This report is part of an initiative supported under the Capacity Development of Local Governments (CDLG) project implemented by the United Nations Development Programme (UNDP) in Sri Lanka with the financial assistance of the European Union (EU).

CDLG is a four-year project (2020-2023) targeting the Eastern, Northern, North-Central and Uva Provinces of Sri Lanka. It is part of the European Union’s STRIDE (Strengthening Transformation, Reconciliation and Inclusive Democratic Engagement) programme focused on strengthening the capacities of local government authorities to be inclusive, responsive and accountable, and improve service delivery.

*Disclaimer

This document was produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.
GREEN CITY MASTER PLAN
AND IMPLEMENTATION ROAD MAP
MANNAR
Message from Mr. S. M. Saman Bandulasena,  
Chief Secretary to Northern Province.

It gives me a great pleasure to pen a few lines regarding the STRIDE/CDLG supported publication of the Green city master plan for Development of Mannar UC. This initiative is a timely initiative funded through the European Union and implemented in collaboration of the UNDP and Northern Provincial Council.

The strategy and principles of these green concept planning methods leads us to the successful implementation of identification of environmental micro projects and through which build a prosperous people friendly green society.

The report highlights the challenges, resources, and mitigation measures to carry out the activities which could lead to sustainable green environment. Mannar UC was affected in the past conflict and as a dry zone area faces climate changes and gradually moving towards development as a future hub with revenue potentials for the province.

The study shows the current challenges, the conceptual framework of green city planning - Comparative study of climate challenges, action plan, Capacity building plan and the main issues of the sectors and the solutions proposed. It considers the resources available in the area including physical resources such as human resources, finance, and it consider feasibility, commercial viability and the sustainability of the future environment concerned development.

This study report contributes to the planning which ensures the process, produces, products and services are oriented towards the development of the people and their peaceful living. Therefore, this study plays vital role of urban development concept to achieve long term SDG objectives. Mannar UC should take steps for moving in the green concept-based development. I thank all stakeholders in this connection for their valuable support provided for the study.

Thanking You,

Mr. S. M. Saman Bandulasena,  
Chief Secretary,  
Northern Province.
Message from the Team Leader, EML Green City Project Team

This report on the Green City Development Master Plan - Phase I presents a technical framework for more sustainable local areas in Sri Lanka and is the result of the immeasurable experience and efforts of a team of experts and their engagement with political authorities, administrative officials and the local communities. The success of this project is owed to the invaluable support received from the Mayor/Chairman; the respective members of the Councils, Commissioner/Secretaries; the administration and technical staff of the four local authorities, namely the Thalawa Pradeshiya Sabha, Mannar and Kattankudy Urban Councils and the Bandarawela Municipal Council; the area officers of the other relevant agencies such as the Urban Development Authority, Mahaweli Authority, Road Development Authority, Provincial Ministries, Ceylon Electricity Board, National Water Supply and Drainage Board and many more.

The COVID-19 pandemic posed several challenges to project implementation, hampering all activities in 2020-2021 as the team faced obstacles in visiting local areas, consulting local authorities and engaging with communities and other stakeholders. However, the preparation of the plan was an invaluable opportunity to integrate and share knowledge between technical area experts, local authorities and the local communities. The Project team would also like to thank UNDP for the opportunity given to the EML consultants that were selected to implement this initiative.

Urban environments can be seen as the most complex form of a collection of human interrelations and act as the focal point for transactions with the natural and built environmental systems, places for communication, exchanges and conflicts. Any physical environment is essentially a product of its inhabitants and their engagements in its space and as such, is both the mode through which its inhabitants’ objectives are accomplished as well as the manifestations of such accomplishments. Therefore, urban areas become sustainable to the extent that the inhabitants pay due regard towards fostering their health and well-being in choosing how their objectives are to be accomplished. In other words, sustainable cities are the products of the citizens who care for their very own existence. In that sense, ‘Greening’ a city (a Local Area) is possible only through ‘greening’ the thoughts, behaviours and interactions of its citizens, governors, administrators, service providers and other contributors.

With such an understanding, the Project Team intended to approach the selected local areas in a ‘place-sensitive’, ‘community-oriented’ and ‘bottom-up’ manner, in order to assure the proposed Master Plans would stem from the existing ground realities. The Plans aim to enliven the natural environment and built systems of the area, enhance the available local resources and potentials, and ensure integrated development. Therefore, the Master Plans presented herewith should be seen as guiding frameworks that provide short-, medium- and long-term strategies to transform the selected local areas into green ecosystems, sustaining their identities.
and reflecting espoused green attitudes in the locality through specific projects and everyday practices.

There can be many limitations in what has been proposed in the Master Plans, as a result of significant gaps in information, as well as time and resource limitations, and limited engagements with the local communities under the prevailing pandemic situations. However, the team has made every effort to contribute the best of its expertise amidst such limitations in the formulation of these plans and anticipates that the respective local authorities too will continue to implement the plan with the same enthusiasm shown during its development.

Prof. Plnr. Jagath Munasinghe
Team Leader
EML Green City Project Team
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
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<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>BMC</td>
<td>Bandarawela Municipal Council</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organization</td>
</tr>
<tr>
<td>CDLG</td>
<td>Capacity Development of Local Governments</td>
</tr>
<tr>
<td>CEA</td>
<td>Central Environmental Authority</td>
</tr>
<tr>
<td>CEB</td>
<td>Ceylon Electricity Board</td>
</tr>
<tr>
<td>DED</td>
<td>Detailed engineering design</td>
</tr>
<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
</tr>
<tr>
<td>DS</td>
<td>Divisional Secretariat</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GN</td>
<td>Grama Niladhari</td>
</tr>
<tr>
<td>Ha</td>
<td>Hectare</td>
</tr>
<tr>
<td>KM</td>
<td>Kilometer</td>
</tr>
<tr>
<td>KUC</td>
<td>Kattankudy Urban Council</td>
</tr>
<tr>
<td>LA</td>
<td>Local Area</td>
</tr>
<tr>
<td>LDSP</td>
<td>Local Development Support Project</td>
</tr>
<tr>
<td>LG</td>
<td>Local Government</td>
</tr>
<tr>
<td>M</td>
<td>Meter</td>
</tr>
<tr>
<td>M/E&amp;NR</td>
<td>Ministry of Environment and Natural Resources</td>
</tr>
<tr>
<td>MC</td>
<td>Municipal Council</td>
</tr>
<tr>
<td>MCO</td>
<td>Municipal Council Ordinance</td>
</tr>
<tr>
<td>MSL</td>
<td>Mean Sea Level</td>
</tr>
<tr>
<td>MUC</td>
<td>Mannar Urban Council</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
<tr>
<td>NWSDB</td>
<td>National Water Supply and Drainage Board</td>
</tr>
<tr>
<td>PCs</td>
<td>Provincial Councils</td>
</tr>
<tr>
<td>PS</td>
<td>Pradeshiya Sabha</td>
</tr>
<tr>
<td>PSA</td>
<td>Pradeshiya Sabha Act</td>
</tr>
<tr>
<td>RDA</td>
<td>Road Development Authority</td>
</tr>
<tr>
<td>RFP</td>
<td>Request for Proposal</td>
</tr>
<tr>
<td>SDGs</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
</tr>
<tr>
<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities and Threats</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>TPS</td>
<td>Thalawa Pradeshiya Sabha</td>
</tr>
<tr>
<td>UC</td>
<td>Urban Council</td>
</tr>
<tr>
<td>UCO</td>
<td>Urban Council Ordinance</td>
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<tr>
<td>UDA</td>
<td>Urban Development Authority</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNFCCC</td>
<td>UN Framework Convention of Climate Change</td>
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<tr>
<td>WWF</td>
<td>World Wide Fund for Nature</td>
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CHAPTER - 01
INTRODUCTION
01. INTRODUCTION

1.1 The Background

As part of the Capacity Development for Local Government (CDLG) project, funded by the European Union's STRIDE Programme to promote reconciliation, multiple local stakeholders and institutions were strengthened to adopt a bottom-up approach to support public engagement and strengthen local government service delivery and infrastructure. The project, implemented by the United Nations Development Programme (UNDP), aims to improve local planning and service delivery by identifying the capacity development needs of the local government authorities to develop tools to enhance environmentally friendly, participatory, gender-responsive and accountable service provisions.

One key component of the project was to support four selected Local Authorities (LAs) to develop Green City Master Plans which provide a framework for the LA to identify, analyze and prioritize the locality’s environmental challenges and to integrate blue-green development concepts to support a sustainable future for cities and their residents. The Green City Master Plan provides an outline for the LA to ensure city service delivery and operations are people and ecosystem friendly and transform the city into a more livable place. Further, it integrates environmental policies that will improve the wellbeing of residents and ensures the sustainable management of environmental resources, focusing on issues related to energy, greenery, green economy and spatial planning. As part of the Plans, LAs had an opportunity to explore how to reduce unnecessary expenditures on water and energy consumption or waste management for example to generate revenue for the LA that can be further invested to improve public services and provide a good physical environment for residents. The Green City Master Plan provides a general framework from which LAs can select and implement key priority interventions to improve the living conditions for residents, enhance public service delivery and ensure environmentally friendly and attractive cities.

Four Local Authorities (indicated below) worked in close collaboration with UNDP to develop implementable Green City Master Plans for the local authority and a Road Map for four Local Governments (LGs) in the Northern, North-Central, Eastern and Uva provinces of Sri Lanka (Annexure 1.1). The four LAs selected for the project are: Mannar Urban Council area in Northern Province; Thalawa Pradeshiya Sabha area in North-Central Province; Kattankudy Urban Council area in Eastern Province and Bandarawela Municipal Council area in Uva Province.

The process for the development of the Mannar Green City Master Plan and Road Map entailed firstly an initial briefing discussion with UNDP on the requirements and key features of the Plans held in December 2020. Following which the Mannar Urban Council made a presentation on the proposed approaches and methodology for developing the plans which received UNDP approval in December 2020. Subsequently, stakeholder consultation workshops were completed in the Kattankudy Urban Council and findings from the consultations were presented to UNDP in February 2021. Focus group discussions were also held with LG level stakeholders to identify priority sectors, following which a baseline study was conducted to identify present baseline indicators for selected indicators for green concept in identified sectors. A detailed study was also conducted on the present condition of LGAs to recommend micro projects which may include corrective measures for ongoing green initiatives, green office concept for government institutions, proposing new initiatives and recommending amendments to bylaws or proposing favorable bylaws and compiling it into a Project Proposal (Road Map). Finally, a validation workshop was held to draft the Master Plan/Road Map and receive necessary buy-in and approval from LG level stakeholders. Although there were several constraints experienced due to challenges posed by the COVID-19 pandemic, especially with engaging with respective LAs, the Green City Master Plans were successfully drafted and completed during the project implementation time frame following extensive stakeholder consultations.
1.2 The Project Team

The Consultant’s Project Team is as follows:

<table>
<thead>
<tr>
<th>Name of the Member</th>
<th>Involvement / Area of Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Plnr. Jagath Munasinghe</td>
<td>Team Leader / Town Planning and Urban Design</td>
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<tr>
<td>Plnr. Indu Weerasoori</td>
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<tr>
<td>Mr Avanthi Jayathillake</td>
<td>Environmental Management</td>
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<td>Mr Jinapala Kiribandage</td>
<td>Community Planning</td>
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<tr>
<td>Mr Hettiarachchi</td>
<td>Local Governance Expert</td>
</tr>
<tr>
<td>Eng. R. Rajarathnam</td>
<td>Sewerage and Solid Waste Management</td>
</tr>
<tr>
<td>Eng Mario Seneviratne</td>
<td>Energy and Green Buildings</td>
</tr>
<tr>
<td>Dr Fuad Marikkar</td>
<td>Economist</td>
</tr>
<tr>
<td>Prof Lalith Rajapaksha</td>
<td>Hydrologist</td>
</tr>
<tr>
<td>Mr Manoj Perera</td>
<td>GIS Expert</td>
</tr>
<tr>
<td>Plnr Anton Sudharshan</td>
<td>Team Manager, Town Planning</td>
</tr>
<tr>
<td>Plnr Malsha Dodawatta</td>
<td>Project Assistant</td>
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</table>

1.3 The Capacity Development for LG

The Terms of Reference provided by the UNDP indicated that the overall objective of the CDLG Project was to strengthen the capacities of LAs to be inclusive, responsive, and accountable and be able to plan, enhance resilience, and deliver better services. It further explained that the capacity development support, coupled with the fiscal support (through Basic Transfers and Performance Transfers provided through the LDSP project) for inclusive service delivery and economic investment, was aimed at strengthening the role of elected representatives at the local level; improving local governance systems towards making LGs “fit for the future”; and increasing downward accountability of elected officials and LGs (Section A: Terms of Reference (Annexure 4), UNDP Request For Proposal, P1).

This provided the broader framework for the team of consultants to position the project within the overall development framework of interventions under UNDP. Further, it also enabled the EML to develop a common understanding with the UNDP on the scope and objectives of the project.

On such directives, this Green City Master Plan Development Project, in a broad sense, is an initiative for the capacity development of the elected members, officials and the supportive staff, along with the other stakeholders of the four selected LGS towards ‘greening’ their living environments, day to day practices and inter-relations, and to adopt more sensitive, sustainable and futuristic methods and practices in spatial planning, service delivery, administration and investment promotion.

1.4 The Green City: The Concept and Notions

The term ‘Green Cities’ is associated with multiple connotations. Literature on the subject reveals a wide variety of definitions which range from mere urban environments with physically green substances to deep ecological practices of the inhabitant communities.

