings from all the tasks conducted, and any necessary annexures for methodology notes, maps, tables, data, models, and references. Together with the final report, the consultant should also submit all the primary and secondary data collected, data analysis results, simulation models, drawings, and maps in digital editable formats to CMDA.

The final proposal shall be detailed in the form of GIS based maps for all contextual proposals.

The final report of the study should cover the existing characteristics of the blue green elements in CMA, problems identified in CMA relating to blue green elements including climate change threats, gaps and weaknesses in blue green system, suitable contextual BGI and recommendations on implementation strategy for climate-resilient urban and regional development in CMA. The final report of the study should highlight the constraints in implementation of the BGI and implementation strategy on short term and long term basis, indicating enabling conditions including institutional requirements in CMA and policies for adaptation of BGI.

Given the fragility of the Chennai ecosystem, an understanding of how the BGI system impacts vulnerable communities, and an analysis of how the proposed plan (even though conceptual) impacts/benefits these communities should also be included.

At least two stakeholder workshops need to be held to ensure that inputs from various stakeholders (including vulnerable groups and community organizations) are well incorporated. The consultant can propose the actual timing and schedule for holding the workshops as fit in their work plan, but tentatively one workshop should be held at the

inception stage for collecting inputs and concerns, while another being held before the delivery of the final report for validation of recommendations.

4. Data resources and collection

The CMDA will provide access to its available datasets and facilitate the consultant's access to other government-owned datasets. The consultant is expected to propose collection / procurement of datasets listed below but not limited to, during the Inception Report stage.

a) Rainfall data for the stations within CMA and its immediate areas for available years (Max 100 years) from IMD / PWD so as to capture the hydrology of the four basins of CMA
b) Reservoir inflow and outflow data of all the 4 major reservoirs (Puzhal, Poondi, Chembarambakkam, and Sholavaram)
c) Tidal data for the Chennai basin from authorized agencies
d) Survey of India maps for the project area and influencing area
e) Aquifer-related data from State / Central Ground Water board/IRS-Anna university
f) Topography (SRTM - 30m) from Survey of India and other records
g) Topographic and thematic information generated for the Chennai area under the Urban Information Systems Program of the Ministry of Urban Development by the Department of Space.
h) Land use/ land cover/cropped and irrigated areas/soils
i) Water infrastructure details (Lakes and water spread area, barrages, diversions, irrigation systems, water supply intakes)
j) Urban vegetation cover and wetlands including all designated parks, Open Space Reservation (OSR) areas, traffic islands & traffic medians used for greening,
k) Natural barriers/retardants to flooding such as estuaries and information on their modeling already done by different agencies
l) Flood-related information and existing flood control measures (historical flood extents, embankments)
m) Water Resources (flows, groundwater levels)
n) Pollution-related data from TNPCB [Air, Water (fresh and marine), Soil and Industries (effluents)]

5. Timelines and Deliverables:

The time of completion of the assignment is Nine months.

S. No	Stage	Deliverable	Timeline	Fee schedule
1.	Submission and approval of Inception Report	An overview of the project, along with technical approach & methodology and a plan of action on how the consultant is proposing to execute the project with clear timelines and milestones. Collection, and reviews based on secondary data from various stakeholders.	Within 4 weeks from the date of issue of Letter of Award and acceptance thereof (T+4 weeks)	15% of the contract
2.	Submission and approval of Interim Report	Conducting all Field Surveys with necessary outputs in the form of shapefiles/ GIS files etc., as required, and Validation. Preparation of blue-green infrastructure design for a pilot project which can act as a lever to change the collective culture in sustainable climate change mitigation in CMA.	Within 10 weeks from the approval of the Inception report (T+14 weeks)	25% of the contract amount
4	Submission and approval of Draft Final Report	Incorporation of field survey results identification of suitable BGI design with three options and selection of best option.	Within 16 weeks from the date of approval of the interim report. (T+30 weeks)	30% of the contract amount
5	Submission and approval of Final Report	Report covering all the field surveys, maps prepared, data collected, analysis of options available, selection of the best option, details of the selected proposal in the form of drawing, maps with dimensions, and incorporating the suggestions made by CMDA.	Within 6 weeks of approval of the draft final report. (T+36 weeks)	30% of the contract amount

The consultants have to make necessary presentations and shall be available for discussions with necessary key personnel, before the Department / Government during various stages of the study as and when required, apart from the review committee reviews.