UNDP outlines Green Cities as a concept to mobilize global and traditional best practices towards a common vision, and ‘is a scientific application to improve the quality of city spatial plans to make the city service delivery and operations people and ecosystem friendly… and thereby transform the city into a more livable place’. Further, it highlights that the process of Green City Concept development uses the historical developments, and the strengths of the city and its users while focusing on the potential quality and efficiency gains for city operations and use, prioritizing mainly energy, greenery, green economy and spatial planning and allows city authorities to measure and compare the environmental performance (EP) of cities on the same continent over time (Section A: Terms of Reference, UNDP Request For Proposal, P1).
Expanding on the same understanding, this project adopted the notions associated with this broad, but widely accepted concept of Green Cities into the development of its design.

### 1.5 Green City-Related Projects in Sri Lanka

Sri Lanka has entered into several international treaties and conventions related to sustainable urban development such as the UN Agenda 21, the UN-REDD program for Reducing Emissions from Deforestation and Forest Degradation, Ramsar Convention to protect wetlands, Kyoto Protocol (1997) to limit and reduce greenhouse gasses emissions, and the Paris Agreement (2015) to fight climate change by reducing greenhouse gasses and adaptation.

However, only a few government-sponsored projects with a specific focus on Green Cities development were noted thus far. Among them is the National Action Plan for Haritha Lanka Program, initiated in January 2009, as a combined effort of the ‘National Council for Sustainable Development’ (NCSD) functioning under the Presidential Secretariat, and several other development agencies. The Council, consisting of twenty-three (23) Ministers of key Ministries under the chairmanship of HE the President, and backed by experts & subject specialists, formulated this program, and worked upon ten (10) thrust areas as follows:

1. Clean Air - Everywhere
2. Saving the Fauna, Flora and Ecosystems
3. Meeting the Challenges of Climate Change
4. Wise use of the Coastal Belt and the Sea Around
5. Responsible use of Land Resources
6. Doing away with the Waste Dumps
7. Clean Water for All and Always
8. Green Cities for Health and Prosperity
9. Greening the Industries
10. Knowledge for Right Choices

Under each of the aforesaid thrust areas a Preamble, Strategies and Actions were illustrated in detail. The convener of this program was the then Ministry of Environment and Natural Resources (M/E&NR). However, the program is not active at present as there are no recent updates available in any information source.

The Blue-Green Sri Lanka program implemented by the Presidential Secretariat jointly with several other Ministries in 2016, is another initiative towards achieving Sri Lanka's environmental agenda. The program entrusted the Urban Development Authority (UDA) to implement a mandatory Green Building certification for all Government Development Projects, later extended to private sector developments as well (www.uda.gov.lk). This is a commendable initiative as it necessitates all major building developments in urban areas to adhere to principles of sustainable development. The assessment criteria currently adopted by the UDA Green Building Certification is based on the following configuration.

1. Energy Efficiency - 27%
2. Sustainable Site Planning & Management - 23%
3. Materials and Resource Management - 20%
4. Quality of the Built Environment - 13%
5. Efficient use of Water - 10%
6. Green Innovations - 05%
7. Socio-Cultural Compatibility - 02%
In addition to the above, there are several Non-Governmental Organizations, engaged in Green related initiatives. The Green Movement of Sri Lanka Inc. is said to have completed nine (9) projects across various parts of the Island and those initiatives have been carried out with the funding of donor organizations (http://www.gmsl.lk). The Green Building Council of Sri Lanka is another private entity which primarily provides consultancy services on the adaptation of Green Technology for construction and promotes green building practices in Sri Lanka through award schemes, education and training (https://srilankagbc.org/). In addition to the above, there are some business type entities, such as Green Education organizations based in Colombo, but they bear no direct relevance to the main subject.

1.6 The UNDP Terms of Reference and the Consultant’s Perception

The ToR provided by the UNDP provides details on the overall objective of this consultancy with the following items under the ‘scope of work’:

a. Reviewing the conceptual framework of the Green City and Smart City concepts and presenting a methodological approach for green city master plan/road map development. Scope of work with localization of measurable indicators for a green city and tools for field work and assessment on a green city.

b. Organize an initial brainstorming workshop with stakeholders (One day workshop / around 30 participants; list of participants will be provided by the respective LGAs and CDLG project of UNDP will make the logistic arrangements for the workshop).

c. Conduct at least 4 focus group discussions (each ½ day) with LG level stakeholders (priority sectors will be agreed during the brainstorming workshop. Service providers with the support of UNDP and LGA need to make necessary logistic arrangements for organizing focus group discussions).

d. Conduct a baseline study to identify present baseline indicators for selected indicators for green concept in identified sectors. (Service providers need to make all the logistic arrangements)

e. Conduct a detailed study based on the present condition of LGAs to recommend micro projects which may include corrective measures for ongoing green initiatives, green office concept for government institutions, proposing new initiatives and recommending amendments to bylaws or proposing favorable bylaws and compiling it into a Project Proposal (Road Map).

f. Conducting a validation workshop for a draft Master Plan/Road Map (UNDP will make the logistic arrangements for the workshop).

The current information reveals that the four provinces (Northern, Eastern, North Central and Uva provinces), selected for the LGCD project, are the most backward regions in the island, in terms of economic performance, quality of life of the populations and the availability of essential infrastructure. Furthermore, they are relatively more exposed to natural disasters such as droughts, floods, cyclones, and other climate related events, in addition to the impact of a thirty-year long conflict situation. Yet at the same time, these regions inherited a diverse stock of natural capital (geographies and environmental systems) which supports the livelihoods and the ecoservices in the respective areas and support rich and historically evolved social and cultural capital with attributes of uniqueness inherent to them.

Since national level ‘development’ projects and programs have so far mostly focused on more populated and economically well-to-do regions, the interventions of both government and non-government agencies were relatively less in these areas. On one hand, this situation is challenging for the uplifting of the LAs, because of the said social and economic backwardness. On the other hand, it provides non-dismissible opportunities for any development agency to demonstrate a truly local and place-sensitive socio-economic development, making use of relatively less spoilt and yet untapped resources of the areas.

The Consultant has realized the necessity of being sensitive to the above aspects in the selection of an appropriate approach for the formulation of the proposed Master Plan, vis-a-vis complying with the objectives of the consultancy.

At the same time, the Consultant held the view that a genuine effort for making a Green City extended beyond ‘physical determinism’ which relied mainly upon green elements in the physically built environments. Therefore, it was essential
to penetrate deep into the agents, systems, and practices of the LAs, who play a decisive role in the continuation and the long-term sustainability of any endeavor of this nature. To this end, the Consultant proposed an inductive approach and a more inclusive process which included a few additional engagements and extended work items to the project in its proposal.

The details on the approach that was proposed and adopted in the project, and the activities carried out within that approach are further elaborated in the following sections of this report.

1.7 The Scope and the Limitations

It shall be noted that the focus of the Master Plans presented herein is the Greening of the overall physical, socio-economic and institutional development of the four LAs. The scope is, thus, limited to the aspects directly related to the Greening process of the given LA and its institutions. Hence, they are not interchangeable with the Urban Development Plans, prepared by the Urban Development Authority (UDA) under the provisions of the Urban Development Authority Law (Act No 41 of 1978 and subsequent amendments) or any other law. Rather, these Green City Master Plans are complementary and adoptive to the said Urban Development Plans, as they have been developed in consultation and with due regard to the framework provided by the available Urban Development Plans (either enacted or in the form of drafts).

The Master Plans commonly identified ten sectors that are critically important for any LA to maintain the status of a Green City. Any subject matter that does not fall within these ten sectors, shall be addressed either through a separate plan specific for that matter or by a comprehensive Development Plan prepared by the UDA. The implementation of the Green City Master Plan is solely at the discretion of the LG, with necessary clearances from the Ministry of Local Government and the Provincial Councils.

This Green City Master Plan was prepared with many constraints as explained below.

(a) The Project Team could not engage with the LGs to the extent that it expected at the inception of the project, due to travel restrictions imposed from time to time throughout the project period by the Ministry of Health in order to curb the widespread Coronavirus epidemic situation.

(b) Some important information (updated GIS maps or the latest satellite images, micro economic data, socio-economic activities, etc.) were not readily available to grasp the present conditions of the four LAs. Most of the reliable data used for this work were from the Census 2012, and baseline information in respect of the project area and impact area (four LAs and their vicinities) particularly in the context of ongoing and proposed projects and programmes, were from the updates of a few years ago.

(d) The time constraints and the unexpected interruptions occurred on several occasions throughout, compelled the Project Team to change the work plans and schedules many times. Since public participation, community engagement and consultation of the other stakeholders were not possible in the expected modes, the Project Team had to adopt alternative methods such as virtual meetings, web-based inquiries, third person engagements and telephone interviews.

1.8 Outline of this Report

This report is divided into three major divisions presented in three Volumes.

Volume 01 (from Chapter 1, 2 and 3) provides a general description of the project background, the project team and the process involved in the preparation of the Green City Master Plan. This volume is a common prelude to all four Green City Master Plans.

At the commencement of the project, the process was expected to be identical for all four LAs, but as the project moved on noticeable differences were necessary in the method of engagement with the four LAs.
Volume 02 (Chapter 4, 5 and 6) is divided into 04 separate sections, and each section is dedicated to a LA. It presents the activities involved with the respective LA in the development of the Green City Master Plan including background studies carried out by the Project Team, Stakeholder Consultation Process and the findings, and the analysis of the gaps in information, awareness and capacities in the respective LAs.

Volume 03 (Chapter 7, 8 and 9) is also in four sections, each is for a LA. In this section, each LA is presented with a Green City Vision and Goals formulated towards that, followed by a detailed analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT), supported by a variety of row and processed information. This comprehensive SWOT analysis was the ground on which the specific greening objectives of the LA have been formulated and in turn, enabled to develop a road map for implementation.

The implementation road map includes general and specific policy strategies for both regulation and promotion of greening activities, strategic action projects that boost green initiatives in each city and detailed greening programs for long term implementation and sustenance.

The progress of implementation is guided through a set of targets set out for each LA in relation to the ten Sectors of Green engagements, and a series of benchmark indicators set out to measure the outcome of the implementation.
CHAPTER - 02

THE APPROACH
02. THE APPROACH

2.1 Introduction

As stated in the previous chapter, the Project Team viewed that a truly greening approach was needed to penetrate deep into the LAs’ spatial, institutional, and systemic engagements and therefore, a ‘Green Approach to Greening the City’ was proposed. The conceptual and methodological implications of this approach are discussed in the following sections of this report.

The thematic notion of the approach shall also be seen as the governing philosophy of the entire consultancy.

2.2 The Objectives of the Consultancy

A key proposition under the said conceptualization is that ‘Greening’ the LG is instrumental in ‘Greening’ a city (the Local Area), because “the physical environment of a city is essentially a product of its inhabitants and their engagements in space, and effective governance of its affairs impact them all”.

Hence, while complying with the scope of work specified by the UNDP, the overall objective of the project was reformulated as a least disturbing and strategic intervention into the LAs to drive them into a non-reversible transformation process of becoming ‘Green entities.

In the long run, the four LAs are expected to present themselves to the other LAs in Sri Lanka as exemplary Green LA role models. Hence, the overall objective of the project is further elaborated into the following:

a. Framing the ideology of a ‘Green Approach’ and a ‘Green City’ as appropriate for this project
b. Conceptualizing the entities in focus through such framing
c. Development of the thought process for the engagement with such entities
d. Identification of the strategic areas of intervention for the intended purpose
e. Formulation of appropriate strategic actions for Greening.

On another front, the project had to set its objectives within the limits provided by the available legislative framework. Since this Green City Master Plan/Road Map is to be implemented at the local level (with adequate reflections upon the broader regional and national level), the actions proposed towards the same would be realistic only if they are framed within the means and bounds (what is directly amenable to the control of the LAs) in the Sri Lankan context. In this regard, the powers and functions vested in the LG by relevant statutes (The Municipal Councils Ordinance No 29 of 1947, Urban Councils Ordinance, No 61 of 1939 and the Pradeshiya Sabha Act No 15 of 1987, along with the subsequent amendments to them), and the other statutes that implicate on the same (Urban Development Authority Law No 41 of 1978, Central Environmental Authority Law No 47 of 1980, Provincial Councils Act No 42 of 1987, and the subsequent amendments to them) were given due consideration throughout the process.

2.3 The Green Approach

The term ‘Green’ has become multivalent with its increased use by organizations involved in projects and programs associated with Green Cities, Green Buildings and Green Products around the world. They provided varied definitions depending on their objectives and the purposes of their engagements. However, all these definitions are commonly associated with a few core values, central to their formation, including ‘sustainable use’ of air, water, and land-based resources together with the efficient application of energy generated from renewable sources, ‘conservation’ of sensitive natural and human ecosystems and the continuous engagement of the communities at stake. These values are well reflected in the recent global development programs such as the UN Sustainable Development Goals, the Agenda 21, UNFCCC/ NDCs and the Ramsar Convention.
At the same time, modern and smart technologies have close associations with the current Greening process in almost all sectors. Therefore, integrating appropriate and cost-effective modern technologies, in line with the equally widely discussed 'Smart City' concept, was considered as an essential counterpart towards Greening a city, alongside other novel concepts. However, attempts to introduce any form of technology was considered on the grounds of financial capacities of the LAs and the effectiveness that they could bring into the existing settings of the local areas.

Having considered the above, the Green Approach, envisaged by the Project Team was essentially a 'place sensitive', 'organic' and 'bottom up' approach stemming from the 'exosystemic' understanding of the phenomenon in view. In simple terms, an ecosystem can be viewed as a self-organizing, self-contained entity of active agents and their interrelations, sustained within a conducive environment. Its application on a LG enabled it to be viewed as an active self-organizing entity that lived upon and exercised its authority over a physical space with environmental systems and complex socio-cultural dynamics.

This understanding has been demonstrated in all three stages of the Consultancy process:

a. Conceptualization
b. Thought Process
c. Designing Specific Projects and Actions

2.4 The Conceptualization

The figure 2-1 illustrates the conceptualization of a LG as an ecosystem as an integrated whole of agents, systems and culture placed in its spatial and policy environments, placed in the broader global context.

![Figure 2-1: Conceptualization of an LG as an ecosystem (the tetrahedron at the center) in its spatial and policy environments, placed in the broader global context.](image)

In the said approach, an LG is conceptualized as a 'sustainable ecosystem' that consists of (in simple terms) a well-integrated structure, contextualized in its environment and quickly adaptive and self-organized in any unprecedented situations caused by external interferences.
These key aspects can be further explained in the following manner.

2.4.1 The structure of an LG is constituted of:
   a. Active Agents
   b. Systems
   c. Culture

For successful interventions into the selected local authorities, and to make smooth transformations in their functions, the Consultant will engage in all of these three fronts of the structure.

2.4.2 The environment of a LG is generally formed by:
   a. The Defined Local Area
   b. The Broader Physical Landscape
   c. The Policy Context

2.4.3 A LG is activated by three types of agents:
   - The Governors (the elected members of the council),
   - Executors (the officers and other employees) and
   - The Service Recipients (residential community, business entrepreneurs, commuters, and visitors).

In formal terms, they can be understood as internal stakeholders.

All Local Authorities commonly function through a few systems that support its:
   - Internal Administration,
   - Public Relations and
   - Service Delivery.

The dynamics of these systems exhibit the liveliness of an LG, and in formal terms, composes its functions.

2.4.4 The Institutional Culture of an LA

An institution can be defined as the “rules of a game”, the understanding of which needs analysis of both its hardware and software components. For the formulation of these rules, the agents and the systems of the institutions are engulfed in a set of worldviews and ideologies and internalize some values and beliefs, which enables each of them to form its own identity and to adopt traditions and practices unique to them. Therefore, a comprehensive understanding of institutional culture included the study of organizational structure, its functions, human resources, formal enforcements such as policies, acts, enactments, and procedures, as well as a deep understanding of more important aspects such as the informal behavior of different agents, norms both formally and informally adopted by them and the functions of the organization due to existing conditions.

2.4.5 The Broader Physical Environment

The local area (or the locality) is the immediate geographic entity under the jurisdiction of the particular LG.

A broader physical landscape is the spatial context that extends beyond the immediate surrounding region to the provincial, national, and global situations of its positioning. A majority of the environmental systems, functional orders and behavioral settings extend beyond the delineated administrative boundaries of the LAs. Therefore, for a comprehensive
understanding of the physical environment, activity pattern, energy and material flow and the operational processes of a local area, the Project Team drew its attention to the broader regional environment.

2.4.6 The Policy Environment

The Policy environment constitutes of the statutes (acts and policies) that assign mandates and that vest the LGs with specific powers to perform certain duties and functions, other laws that affect LG powers and functions, Central Government policies, and international conventions, treaties, global agendas, international relations, etc., that directly and indirectly influence LG activities.

The Project Team attempted to be sensitive to the spatial as well as non-spatial implications of these aspects of this threefold 'environment' throughout the project.

2.4.7 The Green City Project as an intervention

The local areas, their communities and the governing institutions are frequently subject to external interference. The interferences can be either sudden or smooth. Under such interventions, depending upon the type and the intensity of the intervention, the LG along with the spatial extent under its jurisdiction, gets reformed to withstand the newly emerging situations.

In the present-day context, the LGs perform their functions with the financial, technical, and administrative support of the Central Government, respective Provincial Governments, and sector-specific ministries and therefore, are inevitably subject to their interference. Thus, they become the essential external stakeholders of an LG.

In addition, there are non-Governmental interferences, such as private sector business ventures, religious and community development movements, international organizations, etc. These interventions may have mutual benefits for both the LAs and the intervening party. Because of their involvement in both the physical and social transformations of LAs, they become the second type of external stakeholders.

Within such a view, the project initiated through this Consultancy can be conceptualized as an ‘external interference’ into the existing local ecosystem.

2.5 The Planning Process

Within the said conceptualization, the target would be to transform the selected Local Areas into green ecosystems, sustaining their identities and reflecting such green attitudes of their actors in space through specific projects and everyday practices.

As stated earlier, each LA and its local area is unique in its own sense and therefore, the 'one for all' type of plan is not appropriate for the expected intervention. Therefore, the planning framework was designed to be broad-based, flexible, and adapted to situations in respective LAs. How it differs from one location to another is reflected in its application to the four different Local Areas given in Volume 2 of this report.

At the same time, the proposed Master Plan/Road Maps have to be comprehensive, all-inclusive, yet time bound and practically implementable, and therefore, the detailed actions within the plans focused on a few strategically important sectors, selected with adequate consideration of the UN Sustainable Development Goals, Global Agenda 21, Sendai Framework for DRR, Ramsar Convention, and Nationally Determined Commitments (NDC) made to the UN Framework Convention of Climate Change (UNFCCC), and many other internationally acclaimed initiatives, the widely agreed norms and practices prescribed and adopted by the Green City Concept and the priority needs of the LAs and the resource available for Green initiatives, as identified through the consultation and study processes, explained in the following sections.
The following figure 2-2 shows the activities of the Green City Master Plan/Road Map organized in a three-tiered process.

Each tier of the project included a set of tasks accomplished by specific activities carried out by the Project Team. Under the constrained conditions under which the project operated, the sequence of these tasks varied from one LA to another, depending on the conditions available in them and the travel restrictions imposed intermittently. The four LAs have significant differences in their institutions and physical settings, and therefore, the Green City Master Plan for each LA has been designed in the form of a ‘strategic actionnaire’, rather than a conventional ‘decision layout’.

While addressing the diversities in LAs discussed above, all four Master Plans essentially consisted of the following core components:

a. Consultation of the stakeholders in order to map their aspirations and extract local knowledge on hidden potentials and constraints.

b. A study of the LAs in-depth and their current state of affairs, and a mapping of their pressing needs in terms of Financial Resources, Awareness Development, Technical Know-how, Technological Inputs, and Institutional/Legislative Arrangements. This will be supported by the following analysis:
   - Geo Spatial Analysis: Land, population, land-based resource information
   - Environmental Systems Analysis: Mapping of natural resources and ecosystem services
   - Built Environment Analysis: Distribution of the built mass, infrastructure, and services
   - Social Network Analysis: Mapping of community relations and informal institutions.
   - Institutional Analysis: Review and visualize the current state of affairs
   - Legislative Framework Analysis: Assess the available legal provisions and limitations
   - Energy Systems Analysis: Demand patterns and carrying capacities
c. A long-term Vision for the respective LA, formulated considering its own potentials and constraints, and a specific set of Goals towards Greening the LA.

d. An analysis of the Strengths, Weaknesses, Opportunities and Challenges in the LAs to accomplish each of the said goals, in relation to the nine sectors discussed in the forthcoming sections.

e. The detailed Greening Objectives for each LA towards the accomplishment of the Goals and formulated considering the Strengths, Weaknesses, Opportunities and Challenges analyzed.

f. Benchmarking and setting up targets and a Performance Criterion for the evaluation of the LA and designing the Methods of Observations and the Units of Measurement for monitoring in

- The Immediate/Short Term horizon (within 02 years),
- Medium Term horizon (05 years) and
- Long Term horizon (10-20 years).

g. Strategic action projects for physical development, community engagement and institutional upliftment towards the envisaged Greening process.

2.6 Framing the Project

As stated earlier, while complying with the scope of work specified by the UNDP, the Project Team reformulated the overall objective of the project as a least disturbing and strategic intervention into the LAs to drive them into an inevitable transformation process of becoming ‘Green’ entities.

To accomplish the said project objective, a three-tiered method was proposed, and the activities of the envisaged Green City Master Plan/Road Map were organized in those tiers. The project adopted an eco-systemic/Organic approach, in which the activities were both consecutive and concurrent, and the process was reiterative, depending on the need, as given in figure 2-2.

The envisaged greening process was expected to stem from the close interactions between the intervener (the Consultant) and the intervened (the Local Authority). This was also complimented by the information gathered from a comprehensive literature survey on preceding case studies and expert opinions.

At the same time, it was expected to be an ‘organic’ process with adequate flexibility for adaptation and gradual transformation of the LGs and the other institutions towards green thinking, green operations and Green Practices in their daily routine, administrative functions, service delivery processes, project formulation and implementation.

The following sections explain the manner in which the project background and the activities were set out in the process.

2.7 Working Definitions

2.7.1 Master Plan

A detailed program that provides a comprehensive picture of the specific objectives and short-term, medium-term, and long-term targets along with specific strategic actions and projects required for the achievement of those objectives and targets.

2.7.2 The Green City Master Plan

A Generic Master Plan, as defined above, for the purpose of Greening a Local Authority (along with the area under its jurisdiction), that has an adaptability to a given Local Authority and adequate flexibility to address Context Specificities in each Local Authority.
2.7.3 Road Map

The sequence of identified actions and action projects along with milestones of achievements, and possible alternative paths.

2.7.4 Greening

Transforming an environment, a system, a process, a practice or a product into a state that is more ‘environmentally, economically and socially sustainable’ than its current state.

2.7.5 Green City

An urban area (along with its surroundings) that exhibits high performance in terms of livability and efficient service delivery, sustained natural ecosystems and harmonious cultural practices and conserved energy and other resources amidst physical developments and provides for community engagement in its governance and administration.

2.8 Identification of Stakeholders

As stated earlier, even though the LAs were the focus of this project, they were not independent in their functions. Therefore, the other parties involved with them were regarded as important stakeholders with different stakes. Three basic categories were identified:

a. The Internal Stakeholders:

   Elected Members, Executing Officers, Service Staff, Service Recipients, Residents, Visitors, Businesses and other Service Recipients (Active Agents of the LAs)

b. The External Stakeholders:

   The officials of the line Ministry, the Provincial Council, the Divisional Secretariat of the area, the Urban Development Authority (UDA), the Road Development Authority (RDA), the Central Environmental Authority (CEA), the Coastal Resources and Conservation Department (if relevant), Disaster Management Center, Ceylon Electricity Board (CEB), National Water Supply and Drainage Board (NWSDB) and the other institutions involved at various capacities

c. The Non-Connected Stakeholders

   The non-governmental and private sector business operators - both individuals and organizations.

   Details of the consultation process, the findings and the analysis for all four LAs are given in the Volume 2 of this report.

2.9 Consultation Process

The approach proposed for the consultation was Sensitization. Sensitization works both ways - enhancing the sensitivity of the Project Team towards the intricacies of each LA, its constituents, natural resources inherited by it, social and cultural capital, current economic status, etc. and stimulating the sensitivity of the LGs towards their own resources, potentials, drawbacks, etc., and their mission. It provided a basis for the Project Team to closely intervene with the LG and its stakeholders through mutual understanding and cooperation.

The details of the methods adopted for sensitization varied from one LA to another depending on the nature, carrying capacities and the state of affairs of their active agents, systems, and cultures. In general, this task was expected to go beyond mere stakeholder consultations and the Project Team intended to penetrate deep into their work environments, mindsets, and the institutionalized cultures. Yet, it was not accomplished to the expected level under the constrained
implementation experienced by the project. However, the Project Team managed to carry out the following activities, even with some limitations:

a. **Interactive workshops** for every Local Authority at the inception stage, in order to obtain perceptions of the stakeholders and to make them aware of the objective and the strategies of the project, and at the final draft preparation stage, in order to validate the project proposals and actions, and to update the stakeholders of the findings, possible measures and further actions.

b. A series of **focus group discussions**, intimate one-to-one meetings in order to identify the needs and gaps, through a close consultation process.

c. Continuing **informal engagements** with the said stakeholders as and where required in the process.

The intentions of the consultation are twofold:

i. To closely study and internalize the agents, internal systems, and the culture of the LA into the consultancy process, and understand the needs, gaps and strategies appropriate for a systematic intervention to address them in an organic process.

ii. The infusion of the Consultant's mission into the LA's daily routine for the purpose of gradual inculcation of the said Greening processes.

The expectation is to make it more than a mere stakeholder consultation and developing 'wish lists' of the Local Authorities, but to map out their explicit and implicit capacities to be adapted into a long-standing process.

### 2.10 Need Analysis and Gaps Identification

The said sensitization through mutual cooperation enabled the Project Team to study the LAs and LGs to some level of depth and to identify the current state of affairs and to map out their pressing needs in terms of physical and spatial developments, improvement of human and financial resources, knowledge development, inducement of technical know-how, technological inputs, Institutional and legislative arrangements.

As briefly stated in a previous section, this study was supported by the following analyses:

#### 2.10.1 Geo Spatial Analysis

The geospatial analysis was expected to provide an overall spatial orientation and spatial information required for all other sectors. The analysis was supported by GIS applications, the latest Google Images available and Geospatial information available with the Survey Department and other institutions and accessible to the Project Team through legitimate processes.

#### 2.10.2 Environmental Systems Analysis:

The environmental systems analysis was used to make both the Project Team and the stakeholders aware of the elements of natural capital, their availability and relevance to the health and stability of the local economy. Further, it was useful to guide the stakeholders of the LAs with people centric smart management and technical strategies to conserve and manage natural resources to ensure sustainable ecosystem services and comfortable livelihoods.

#### 2.10.3 Built Environment Analysis

This analysis focused on the built-up areas of the LAs. The objective of this analysis was to visualize the status of the built environment in terms of convenience, comfort and sustainability, the positive and negative aspects associated
with its current composition, long term evolution and the carrying capacity and the gaps that hinder its capacity to support the implementation of the Greening strategies proposed in this Master Plan.