The consultant has to submit 7 copies for each of the deliverables and submit the hard and soft copies of all reports, shape files of GIS analysis, and Auto CAD drawings. The hard copies shall be printed in duplex mode wherever possible. All the designs, data, and editable versions of the reports shall be submitted in soft copies. The final report (Approved version) shall be hard bound and submitted with 10 copies along with soft copy (both Editable & non-editable and all drawings, etc.,) in Pen Drive. The report layout and arrangement of chapters shall be shared with the client before submission of the reports.

The consultants shall make necessary presentation to GoI, GoTN, Departments, and Authorities as and when required with their key staff during the study.

6. Data, Service, and Facilities to be provided by the Client

The land details, sketches/maps, and data relating to this work available in the office of CMDA will be provided to the Consultant. The Consultants can access all basic information from the CMDA website www.cmdachennai.gov.in. The consultant can also access the study reports/documents in Second Master Plan, CCTS, and other related maps of CMDA.

7. List of Key Professionals:

Key Professional	Education	Experience requirements
Team Leader & overall coordinator (36 weeks)	Postgraduate degree in regional planning, environmental planning, urban ecology or urban planning.	• Minimum 15 years of professional experience in the fields of education mentioned. • Minimum 10 years of experience in the fields of land use, sustainable development, urban ecology, strategic planning, land scape planning, and urban planning in developing countries.
Hydrology Expert (36 weeks)	Postgraduate degree in Hydrology/ Urban Water	• Minimum 10 years of relevant experience in working with national and local

Key Professional	Education	Experience requirements
	Resource Management	governments in developing countries. • Experience in facilitating similar exercises • Demonstrated experience in urban planning with a focus on water resource management, water supply and drainage and flood management.
Environment Expert (36 weeks)	Postgraduate degree in Civil Engineering / Environmental Engineering/ Environmental Sciences/Ecology/ Forestry/Agriculture /Horticulture	• Minimum 5 years of relevant experience in working with national and local governments in developing countries. • Demonstrated experience in environmental management planning, urban planning with a focus on green infrastructure, and nature-based solutions for flood management in similar assignments. • Experience in facilitating similar exercises
Landscape Architect/ Urban Designer (Mid-level) (36 weeks)	Postgraduate degree in Architecture, urban planning, regional planning, territorial or urban development.	• Minimum 5 years of relevant experience in working with national and local governments in developing countries. • Demonstrated experience in landscape designing in similar assignments in developing countries.
GIS Specialist (36 weeks)	Postgraduate in GIS and Remote Sensing/ Geography/ Post Graduate Diploma in GIS & Remote Sensing	• Minimum 5 years of relevant experience in working with national and local governments in developing countries. • Minimum 7 years of relevant experience in working with national and local governments in developing countries for PG Diploma in GIS & Remote Sensing candidates. • Demonstrated experience in spatial planning, mapping natural resource management, GIS and Remote Sensing based assessments, and overlay analysis, preferably in assignments of similar scope and geography.

8. Duration and Location

The services shall be delivered in Chennai, Tamil Nadu. The team is expected to stay in Chennai for at least **60%** of the time.

The consultants shall include the necessary support staff for fulfilling the requirements of this project.

1) Copy of the degree certificate / educational qualifications has to be enclosed with the C.V

2) The above team should be supported by adequate support staff like surveyors and other non-key-experts / specialists etc., with adequate experience to ensure that the objectives of the project are achieved within the timelines. The proposed team leader shall be assigned full-time for this project and shall not be associated with any other full-time ongoing assignment with any other client.

10. Review of Reports:

A technical committee constituted of representatives from the CMDA, UNEP, World Bank and other related stakeholder departments will evaluate the supplementary/complementary aspects of other sectoral studies such as Urban Heat Island effects, TNCDBR 2019 review, and T&CP Act review in the report for quality control. A separate review committee shall be constituted comprising official representatives from CMDA, and other stakeholder departments from GoTN (DoEF, WRD, TNGCC, CMWSSB, GCC) will review the progress of the work. The comments or views suggested by the technical committee on the various deliverables should be shared to the consultant within 15 business days of submission for incorporation/further action.