For the mapping of the built environments, widely used GIS information and ground observations were used. The analysis focused on the existing building stock, vegetation cover, public space connectivity, networking of activities, vehicular and pedestrian traffic flow patterns, etc. and the pattern of their evolution

2.10.4 Social Network Analysis

The social network analysis and the associated studies intended to reveal the social capital and the cultural capital of the communities that could be supportive of the envisaged greening process. The information for the analysis was obtained through surveys and community consultations.

Communities of the LAs and their administrators naturally develop interactions with other line agencies that were functioning in areas outside the respective LG’s administrative areas, such as the district, province or even National level agencies and communities. On such understanding and considering the time and resource limitations, the field surveys for data collection activities were mostly confined to the respective LAs, but the geographical coverage on social capital analyses extended beyond such boundaries. The study on cultural capital was confined to the area within the jurisdiction of each LG.

2.10.5 Institutional and Legislative Framework Analysis

The analysis on the existing institutional setup and the legislative framework has enabled the Consultant to visualize the current state of affairs within the LA and its dealings with the other stakeholders.

The proposed institutional analyses have helped to understand the existing institutional culture in the LAs. The consultants have been able to assess the appropriateness of the existing institutional culture for effective implementation of the Master Plan and its specific mini projects to achieve the expected objectives of the Green City project.

2.10.6 Energy Systems Analysis

Energy is a key sector in making a city Green, because of the carbon emissions, heat and other by-products caused by the type and the use of sources, and the efficiency of the appliances used. For a Green City, clean sources as well as effective and efficient use of energy are equally important. Therefore, the studies on energy in this project attempted to cover different types commonly used in the respective LAs, such as the national grid-based electricity, wind, solar panels, biomass and the other types, based on the information available on their use, sources, etc. The demand patterns evolved over the last few decades, the likely future situation and the carrying capacities of the available sources and the systems of distribution were analyzed. At the same time, the potential future sources of clean energy were also explored in all four LAs.

2.10.7 Economic and Financial Resource Analysis

The analysis of the economy of the LAs and the financial status of the LGs, evaluation of ongoing projects and programs were necessary to assess the capacities of the LAs to undertake the necessary greening projects and programs. This involved the examination of the past records of the LAs with respect to their operations including expenditure, assets, incomes, annual accounts and aid inflows and outflows. The capacity and adequacy of staff to undertake these functions were also examined. An asset picture of the LA has also been drawn up, particularly on the use and efficiency of usage of these assets. This has assisted in understanding the gaps in the financial capacity to undertake the proposed greening activities. Greening projects that were currently implemented by the LGs were expected to be evaluated concerning their financial capacity and implementation efficacy. A full financial and economic analysis of
any new projects or programs that are recommended by the Project, including an environmental-economic analysis to gauge their viability.

All sector-specific analyses have been compiled into a composite SWOT analysis, which reflects the status of each LA, in terms of its preparedness to get into the envisaged Greening Process.

2.11 Important Considerations

In the formulation and further development of the Master Plan, the Project Team paid attention to the following:

2.11.1 The core values of the widely agreed sustainable development programs

The concept of Greening is associated with multiple values, depending on the objectives of such projects. In the approach adopted by this project, ‘Greening’ stands with such values associated with the widely acclaimed international programs such as the UN Sustainable Development Goals, the Agenda 21, UN Framework Convention of Climate Change (UNFCCC), Nationally Determined Commitments (NDC) made to the UNFCCC/ NDCs, Sendai Framework for DRR, Ramsar Convention, etc.

The project process design followed a literature review on widely agreed norms and practices of Green Cities as prescribed and demonstrated by the ADB, IHS and other international agencies.

2.11.2 The powers and functions vested in the LGs by relevant statues

Since the envisaged Green City Master Plan/Road Map is to be implementable at the local level (with adequate reflections upon the broader regional and national level), the actions proposed towards the same has be realistic only if they are framed within the means and bounds (what is directly amenable to the control of the LG) in the Sri Lankan context. Therefore, the actions and action projects of the Master Plan have been framed within such limits of the LG.

At the same time, it must be noted that Local Governance in Sri Lanka is formulated and implemented within certain legal provisions. The laws were originally drafted in the 19th century, mostly adopting the Local Government model in the UK. The structure, form and constitution of local authorities as well as their powers, duties and functions have been prescribed by the relevant laws, through which the LAs are empowered to carry out certain functions. Accordingly, every local authority is a legal entity which has been organized as a corporate body with perpetual succession. These entities can sue and be sued, and they can acquire, hold or sell properties, enter into agreements, and are free to formulate policies and make by-laws for the administration of affairs entrusted to them by law (MCO, UCO, PSA). Therefore, all activities and action projects towards Greening the LAs shall be designed for implementation within the available provisions in the relevant laws that govern the LGs in Sri Lanka.

2.11.3 Limits of engagement of the LGs

It must be noted that some of the sectors involved in Greening a city are not amenable to the control of the current system of local governments in Sri Lanka. For instance, integrated urban development and environmental planning, power supply, pipe-borne water supply, public transportation, etc., are excluded from the functions of the LGs. Solid waste and hazardous waste management, sewage management and pollution control, road development and maintenance, fire risk mitigation, etc. are jointly handled by the LGs and National and provincial level agencies. Hence, designing workable Greening strategies on these aspects needs a cooperative approach with other agencies involved in them.

At the same time, since most of the environmental systems, infrastructure networks and behavioral settings extend beyond the administrative boundaries of the LGs, inevitably, some activities of the Greening project will not be able
to be confined to the areas of the selected LAs. However, allocation of sums from the Municipal Fund (MCs), Local Fund (UCs) or Pradeshiya Sabha Fund (PSs) for any matter shall be within the areas under the jurisdiction of the respective LG and the application of such funds have been specifically illustrated in respective governing legislations. Although LGs may have provisions to deliver certain services outside of their boundaries, funding or such services need to be borne by the beneficiaries or interested parties.

2.11.4 The proposed and ongoing projects and programs are implemented by the LG and the other agencies.

It could be observed that all four LAs selected for this project, have received some form of development projects implemented either by the government or by non-governmental organizations. Some of them were already being implemented while others were in the proposal stage. The Project Team made a reasonable effort to integrate those projects into the Greening process, and where it was not possible, the action projects devised out of this project had been designed to minimize the impact of those projects on the overall Greening process of the LA.

It could also be observed that many LGs have already commenced some green projects within the institutions and in the local area. The Project Team had first studied their current state and integrated them into this project, enhancing their positive aspects and mending gaps and limitations observed in them.

2.11.5 Inclusive actions and action projects

In every focused LA, there were marginalized groups/communities living with little or no attention from the LG’s administration. Such groups may include people who have no access to permanent shelter, basic services, sanitation, etc., groups who have been deprived of their right to space in the city for social and cultural reasons, and those who needed a decent means of livelihood.

At the same time, the projects directly affect the public realm and public engagement paid due attention to gender differences, children and senior citizens, persons with special needs and disabilities.

The inclusion of these groups, and leaving no one behind, as envisaged by the SDGs was another key area of consideration in designing the projects.

2.11.6 The ‘Smart City’ concept

As discussed in a previous section of this report, the current applications of Green City show high leverage towards smart technologies such as automated service delivery, digital infrastructure for operations and communication, web-based applications for accessing and controlling information, etc. These technologies are also complemented with sources of clean energy, devices to optimize the use of water and energy, and practices of conservation, reduction, and reuse.

However, it is understood that all smart and green technologies are not necessarily smart in terms of the costs of installation. Therefore, despite the necessity, their appropriateness for the Greening process in each LA depends on affordability and cost-effectiveness.

2.11.7 The lessons learnt from similar projects implemented elsewhere

Review of the preceding projects of a similar nature both in Sri Lanka and other countries were useful for this project in two different ways. First, it provided the Project Team with a better understanding of the ground realities, challenges the limitations that the envisaged Green City Master Plans were likely to face in the implementation. Secondly, it also provided the Team with valuable insights and inspiration on credible methods, good practices and alternative tools and techniques that could be used in the Master Plan preparatory process.
2.11.8 The opportunities from private sector interventions, individuals and business organizations to invest in green initiatives

The Consultant expected to explore the opportunities available for the financing of green initiatives by interested private sector business organizations. This is highlighted as important because the capacities of the LGs for funding are limited to a great extent. At the same time, the Central Government funding too had restrictions within the next five-year period, within which most of the action projects proposed in this Green City Master plan is expected to be implemented.

In parallel to this situation, it is noticeable that many private sector organizations are increasingly looking for opportunities to fund green initiatives as part of their Corporate Social Responsibility (CSR) projects and the Triple P (People, Profit and Planet) orientation of their businesses. This emerging situation provides the interested LGs with non-dismissible opportunities to internalize those business organizations into their own Greening processes and to procure their support for specific projects and actions.

2.12 Sectors of Greening

2.12.1 Conservation of the natural resources and environmental systems

The natural resources and the environmental systems support the livelihood of the communities and provide essential ecoservices to all four local areas. Therefore, in the said Ecosystemic Approach towards Greening the LAs, conservation of such natural resources and the beneficial feature of the built environment receives a higher importance. The protection and sustainable use of natural capital has not only helped with direct benefits such as supply of raw materials, food and other timber and non-timber forest products, but also extended to several indirect benefits such as providing healthy air to breathe, pleasing aesthetic value and safe drinking water to ensure better health security etc. Accordingly, the Green City Master Plans are accomplished with strategies and actions to guide the conservation of natural resources such as biodiversity and minerals, wise use of land and water resources, measures for the improvement of air quality, and resilience to climate change impacts and natural disasters.

Although some of these resources and their management may extend beyond the areas of jurisdiction of a Local Authority, it is important to be aware of the issues of concern and make provisions to address them through better coordination with relevant national or provincial agencies or other neighboring local authorities.

2.12.2 Sustaining the unique features of the social capital and cultural capital of the communities

Any LG, as a public service delivery regional institution, can sustain itself if its functions are acceptable to its stakeholders including communities of the LAs. Stakeholder satisfaction is an essential element to sustain the interventions and services of the LA. The project initially intended a detailed study and analysis of the social and cultural capitals of the candidate LAs during its analytical stage based on field level investigations. The social capital of an LA is based on internal and external communication networks it developed over time. Some properties of social capital are formal and mandatory interactions with formal stakeholders within and outside the LA. Other features of social capital include various informal interactions the LAs have with stakeholders in service delivery and other development program planning and implementation.

Cultural capital includes perceptions, beliefs, various opinions and practices of good governance of stakeholders with whom LAs interact in their functions. Some of the cultural elements of stakeholders are more formal because they are obliged to develop such cultures in planning and implementation of development activities. Most important cultural element to be identified and analyzed during the study has been the informally emerged and developed cultural properties by communities and other stakeholders.

Within the constraints imposed over the project period the Project Team managed to collect limited data and information on social and cultural aspects/elements of the four LAs.
2.12.3 **Provision of Safe, Comfortable, and Inclusive Public Realm and Public Spaces**

The public realm and public spaces, as the vital element of livable cities, play an important role in achieving sustainable development goals, mitigating climate change and strengthening resilience. The New Urban Agenda considers public spaces indispensable for sustaining the civic identity, social cohesion, inclusion, and quality of life. The concept of ‘public realm’ implies the spaces in the city that everybody can have an interest, access, and feel belong to. In a broader sense, such spaces include municipal streets, lanes, squares, plazas, sidewalks, trails, parks, open spaces, waterfronts, public transit systems, conserved areas, and civic buildings and institutions.

In tropical climates such as in Sri Lanka, open public space could be observed as a strong tool in sustainable development by providing environmental, social, economic and health benefits to the city. Green open spaces, on one hand, play an important role in reducing high temperatures and avoid heat island formation while on the other, provide leisure and pleasure and aesthetic value. Hence, green open spaces serve not only for recreation and conservation of environmental and cultural values, it also is the foundation of urban livability. It underpins many social, ecological and economic benefits that are essential to the healthy functioning of the urban environment.

The adequate provision, safety and security, accessibility, legibility, comfort, inspiration and sensitivity and livability are essential attributes of a public space, without which they become grounds for potential risk, insecurity, bodily injury, and negative impacts. Therefore, the Green City Master Plans placed high emphasis on the formation and maintenance of Green, safe, comfortable, and inclusive public spaces.

2.12.4 **Energy Conservation and Clean Energy usage**

Energy is a fundamental entity in sustaining life. If supply is interrupted the entire economic processes may come to a standstill. From lighting a household to transport of goods and delivery of services are dependent on energy usually generated and supplied from outside central sources. The generation of energy for most of these day-to-day activities, except for cooking which is still carried out with the firewood in most rural areas, depends on fuel imported and distributed across the country. Petroleum-based fuel is used for transport needs and the hydro-power generated electricity is largely complemented with thermal-powered electricity that is connected to the national grid. However, with the introduction of renewable sources of energy generation such as solar and wind power, there is some space created for our own indigenous energy supply which may help reduce the dependency on imported fuel-based energy generation.

Currently the LAs who are responsible for supply of public lighting buy electricity in bulk from the CEB. The individual connections are provided by the CEB and the LAs have no direct control on supply. Further the LGs are not empowered with sources of generation.

However, in order to meet greening objectives, the LGs and other institutions in the LA could look into possibilities of supplementing the demand with the available renewable sources and also introduce better and more efficient demand-side management measures to reduce the wastages in energy use.

2.12.5 **Green Buildings that foster human health and that optimized the usage of resources in construction and operations**

Green buildings play a critical role in Greening a city, with the least impact on the environmental footprint of the city and preserving precious natural resources and improving the quality of life of its inhabitants.

The Green building and clean energy strategies are highly interrelated in their applications in the built environment for Greening a city. The World Green Building Council defines a green building to be a building ‘that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment’. Further, ‘any building can be a green building, whether it’s a home, an office, a school, a
hospital, a community center or any other type of structure, provided it includes features listed in its Green Building criterion.

The widely adopted Green building strategies commonly advocate the integration of measures for planning and designing to reduce heat gain, encourage natural light and ventilation, the use of low-carbon, non-toxic, ethical and sustainable materials, sustainable, environmentally sensitive and socially responsible methods of construction and operations, the efficient use of energy, water and other natural resources, the use of renewable resources such as solar energy, enabling the reduction, re-use and recycling of water and materials, creating a healthy indoor environment fostering good human health and facilitating the quality of life of the occupants in design, construction and operation. However, it is to be noted that all of these measures may not be adopted in all situations due to limitations such as financial constraints, social and cultural reasons, technological advancement, etc.

This Green City project evaluated how best these features defined both by the local agencies such as the Urban Development Authority and international agencies such as the World Green Building Council could be best introduced into all building activities taking place within the four LAs.

2.12.6 Sustainable modes of Local Transportation

Transportation is considered a critical aspect that impacts sustainable urban development on many fronts. According to global statistics, the transportation sector contributes over one fifth (23 percent in 2018: Global Status Report) of the total carbon emissions around the world, and in the Sri Lankan context, Energy sector was estimated to be around 40 percent in 2011 of which 39 percent consist of transportation (World Resources Institute Climate Analysis Indicators Tool (WRI CAIT)). On another front, goods and passenger transportation maintains a mutually reinforcing relationship with the land uses of an urban area, impacting the overall form and the functional order of the city. Additionally, the reliability, safety, convenience, and comfort of the modes of transportation affects the overall efficiency, business success and the user satisfaction of a city. Therefore, a sustainable mode of transportation is regarded as a key area of involvement in this Green Master Plan project.

Sustainable transportation development strategies involve multiple tasks such as demand management, operations management, pricing policies, vehicle technology improvements, clean fuels, and integrated land use and transportation planning. However, in smaller urban areas, similar to the ones selected for this project, the tasks amenable to the control of the LA are limited because the transportation policies, modes of operations and the transportation networks are administered by the National and Provincial level authorities.

With the above limitations in view, this project focused more upon the localized modes of transportation such as the local bus services and three wheelers, cycling and pedestrianization, and the local facility provision for the higher modes of transportation.

2.12.7 Sustainable Solid and Liquid Waste Management

Solid Waste management is one of the key functional areas assigned to LAs. However almost all LAs in the country are faced with the challenging task of sustainably managing the solid and liquid waste generated in their areas. The intervention may need to start on three fronts including waste generation, collection and transportation, and disposal/treatment/recycling.

In a Greening process it is important to intervene at all stages including the source of solid waste generation, efficient collection and transportation of waste, safe and environmentally friendly reuse, recycle or disposal. Given the limited land and financial resources available with the selected LAs, it is important to examine the possibilities to reduce waste at the generation and the bulks transported to central locations for treatment and disposal. Hence, education and participation of the stakeholders with conscious awareness to reduce generation and responsible disposal of the waste need to be considered as an extremely important measure for Greening a local area.
2.12.8 Clean, Green and Efficient Public Services in-house & outside

Significant differences can be observed in the scope, the functional domain and the degree of autonomy entrusted to local government authorities in different countries, depending on a variety of factors, such as the historically followed traditions, the political consciousness of its people and above all, the attitudes of the political and administrative elite with regard to the concept of Local Government. In western countries many local government authorities provide a variety of services such as police, education, transport, environmental management, social services, housing, etc. However, in many Asian countries such as Sri Lanka, the LGs are assigned a rather subordinate role with limited scope under rigid controls of higher authorities. In the respective statues, the scope of Sri Lankan LGs is defined broadly as:

a. Subject to the powers vested or delegated to any other authority, the regulation, control, and administration of all matters relating to Public Health, Public Thoroughfares and Public Utility Services.

b. To protect the comfort, convenience and welfare of the people and amenities of the area.

c. Promotion of such comfort, convenience and welfare facilities of the area, and

d. Functioning as the local authority of the area.

Under these broad areas, there is a wide array of duties and functions entrusted to MCs, UCs and PSs in terms of governing legislations. The actions related to the public service improvements shall be designed in consideration of these factors.

In the delivery of public services, three factors were considered important in this project:

a. Clean: Transparent and doubt free engagement of the officials and the service recipient

b. Green: Sustainable use of all types of resources such as energy, material and human resources.

c. Efficiency: Timely and SLE-free processes that provide convenience for all.

Green related projects and initiatives should be within the resource base of the respective LAs. The resource bases of Sri Lankan LGs vary from one to another. Usually, urban LGs (MCs & UCs) possess a considerably large resource base while PSs enjoy very limited resources. Local authority resources can be identified under three categories:

a. Physical resource - Lands, Buildings, Machinery & Equipment

b. Financial resources - Internal & External Revenue sources

c. Human resources - Cadre

In order to get a clear idea on the real status of local authority resources, careful examination of at least the most recent three years’ final accounts and budgets are required. Thereby, probable new projects for service delivery, have been identified well within their carrying capacities.

2.12.9 Resilience towards disaster and pandemic situations

Cities and towns, which usually have a higher density of population and urban infrastructure, are more vulnerable to many possible natural disasters. Several factors could contribute to the level of vulnerability that may result, if unaddressed, in extensive loss and damages. The geographical locations of the selected LAs are with different environments peculiar to the dry zone (Thalawa), the coastal belt (Mannar, Kattankudy) and the intermediate zone (Bandarawela). These areas have different disaster threats that need to be addressed through suitable adaptive measures to improve resilience to withstand impacts.

Pandemics, which are receiving increasing attention due to the threats caused by Dengue, Leptospirosis, etc., and the recent Covid-19 outbreak, are another aspect that may need extra engagement from Local authorities who are entrusted with the community health and sanitation responsibilities. Biological hazards, such as epidemics, have been identified as one of the twenty-one hazard types by the existing legal framework for Disaster Management
(DM) in Sri Lanka, the Disaster Management Act. No. 13 of 2005. Further, the Sri Lankan Disaster Management plan classified epidemics as a disaster with a high frequency of occurrence and high impact, and losses on the population.

The efficacy and the efficiency of preparedness planning for epidemics and pandemics in Sri Lanka can be enhanced through the systematic integration of epidemic and pandemic preparedness into DRR planning and activities at the local authority level. Such integration requires the consolidation of DRR related legal documents towards promoting both collaborative governance and a multi-hazard approach to DRR.

Hence, the baseline of disaster and pandemic situations has been assessed using available records to identify the frequency of occurrence and level of impacts. We propose to identify those measures that can reduce the extent of disaster impacts by adaptation of several preventive and avoidance measures that can be incorporated into the planning and management guidelines to be developed. For this purpose, guidelines developed by agencies such as NBRO and Disaster Management center and health authorities have been used.
CHAPTER - 03

THE LOCAL GOVERNMENTS AND THE AREAS UNDER THEIR GOVERNANCE
3. THE LOCAL AREAS AND LOCAL GOVERNMENTS

3.1 The structure of the LGs in Sri Lanka

The present Government structure of Sri Lanka consists of three spheres of governances viz. National sphere, Sub-National or Provincial sphere, and Local sphere. The Sub-National or Provincial level of governing sphere came into effect in 1988 with the 13th Amendment to the Constitution as a remedial measure to the long-standing civil conflict of the country. Till such time from the very inception under the unitary system of Government both National and Local spheres were in existence and LGs were administered directly under the Central Government. In 1988 with the introduction of Provincial Councils (PCs) the LGs sphere as a subject devolved to PCs. Nevertheless, the constitution, form, and structure of LGs (along with LGs Elections and the formation of National Policy) were retained at the center to be determined by the Law. Therefore, the power of determination of the structure of LGs even at present remains in the hands of the Line Minister of Provincial Councils & LGs at the center.

As in the UK, Canada, Australia and a number of other developed countries, LGs in Sri Lanka are legitimate creations of governing legislation which are part of the existing Law. The demarcation of boundaries and the constitution of LGs are decided by the line minister under the provisions of the Law. Section 2 of Municipal Councils Ordinance (MCO), Urban Councils Ordinance (UCO), and Pradeshiya Sabhas Act No. 15 of 1987 declare that the Minister may by order published in the Gazette-

a. Declare any area to be a Municipality/ Town/Pradeshiya Sabha,

b. Define the limits of the MC, UC, or PS so declared,

c. Assign a name and designation to the MC, UC, PS to be constituted as the LA so designated.

Thereby it is clear that the authority for the determination of the structure of LGs is a matter for the center.

During the period of 1948 when independence was received, Sri Lanka had an LG Structure with four LGs namely the Municipal Councils, Urban Councils, Town Councils, and Village Councils. This structure Lasted until 1980 and the Government introduced structural changes creating District Development Councils abolishing long-standing Town Councils and Village Councils. In 1980 there were 683 LGs in the Island, and it was dramatically reduced up to 75 as a result of this structural change. (12 MCs, 39UCs, and 24 DDCs)1

However, this structure was functional from 1981 to 1986 and recognized as a total failure which paved a way for a new structural change of LGs. Accordingly, the Pradeshiya Sabhas replaced the Development councils and came into effect in 1987 with the statutory demarcation of one PS to each Assistant Government Agent’s division. On this basis initially, 257 PSs were created absorbing former 83 Town Councils and 549 Village Councils into their jurisdictions. Therefore, the current structure of LGs could be illustrated as follows.

1. Municipal Councils 24
2. Urban Councils 41
3. Pradeshiya Sabhas 276

Total number of LGs 341

3.2 The powers, functions, and duties of the LGs

The Scope, the degree of Autonomy and Powers, Duties, and extent of Functions which have been granted to LGs Bodies varies from country to country. The landscape of the LGs paradigm embraced by each country will depend upon a variety of factors such as the historical tradition of the country, the political consciousness of its people and more importantly, the attitudes of the political and administrative elite with regard to the concept of LGs. In certain developing countries

it seems that they have provided an extensive number of services to LGs including Police, Education, Social Services, Passenger Transport, Housing, Environmental Management etc.

The United Kingdom and Scandinavian countries are in this category. The other side of the spectrum there are LGs that are assigned subordinate roles and are entrusted with a limited range of activities which ought to be carried out subject to rigid control. At the same time in between these two there can be varying arrangements implemented by different countries.²

However, prior to the 1980s, the LGs of Sri Lanka exercised a wider range of functions and a higher intensity of autonomy in terms of scope and powers. Eventually with the alterations brought to the governing system, particularly due to the downgrading of the sphere of LGs as a mere subject of newly created Provincial Councils, the dignity and the Local Autonomy for certain extent eroded and subjected to rigid controls of the higher authorities. Owing to the Constitutional safeguard ratified under the sub section 4:3 of section 4 in the List I of the 9th schedule of the 13th Amendment to the Constitution, “Provincial Council to confer additional powers on LGs but not to take away their powers;”³ The existing powers are enjoyed by all types of LGs in the Island today.

3.2.1 Powers of Sri Lanka LGs

As stated above LGs in this country retain relatively restrained powers when compared to other countries in the Asian region. Predominantly there are seven categories of Powers enjoyed by Sri Lankan LGs at present as stipulated in the Governing Legislations.

a. General Powers

These powers are specified under; sec. 40 of the MCO, sec. 36 of the UCO and sec.19 of the PSA as follows,

i. Creation of Posts or office,

ii. Determination of Salaries and allowances for non LGS Staff,

iii. Appointments of employees to non-LGS posts,

iv. Remove any officer or servant other than LGS member,

v. Rent or Lease Lands or Buildings,

vi. Enter into Contract with any person for any work to be done, service to be rendered, good or material to be supplied,

vii. Enter into premises and examine for the detection and abatement of nuisances and abetment of contraventions of any Law, by-law, rule, or regulation,

viii. Institute or defend any legal proceedings for the purpose of enforcing or protecting the right of the council or the public or of protecting its officers or members in the execution of their duties and to administer oaths and summon witness,

ix. Raising of Loans.

b. Powers relating to Streets and Thoroughfares

A vast array of Powers on Streets and Thoroughfares has been assigned to all three types of LGs under this provision which have been specified in Governing Legislations as follows. Sec. 47-95 of the MCO, Sec. 44-102 of the UCO, Sec. 21-77 of the PSA. In the UCO and PSA, it is advocated that these two are General Administrative Authority for the purpose of all Thoroughfares and Communication other than Principal Thoroughfares within the administrative limits. In the MCO there is no such remark, but very extensive powers on Streets have been granted.

² P- 3 – Managing Local Governance, USAID, EML Consultants 2013, Colombo.
³ Sec.4 of the List 1 in the 9th Schedule of the 13th Amendment to the Constitution of the Democratic Socialist Republic of Sri Lanka.
c. **Powers Relating to Public Health**

Under this provision the Sri Lankan LGs are considered as the General Administrative Authority to promote and secure Public Health within its constituency and exercise all powers vested by governing legislations, the Nuisances Ordinance, the Housing and Town Improvement Ordinance and any other written Law for the time being in force. The three governing legislations have specified powers on Public Health as follows,

Sec. 96-154 A of the MCO, Sec. 103-128 A of the UCO, and Sec. 78-107 of the PSA. These provisions include drainage, latrines, unsanitary buildings, building construction, conservancy and scavenging, nuisances, environment pollution, infectious diseases and epidemics, offensive and dangerous trades and many other related subjects that can be regulated, supervised, administered, and controlled by LGs irrespective of their capacity or the strength.

d. **Powers Relating to Financial Matters**

LGs as Autonomous Governing bodies have been entrusted with a variety of duties, functions, and responsibilities to be fulfilled for the benefit of the Citizenry. These entities are being empowered to mobilize revenues and manage their Finances for the administration of all affairs within their jurisdictions by the Governing Legislations, many other Legislations and By-laws. Thereby, Sec.185(1) of the MCO, Sec. 158(1) of the UCO, and Sec. 129(1) of the PSA have mandated MCs to establish a Municipal Fund, UCs, and PSs to create Local Funds for its General Financial Purposes. Furthermore, under the specific legal provisions in terms of each Governing Legislation, all LGs are empowered to levy and collect the following Rates, Taxes, and License Duties among many other income sources as part of their revenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Legal Provision</th>
<th>MCO - Sec.</th>
<th>UCO -Sec.</th>
<th>PSA - Sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rates</td>
<td>230</td>
<td>160</td>
<td>134</td>
</tr>
<tr>
<td>2</td>
<td>Acreage Tax</td>
<td>-</td>
<td>-</td>
<td>134(3)</td>
</tr>
<tr>
<td>3</td>
<td>License Duties</td>
<td>247 A (1)</td>
<td>162(1)P (b)</td>
<td>147(1)P (b)</td>
</tr>
<tr>
<td>4</td>
<td>Vehicles and Animal Tax</td>
<td>245</td>
<td>162(1) (a)</td>
<td>162(1) (a)</td>
</tr>
<tr>
<td>5</td>
<td>Trade Tax</td>
<td>247B</td>
<td>165 A</td>
<td>150</td>
</tr>
<tr>
<td>6</td>
<td>Business Tax</td>
<td>247 C</td>
<td>165 B</td>
<td>152(1)</td>
</tr>
<tr>
<td>7</td>
<td>Tax on Undeveloped Lands</td>
<td>247 D</td>
<td>165 C</td>
<td>153</td>
</tr>
<tr>
<td>8</td>
<td>Court Fines (certain)</td>
<td>185 (2) (b)</td>
<td>158 (2) (a)</td>
<td>129 (2) (a)</td>
</tr>
<tr>
<td>9</td>
<td>Stamp duties</td>
<td>185 (2) (c)</td>
<td>158 (2) (b)</td>
<td>129 (2) (b)</td>
</tr>
</tbody>
</table>

e. **Power of Recovery of Taxes**

This is a very significant or probably unique power enjoyed by Sri Lankan LGs. In terms of Sec. 252,253, 254 (1) & (2) of the MCO, Sec.170 of the UCO, Sec. 158 (1), 159 (1) and (2) of the PSA all LGs enjoy the power of recovery of Rates, Taxes, Rents, and other dues by issuing a Warrant. The issuing authority of this Warrant in MCs is the Municipal Commissioner and in UCs & PSs are the LA Secretaries.

In the event of failure to pay the above dues, moveable and immovable property situated within the LG belonging to such defaulters can be seized, sold and setoff against dues by the respective LG.

f. **Reporting to the Magistrate Court**

In terms of Sec. 247 B, 247 C, 247 E of the MCO, Sec. 165 A, 165B (3), 165 D of the UCO, Sec. 150 (4), 152 (4), 154 (2) of the PSA LGs empowered to recover all payable Trade Tax, Business Tax or Tax on certain Land Sales. In the event of failure to pay, the Municipal Commissioner/Secretary has to report to the respective Magistrate Court and the court shall proceed to recover the amount due and credit the Local Fund.
g. **Power of Application of the Common Fund of the LG**

Under the provisions of Sec.188(1) of the MCO, Sec. 159(1) of the UCO, Sec. 132 of the PSA this important power has been granted to all LGs. Thereby, the subjects or matters to which the common fund shall be applied to have been described in the above sections in detail. The Councils of all LGs are free to apply this fund only for the matters specified in the aforesaid sections provided due to Budgetary provisions available in the Council Budget for the current year. Councils could delegate the authority of incurring any expenditure to its Mayor/Chairman, Commissioner/Secretary, any officer, or any Committee with specific limits of expenditure. What is significant in this is that in applying the Common fund all LGs shall strictly follow the procedure laid down in the Law. In the event of failure to do so, such amounts may be subject to be surcharged from the person responsible for the payment by the Audit.

3.2.2 **Duties of LGs**

The duties of LGs can be described as mandatory or obligatory activities to be carried out or fulfilled by each LG. There are a considerable number of duties specified in the governing legislation which have been entrusted to all three types of LGs. When this subject is carefully studied it could be seen that primarily duties entrusted to MCs, UCs and PSs are having greater similarities, sometimes with minor deviations. Therefore, it is pertinent in this exercise to examine the duties of MCs in order to get a better understanding of this subject.

1. **Twelve General Meetings per annum** should be held for the transaction of council business. (Sec.17 of the MCO) Without having a council sanction LGs are not expected to authorize any transaction. (Essentially every council shall convene one general meeting per month)

2. Every MC shall at its first general meeting in each year be elected by ballot from among the councillors a **Standing Committee on Finance** and not less than two other Standing Committees.

3. The third important duty of an LG is to **make by-laws** for the Regulation, Supervision, Inspection or Control of matters relating to Public Health, Public Thoroughfares, and Public Utility Services. Without by-laws above matters cannot be effectively implemented by LGs. (Sec.272 of the MCO, Sec. 159 of the UCO, Sec.126 of the PSA)

4. Establish and **maintain the municipal office** for the transaction of business. (Sec.43)

5. A box should be kept at the Municipal office **for the reception of petitions** and a book for the registry of such petitions and of the orders passed thereon, after inquiry and report by the proper officer. (Sec. 43)

6. To maintain and cleanse all public streets and open spaces. (Sec.46)

7. To enforce the proper maintenance, cleanliness, and repair of all private streets. (46)

8. To **abate all nuisances**. (Sec.46)

9. To promote public health, welfare and convenience and the development of sanitation and amenities of the Municipality. (Sec. 46)

10. Construction of facilities. (Sec.97 (1))

11. Every Municipality shall cause drainage, sewage, and solid waste management. (Sec. 272)

12. Administration and control of public health facilities. Sec. 272)

13. Regulation of lodging houses, sales of milk and dairy. (Sec. 272)

14. Prohibition of unsanitary foods and drinks. Sec. 272)

15. Controlling infectious diseases. (Sec. 272)

16. Properly sweeping and cleaning the streets, including the footways, and for collecting and removing all street refuse, removal of house refuse, and proper disposal of all street & house refuse and night-soil. (Sec.129)

17. **Institute legal action** against environmental pollution. (136 (a))
18. Establishment of a Municipal Fund. (Sec. 185 (1))

19. All money shall be credited to the Municipal Fund in an Account at the approved bank. (Sec. 186)

20. Every Municipal Council shall approve the Budget at a special meeting in the last month in the financial year for the ensuing year. (Sec. 186)

21. All contract agreements shall be in black and white & signed by the Mayor and the Commissioner on behalf of the Council. (Sec. 213)

22. All officers and servants act in bona fide. (Sec. 309)

In order to obtain a comprehensive knowledge of Duties entrusted to UCs and PSs all parts of the UCO and PSA should be carefully studied, because often Duties of LGs are specifically given in governing legislations under various subjects rather than as a list in one specific section.

3.2.3 Functions of LGs

Functions of LGs are considered as certain matters for which legal provisions are available to implement such activities, but they are not essential, obligatory, or mandatory to be implemented by any type of the LGs as Duties. In our context, it can be seen that the MCO, UCO, and PSA have been stipulated with the required legal provisions for the application and execution of such functions by LGs. However, LGs are free to determine on the implementation of such activities considering the demand of the people for such functions, the resource availability, and the capacity to sustain such functions by the LGs.

a. Standing Committees

In the case of MCs, it is essential to appoint a minimum of three standing committees including the finance committee and they are free to determine whether they need to appoint more standing committees than the above three for other subject areas. However, there are provisions under section 29(1) of the UCO, and section 12 (1) of the PSA to appoint standing committees to Urban Councils and to Pradeshiya Sabhas respectively. Despite that, this requirement is not mandatory for UCs and PSs and therefore, standing committees are not functioning in the majority of LGs other than Municipalities in the country.

b. Provision of public Utility Services

Public Utility Services are generally considered the basic facilities required for the benefit of the inhabitants of any LG area for their day-to-day life. These services are specified in Sec. 40 (1) (u) of the MCO, Sec. 129 of UCO, and Sec. 108 of the PSA. As these services are similar it is worth looking at Section 129 of the UCO to get an idea about such services including water supply, the lighting of streets, public places, and public buildings, the supply of electric light or power, markets, public baths and bathing -places, the manufacture and supply at the cost price of squatting plates for latrines, the provision of housing accommodation for the poorer classes, any other form of public service, subject to such prohibition or restriction of the establishment and maintenance of that service as may be imposed by any other law.4

Aforesaid functions can be implemented independently by the LA or by combining with other LGs or else in partnership with any other organization or persons. Currently, it can be seen that many LGs have made use of the available legal provisions, provided a variety of such services to their inhabitants, and run them as very successful revenue-generation ventures. E.g., Public Markets, Illumination of streets & public buildings, Public Baths, and Housing Schemas.

c. Engage in Commercial and Industrial Enterprises,

In terms Sec. 40 (1) (uuu) (1) of the MCO, Sec. 36 P (iii) of UCO, Sec. 19 (1) P (xxiv) of PSA all three types of LGs are empowered to engage in commercial or industrial activities subject to the prior approval of the Minister. These enterprises are supposed to manufacture such machinery, equipment, articles, materials, and goods as may be

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4 P.70, Urban Councils Ordinance No. 61 of 1939, (Chapter 255) 1987, Dept. of Printing, Colombo.
required for the public services or public utility services and the selling price of these items to the public may be determined by the council and approved by the Minister.

However, despite clear legal provisions being available, LGs have not engaged in any commercial or industrial activities so far in the Island.

d. Functions Related to Streets and Thoroughfares,

Under the provisions indicated in Sec. 57 of the MCO, Sec. 68 of UCO, Sec. 43 of PSA it shall be lawful for any LG to cut and remove all trees, branches or shrubs, roots or leaves of trees which over-hanging in any street or thoroughfare within its limits.

Similarly, under the provisions of Sec. 58 of MCO, Sec. 69 of UCO, Sec. 47 (1) of PSA it is also lawful for any LG to put up or make fences, hedges, ditches, or banks by the side of any street or thoroughfare within its boundaries.

e. Provision of Public Transport Services,

In the Sri Lankan context, all types of LGs are empowered to organize and maintain and operate the Public Transport System, either by themselves and their officers or by agreement with any other promoter or promoters, for the benefit of inhabitants within the administrative limits of the council. The respective legal provisions are indicated in Sec.63 of the MCO, Sec. 59 of the UCO, and Sec. 34 of the PSA. Under this legal space in the 1950s and 60s Colombo Municipal Council operated a Tram Car & Trolly Bus service within the city very effectively, but it was terminated later due to some industrial disputes.

f. Construction of Roads for the Benefit of Individual Property Owners,

Legal provision has been made in all three types of LGs to construct and maintain roads for the service of any Estate or Enterprise subject to recovery of expenditure, under Sec. 65 of the MCO, Sec. 56 of the UCO, and Sec. 33 of the PSA. Moreover, LGs are empowered to impose and recover Special Rates from the properties benefitting from such road facilities.

g. Construction of Drainage,

All LGs are empowered to construct, alter, or extend such public main or other drains, sewers, and watercourses as may appear to be necessary for the effective draining of the area within its jurisdiction. Under Sec. 97 of the MCO, Sec. 104 of the UCO, Sec. 79 of the PSA and in subsequent sections a wide range of powers have been provided to LGs in this regard.

3.3 Current state of affairs of the four LAs and LGs

3.3.1 Mannar UC

Located in the Northern Hot-Arid climatic region of Sri Lanka, Mannar has throughout been a strategic location in the history of Sri Lanka, especially in the context of trade, inter-state communication and socio-political relations with neighbouring India.

With a total residential population of nearly 25,000 (2020 estimate based on 2012 Census) distributed across 15 GN Divisions, the total land extent administered by the UC is limited to 27.9 square kilometres, but its area of impact extends for over 30 square kilometers. While the entire area is associated with the coast, a large repository of resources, including attractive natural settings, remains untapped so far in the Mannar region. However, water has been a scarce resource for regular activities as well as for all development purposes.

Mannar Urban Council was instituted in 2006, and the Council consists of 7 wards and 16 members. The annual budget of the Mannar UC is Rs.209 million (2021). Out of the available information related to the greening of Mannar City, a few critical areas are already evident such as making the public realm more habitable and comfortable to the inhabitants, shifting to clean and renewable energy sources, and sustaining the natural environment systems.
Mannar City, a few critical areas are already evident such as making the public realm more habitable and budget of the Mannar UC is Rs.209 million (2021). Out of the available information related to the greening of Mannar Urban Council was instituted in 2006, and the Council consists of 7 wards and 16 members. The annual repository of resources, including attractive natural settings, remains untapped so far in the Mannar region.

With a total residential population of nearly 25,000 (2020 estimate based on 2012 Census) distributed across 15 GN Divisions, the total land extent administered by the UC is limited to 27.9 square kilometers.

Figure 3-1: Location Map of Mannar UC area
Some important information on Mannar UC area

<table>
<thead>
<tr>
<th>Information</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative District:</td>
<td>Mannar</td>
</tr>
<tr>
<td>Divisional Secretariat Divisions:</td>
<td>Mannar Town. Mannar urban council area consists of 15 Grama Niladari Divisions</td>
</tr>
<tr>
<td>Total Land Extent:</td>
<td>14.11 Square Kilometers</td>
</tr>
<tr>
<td>Major Land Uses:</td>
<td>51 percent service sector engagements make the major part of the household income of the population in the UC area. Coastal and off-shore fishing, small scale agriculture and livestock farming makes the second contribution</td>
</tr>
<tr>
<td>Number of Families:</td>
<td>7,023 (2019, Divisional Secretariat, Mannar)</td>
</tr>
<tr>
<td>Main Sources of Livelihood:</td>
<td>Fishery, agriculture, and livestock</td>
</tr>
<tr>
<td>Number of Housing Units:</td>
<td>6122</td>
</tr>
<tr>
<td>Conditions of the House Units:</td>
<td>Out of the total housing units, approximately 5220 (85%) houses are permanent houses and 419 (7%) are Semi Permanent Houses. The remaining 483 (8%) houses are either temporary structured houses or huts.</td>
</tr>
<tr>
<td>Water Supply:</td>
<td>Murunkan water supply scheme (15,000 m3/day). Keeri well water (2250 m3/day) and groundwater within Pesalai PS area (UDA, 2019).</td>
</tr>
<tr>
<td>Houses with Sanitary Toilet Facilities:</td>
<td>213 (Divisional Secretariat, Mannar, 2019,)</td>
</tr>
<tr>
<td>Main Sources of Energy for cooking:</td>
<td>Gas and Kerosene</td>
</tr>
<tr>
<td>Solid Waste Collection:</td>
<td>28 Metric tonnes per day. Out of the total waste, nearly 68% was produced by the residential activity and 4% produced by the industrial sector and 28% by the commercial sector.</td>
</tr>
<tr>
<td>Number of Burial Grounds owned by the UC</td>
<td>3</td>
</tr>
<tr>
<td>Number of Playgrounds owned by the UC</td>
<td>3</td>
</tr>
<tr>
<td>Number of Families affected by disasters:</td>
<td>Drought – 2045 (2019)</td>
</tr>
<tr>
<td></td>
<td>Flood – 177 (2019)</td>
</tr>
<tr>
<td>Frequently reported diseases:</td>
<td>Respiratory tract Infection</td>
</tr>
<tr>
<td>Major urban service centers:</td>
<td>Mannar, Murungan</td>
</tr>
</tbody>
</table>

Figure 3-2: Images of some Locations in Mannar UC area
GREEN CITY MASTER PLAN
AND IMPLEMENTATION ROAD MAP
MANNAR

VOLUME II
CHAPTER - 04

BACKGROUND INFORMATION

Note: Chapters 1 – 3 are in the Volume I of this Report.
4. BACKGROUND INFORMATION

4.1 General

The Mannar UC area is in a coastal geographic setting located at the entrance to the Thalei Mannar island protruding from the North-Western coast of Sri Lanka. The area is moderately built-up, with relatively less vegetated land cover, bordering the famous Vankalei wetland sanctuary and the sea beach at two sides. Because of its location in the Hot-Arid climatic zone in Sri Lanka, Mannar naturally experiences lower precipitation and excessive daytime heat throughout the year. The area has a local community with a mix of Tamil and Muslim ethnicities. The service sector (trade, commerce, and administration) employment provides livelihood for a majority of its population, while there is a considerable number that depends on coastal and offshore fishing.

The scenic settings associated with the Ramsar declared Vankalei Coastal sanctuary is a prominent resource that the area possesses for a Green Economy and Green City. The entire Thalai Mannar island is gifted with a donkey population, said to have been brought in during the Dutch ruling of the area and freely breeding with no specific custodianship.

The Urban Council has been satisfactorily managing its services, but finding difficulties to resolve matters related to surface and storm water drainage, solid waste disposal and maintenance of roads. A substantial portion of the city area is either below or at sea level for which surface water drainage has become the dominant issue in its built environment. A major drainage improvement scheme has been implemented in the recent past rehabilitating the mains, but in order to obtain the dividends further improvements are also required in the surface and sanitary drainage systems.

4.2 History and the Evolution of the area

Mannar has been the location of one of the earliest ports of the island, known as Mantai, which lay strategically along an old-world trade route. The Mann-Aru which was the name given to the sea stretch that historically separated the island of Mannar from the mainland may be the originator of the name Mannar.

Being the closest landfall between the Indian subcontinent and Sri Lanka, Mannar has also been an entry point for both traders and invaders from historic times. The area is rich in legend as well as history, of which the Hanuman, the Monkey-God from the Ramayana, is said to have built a bridge/causeway for Rama and his troop to reach Lankapura from India in search of the princess Sita.

The eye-catching feature for anyone that approaches Mannar is its fort, first built by Portuguese in 1560 and subsequently captured by Dutch and British. It has a four-sided design, with four bastions, a wet ditch on three sides, and an arm of the sea washing the fourth. The battlements are prominent and picturesque while traveling along the causeway from the mainland. During the Portuguese Period (1505-1640), a bridge connecting the mainland and the island of Mannar was built. The Portuguese also spread Roman Catholicism across the island. Historic records reveal that the Dutch took it after a naval bombardment, strengthened it in 1696 but does not appear to have significantly altered it.

Mannar has a mixed record of history, which is clearly influenced by its role as a trading port. There is also a long history on Christianity that exists in the area with a history of baptism of the Karaiyas (a caste from the Northern part of Sri Lanka) in the Mannar area. In the early part of the 19th Century, Mannar became world famous for pearl fishing.

The Village councils were established under the provisions of the Village Councils Ordinance, Act No. 9 of 1924 section II, based on 1899 Local Government Act. Subdivided Mannar Pradeshiya Sabha included Manthai South (Uyilankulam), Mannar East and Mannar west (Thalaimannar). According to the gazette notification published on 22nd April 1949, Erukkalampiddy, Pesalai, Tharapuram and Thirukethiswaram were added to the Village Council. Mannar Urban Council was established in 2005, under the provisions of the Urban Councils Ordinance of 1947, by the extraordinary gazette No. 1423/2. During the period 1975-1980, a Special Commissioner was posted to each village council, by bringing these Village Councils under the Regional Assistant Commissioner of Local Government and the administration and all development activities were carried out under his directives.
As the source of the law of the District Development Board, which came into force in 1980, the Mannar District was delineated in 1981. Both the Town Council and the Village Councils in the area came under the District Development board until it was concluded at the end of 1983. By the Pradeshiya Sabha (Amendment) Act of 1987, Pradeshiya Sabhas were formed by defining one Pradeshiya Sabha for one divisional secretariat division. The Special Commissioners and the Secretaries were charged with the powers to carry out all administration and development activities during times of conflict in the North and Eastern areas of the island. In order to avoid difficulties encountered by the Pradeshiya Sabha in managing public services and development activities in Mannar Town. The tenure of Mannar Urban Council was initiated from the day of 15th of April 2006.

The whole of Mannar Island, including the Urban Council area, has been declared as an Urban Development Area by the Minister in-charge of Urban Development on 1st June 1979, under the provisions of Urban Development Authority Law of 1978. Accordingly, all physical development activities in the whole area are regulated by the UDA.

4.3 Geographic Characteristics

Mannar District covers a land area of 2,002 square kilometers, approximately 3% of the total land area of Sri Lanka. Mannar Island is about 130 sq. km in size, protruding into the Palk like a claw, creating a Gulf that is named after it. The island is connected to the mainland by a bridge and causeway of nearly 3 km in length. The point with the highest elevation within Mannar Island is 0.75 meters from the mean sea level while some areas of the Mannar Island are lower than the mean sea level. Four major soil groups have been identified in the district. The Island generally is formed with sandy soil.

The area under the jurisdiction of Mannar Urban Council is 14.11 square kilometers and falls within the Dry-Arid zone of the island, which experiences high average temperature that ranges between 26.5°C and 30.0°C, and low average annual rainfall of 355 mm. Mannar receives nearly 60% of its rainfall during the north-east monsoon, which lasts from October through December. The system of drainage canals connected with retention ponds is identified as a key feature of the landscape and it has been helpful to mitigate frequent flood situations.

4.4 Land use

The land use pattern of Mannar UC area is shown in Figure 4-1. The major land uses of the area can be categorized into mixed residential, scrub and lowlands, which account to 27%, 25% and 09% respectively. The rest of the land is covered by water bodies, and used by institutional, small and medium scale industrial and commercial activities. Dry fish production, cottage industries and other business establishments are located intermingled with these uses.

![Figure 4-1: Land use and transportation network map of Mannar UC – 2018](image)
4.5 Local Economy

Mannar Island has high potential marine resources as the Gulf of Mannar, a coastal belt with potential fishing areas. Therefore, a major share of the economy of Mannar Island is contributed by the fisheries sector. Accordingly, 2016 statistical report states that total fish production of Mannar District is nearly 16,000 MT. Out of that, Mannar Island produced nearly 10,324 MT.

The main drive of the economy of the Mannar UC area, however, is the service sector. Since Mannar Town is the center for trade and commerce, agriculture and fishing, education and health, and administrative functions, it attracts a reasonable commuter population from the hinterland that extends into both the mainland and the Thalei Mannar island. Therefore, Mannar Town also acts as a transportation center, terminal for several local and regional bus routes and the railway. Majority of the economically active residential populations are engaged in trade and commerce, and institutional and administration related employment.

In addition, the tourism-related activities also play a considerable role in income generation for the local communities with the attractions such as the Dutch fortress, historic Baobab trees and the Keeri beach. The Madhu church, the sacred land highly venerated by the Christians in Sri Lanka, is located on the main road and rail connection to Mannar from Medawachchiya and Vauniya, within close proximity to Mannar town. Yet the large number of pilgrims that visited the church during festival season and daily have not been adequately encouraged to extend their visit to Mannar town.

The wind farm established in Mannar island is expected to contribute high towards the clean and renewable energy targets of the government. However, the project does not have a major impact on the local economy, except for a drastic change in the landscape of the area. The natural gas and petroleum deposits, which are being explored in the gulf of Mannar, will be a turning point, not only for the local economy but also for its social and functional characteristics.

Pesalei, Murunkan and Seelawathurei are the other service centres located around, but they are short of the required critical mass to sustain the higher-order services supported by Mannar town.
CHAPTER - 05

STAKEHOLDER CONSULTATION IN MANNAR

Note: Chapters 1 – 3 are in the Volume I of this Report.
5. STAKEHOLDER CONSULTATION IN MANNAR

5.1 General

The Project Team had a reconnaissance field visit in the Mannar UC area on 13th January, 2021. The inaugural meeting was held with the presence of UNDP representatives and officials of the UC at the office of the Assistant Commissioner of Local Government, Mannar. The meeting started with a brief introduction to the Green City development project by the UNDP representatives and a presentation by the team leader (EML Consultants) of the project. An open-end discussion between the Project Team and the stakeholders followed the introduction, in which the LG capacity, existing issues, potential for green city initiatives and key concerns were discussed. The details of the meeting is given in Annexure 5.1

At this meeting, all participants expressed positive thoughts towards the proposed Green City initiative. The Mannar UC expressed its willingness to take part and implement the plan but it expected technical and financial assistance. The UC intends the following issues to be addressed in any development initiative.

A. Frequent floods

The background of the flood disaster in the Mannar UC area has been discussed in detail. The absence of the systemic drainage network and the lower elevation of the area had been identified as the factor of the periodic floods in this area. On the other hand, man-made factors such as disposal of solid waste into drainage channels, encouragement and unauthorized settlements encroaching water retention areas and the non-functioning of the natural ponds need to be considered for future development.

B. Environment pollution

Solid waste dumping by the people in the area is the main cause behind the polluted situation in the UC area. The pollution of coastal areas due to the dumping of plastic bottles and polythene bags was mainly highlighted along with the air pollution resulting from the open burning of waste.

C. Ecological destruction

Mangroves and other ecological habitats in Mannar are stated as vulnerable ecosystem components due to some illegal natural resource extraction in this area. The conservation of these mangrove ecosystems is a necessity for the sustenance of the areas.

D. Institutional capacity of Mannar UC

Mannar UC area generates approximately 25 MTs of solid waste per day, of which only 04 MTs can be segregated in the available compost yard. The labor (at present 55 numbers) and machinery should be increased to improve the efficiency of the waste management system. The position of PHI is vacant at present and needs to be urgently filled in to ensure safe and healthy life for the community.

E. Constraints on tourism development

No proper maintenance of the places of tourist attractions and lack of service providers in the tourism sectors. The Baobab trees, Mannar fort and other tourist attractions can be organized along with required utilities and amenities to provide a better experience to local and international tourists.

F. Lack of physical infrastructure

The effectiveness of the road network and condition of sub arterial roads were critical. More vehicle parking facilities in the Mannar town area is a requirement. Further, the street light and relevant traffic regulations are requested to implement in future.
G. Public awareness on developments and environment

Improvement of awareness and educating them on good and healthy practices is essential for a sustainable management of the urban area and its facilities. Moreover, the education relevant to solid waste disposal and source segregation of solid waste should be conducted to change the public attitudes.

H. Lack of collaborations among the government institutions and organizations

Better coordination among government development was not adequate. The main point was mentioned that the proposed plans or any projects were not implemented through the collaboration among different stakeholders.

The outcome of the meeting included the following findings:

1. All participants expressed their support for the proposed Green City initiative.
2. A few major infrastructure improvements have been carried out in recent years, but they need to be fully integrated with the existing sub-systems and maintenance mechanisms.
3. The UC highlighted the following issues, which can be included as essential items in the Master Plan.

5.2 The Main Stakeholder Workshop

5.2.1 Introduction

As per the ToR provided by the UNDP, there shall be at least one stakeholder workshop. The second deliverable was prepared with the outcome of this workshop and the related events. The EML project proposal indicated two stakeholder workshops: one at the inception and the other at the final stage of the project.

The first workshop was organized on 12th February 2021 at the Conference Hall in Akash Hotel, Mannar. It was attended by a total of 41 stakeholder representatives including the Chairman of the PS, the Council Members, Technical and Administrative staff of the UC, Divisional Secretary and the Development Officers, Environmental Officers, Representatives of the development agencies such as the UDA, RDA, etc., Representatives of the other Government Agencies, a few Community organizations. The detail list of participants is given in Annexure 5.2 A

All participants were invited by the Chairman of the Mannar UC. EML prepared the invitations and the UNDP handed them over to the invitations. The logistics were arranged by the UNDP and supported by the Mannar UC, and the EML Project Coordinator of the respective areas. Under the prevalent pandemic affected situation, the workshop was limited to five hours (from 9.00 am to 2.00 pm).

Further details of the first workshop in Mannar is given in Annexure 5.2 B

5.2.2 The Objectives of the Workshop

The objectives of workshops can be listed as follows:

1. To develop a sense of ownership of the Green City Master Plan in the stakeholders, especially the elected members, technical and administrative staff of the PS, and the representatives of the Local Communities.
2. To work out a feasible Green City wish list of Mannar UC and the other stakeholders.
3. To identify critical issues that hinder the Greening of the Mannar area which remains unresolved
4. To develop a wider awareness among all participants on the projects that are being implemented in the Mannar area that can have any impact on the Greening process.
5. To widen the awareness in stakeholders on the widely used concept of a Green City, the norms, traditions, and practices associated with it and in Consultants on the Green practices, Greening projects, and Green resources, readily available in the Mannar UC area and its community.
6. Motivate the participants at key institutional levels to engage in all follow up activities of master plan preparation and also to contribute during the implementation phase of the Master Plan.

These objectives were satisfactorily accomplished at the end of the workshops. Further details on the workshops and their outcomes can be lined up in the following sections.

5.2.3 The Process of Activities:

The workshop was structured and processed with five common activities. Every activity was closely guided and supported by the Project Team. For clarity and convenience, the participants were given papers of different colors to record their responses at each stage of the process. The main activities conducted during the process of workshop are summarized below:

The workshops were structured and divided into five major activities:

a. **Introduction to the project by the Consultants**

   The project was introduced to the stakeholder representatives with a Power Point Presentation, followed by a discussion session. In Mannar the presentations were made in Tamil medium.

b. **Observation of the stakeholder aspirations of Greening the Local Area**

   The participants were requested to independently record the following:
   
   i. Three most important/outstanding features/elements/characteristics in their ‘Dream Green City’ accomplished at the respective local area.
   
   ii. Three main potentials that they view the local area has and that can be capitalized towards the accomplishment of the said Dream Green City
   
   iii. Three main obstacles/constraints/limitations that they identify in their respective local area in implementing potential interventions identified at item “b” mentioned above.

b. **Interactive discussions, sharing knowledge, views, and thoughts.**

   At this stage, the participants were requested to divide themselves into three groups depending on their interests to brainstorm in order to refine and prioritize the views recorded by the participants, which were classified under three themes, namely:
   
   i. Associated with natural/physical environmental characteristics,
   
   ii. Emerging from infrastructure or technological deficiencies and
   
   iii. Related to the institutional arrangements/capacities or the state of socio-economic environments

   Each group was appointed with a ‘Leader’ who was assigned with the duty to facilitate the conduct of the brainstorming session, giving equal opportunities to all members of the group, with no dominance to any single participant and a ‘Scriber’ who was good at recording the proceedings for a presentation. At the end of one-hour long interactive session among them, the participants were able to further clarify and mutually agree upon the priority order of the issues, and root causes behind such issues and obstacles to make use of the potentials available. These were presented to all participants by a selected member of each group.

d. **Possible strategies to use the potential and to overcome the obstacles/limitations**

   Following the identification of the priorities, the participants were requested to independently record their opinions on possible strategies to address them making use of the resources and the opportunities available. This activity was a freethinking and free-expressive one, where the participants were given adequate space and time to record their views and suggestions.
e. Receiving feedback from the participants on the method and the contents of the workshop

The participants were given an opportunity to provide their feedback on the workshop, to assess the success of the process, the level of accomplishment of the objectives and the improvement of the forthcoming events of the project.

Each workshop was a learning experience for the Project Team and such lessons learnt and the feedback received from every preceding workshop was useful for the improvement of the process and the contents of the following workshop in line.

5.3 The outcome of Mannar Workshop I

The main findings of the first stakeholder workshop can be listed as follows:

5.3.1 Common features of the Mannar Dream Green City

A clean environment and efficient infrastructure facilities are predominantly indicated in this activity. As an overview, it showed that the inhabitants expected a green city with a stable economy, efficient technology development and environmentally friendly components to facilitate calm, attractive and clean services and facilities to the inhabitants and commuter population.

The frequency of the definitions on the future Mannar green city is stated below

1. A beautiful city with a clean and green environment
2. Less waste in the city with the efficient waste management system
3. Recreational places to feel the freedom of the city
4. Development of infrastructure facilities to increase the convenience of urban life
5. A city based on a self-sustaining economy
6. Optimize renewable energy usage in the city limits

Figure 5-1: Word cloud of the general perception of the stakeholders on the envisaged Green City of Mannar
5.3.2 Commonly identified potentials for Greening of the area

1. Availability of many untapped potentials/resources to promote tourism and other innovative economies to the residents
2. One of the best locations to introduce renewable energy production. (Natural sources, wind and sunlight obtainable throughout the year)
3. Unique geographic and demographic characteristics of Mannar.
4. Valuable culture and heritage of the city
5. Oceanic picture of the city
6. Institutional arrangements and capacity to implement the projects.

5.3.3 Most highlighted constraints and limitations towards Greening the area

a. The ongoing unplanned city development process

It was revealed that Mannar town needed a comprehensive master plan to overcome the constraints over the physical and natural environment. The UDA development plan for the boundaries of Mannar UC and Manna PS area is available for implementation. However, the stakeholders are recommending collaboration among the government agencies to prepare a master plan that covers all the aspects of Mannar town.

b. Constraints on Solid water management

The solid waste generation of Mannar UC recorded between 25 – 28 MT per day out of which only 4 metric tons were only able to segregate by UC. The solid water management based issues addressed in perspectives of institution capacity and public attitude. The labor and machinery used for waste collection need to be increased to facilitate the proper service.

c. Poor condition of Drainage system

The drainage system has been developed by UNOPS and the main 8 channels were constructed. Nevertheless, the problem with sub-channels connectivity with main channels is still existing. The stakeholders revealed that the systematic drainage network should be implemented with the proper engineering aspect and public awareness on drainage management need to be increased for better function.

d. Improper road networks

As earlier mentioned, the road networks and the sub-arterial roads need to be constructed to provide the efficient transportation service. The proper management and construction failure are the main reasons for the dilapidated condition of the roads. Further, the interior road networks should be rehabilitated by LG for facilitating the local community.

e. Disaster occurrence

Mannar UC area is identified with the hazard of flood, drought and cyclone due to natural factors and manmade circumstances. Generally, the lack of a proper drainage network and less awareness on disaster adaptation need to be considered for future development.

i. Inadequate capacity of the MUC to maintain essential service delivery to meet the demand of the residential population. (cadre, vehicles & equipment, technology, and Lethargy attitude of both elected and appointed staff due to lack of effective Training)
ii. City lands, Coastal belt and Mangroves encroachment & rapid growth of unauthorized structures.
iii. Social issues Poverty, Drugs, undue political interference as well as ethnic disharmony.
iv. Issues related to Land ownership in the Island.
v. Utter negligence of law enforcement by the MUC.
vi. Serious hazardous situation due to unplanned half-built surface drainage scheme.
vii. Insufficient funding for Mannar City development initiatives by the Government.

5.4 Outcome of the Group Session

5.4.1 Environmental Concerns
1. Lack of systematic surface and sanitary drainage system
2. Environmental pollution and adverse impacts
3. Natural resources available along the coastal areas are not well protected
4. Disaster occurrence
5. Lack of maintenance on retention ponds available in city limits

![Word cloud for environment related issues perceived by the stakeholders in Mannar](image)

Figure 5-2: Word cloud for environment related issues perceived by the stakeholders in Mannar

5.4.2 Social and Institutional Concerns
1. Problem in the solid waste management in the implementation
2. Negative attitudes and behaviors of the local community.
3. Lack of taking responsibility and cooperate and collaborate of the stakeholders
4. Lack of awareness
5. Lack of maintenance in the tourist places
6. Lack of implementation of the laws, rules and regulations.
7. Lack of responsibility of the community based organizations
8. Less interest to planting greenery or trees and try to develop and maintain the beauty of the city
9. No proper road development and drainage system

Figure 5-3: Word cloud for social and institutional issues perceived by the stakeholders in Mannar

5.4.3 Infrastructure /Technological Concerns
1. Lack of Master Plan - There is no proper long-, short- and medium-term projects and plan
2. Lack of resources for the implementation of plan or project
3. Lack of new technology on waste management
4. Not enough of fund for the development process and showing less interest of the foreign and private inventors
5. Government taxes are not properly paid
6. Unavailability of an integrated urban plan for the city
7. Dilapidated Surface and Sanitary drainage and road network

5.4.4 Most commonly proposed strategies
- Environmental Strategies
  i. Introduce an environment resources conservation plan
  ii. Get legal actions against environment polluters
  iii. Development of disaster risk management plan and preparation of prior risk alarm system
  iv. Enhance the frequency of the maintenance works
v. Conduct a proper study about the natural terrain and drainage network of the city and upgrade the drainage network

- Social and Institutional Strategies
  i. Conducting community awareness workshops and introducing incentive system to encourage participation
  ii. School children oriented awareness programmes
  iii. Community development activities to enhance leaderships and unity
  iv. Get youth involvement in the process and assign responsibilities and provide leadership training
  v. Conduct nature programmes and enhance the planting habits

- Infrastructure /Technological Strategies
  i. Development of Master Plan for the city, involving relevant authorities and stakeholders
  ii. Collaboration with research and development units of the universities to identify new waste management technologies
  iii. Introduce incentive schemes to enhance private investor involvement
  iv. Identify new technological approach to detect non tax payers

5.5 Focus Group Discussions at Mannar

The Focus Group Discussions (FGDs) were organized to facilitate specific key stakeholder groups, whose close interactions were identified as crucial for the planning and implementation of the envisaged Green City. These groups were identified both at the Main Stakeholder Workshops and in the background studies on the four local areas. The Key Informant Meetings (KIMs) have been planned with identified individuals such as the local community leaders, religious leaders of the area, officers of development agencies and any other persons that the Project Team could find as important for the same purpose.

The objective of these discussions was to motivate the said selected stakeholders through closer interactions to share critical information and experience, express their views and opinions and extract likely tacit knowledge on specific potentials and the critical issues related to the Greening of the local areas. These stakeholder discussions were arranged by the EML field coordinators.

There were two FGDs arranged in the Mannar UC area. The details of the discussions, the participants and the details of discussions are given in Annexure 5.3.

The summary of the outcome of these FGDs is given below:

5.5.1 Major Resources and Potentials for Greening

a. The iconic location of Mannar and plenty of natural and marine resources (Sandy beaches, coastal resources, minerals and related ecosystem services)

b. High potential for tourism developments

c. Greater potential for the development of renewable resources such as wind and solar power

d. Significant culture and heritage of Mannar

e. Potential for the establishment of industries and economic development.
5.5.2 Major Issues and Constraints towards Greening

a. Unplanned and stagnated urban development process in the city area.
b. The negligent approach of national & provincial authorities on Mannar UC service improvement.
c. Serious social issues (poverty, drugs, high rate of unemployment, ethnic disharmony, higher rate of women-headed families etc.)
d. Negligence of basic duties by the UC (solid waste Management, drainage, public toilets, sewerage, leisure facilities, recreation facilities, library & reading room facilities, vehicle parking facilities etc.)
e. Absence of Hazardous waste management system (Clinical & surgical waste from Hospitals And dispensaries, Offal of slaughterhouses and fish markets, dangerous and offensive waste from Funeral Parlors)
f. Vulnerable to natural disaster (flood - twice a year, surge, drought and cyclone)
g. Absence of awareness among public on clean city and waste disposal principles
h. Land ownership issues on future developments
i. Extraction of natural resources (Soil excavation, clearing the mangroves)
j. No safe crossing for pedestrians in the town area
k. No proper vehicle parking in the town area
l. Waterborne diseases
m. No proper management of tourist spots
n. The problem of stray dogs and cattle
o. No public market

5.5.3 Ongoing and Proposed Projects that can have an impact

a. Renovation of Internal Roads (Emilnagar, Pallimunai East, Savatkattu, Uppukulam North and Pettah GNDs)
b. Renewable Energy Project by SEA
c. Livelihood Assistance Program
d. Water and Sanitation facilities program specially designed for the construction of toilets for Mannar DS areas.

5.5.4 Proposed Projects by Local community

a. Common market
b. Drainage system
c. Boat berthing place
d. Solid waste management
e. Reconstructing the roads
f. Constructing the proper vehicle park in the city
g. Protecting the natural resources
h. IT and Entertainment parks or leisure parks
i. Encouraging livelihood activities, Industrial parks in order to increase the economy of the public.
It was revealed at primary workshops and FGD sessions that a large segment of residents suffers due to haphazard solid waste management-related issues, wastewater stagnated related issues, stray animal menace (Cattle, Ass, Dogs), variety of issues related to unplanned City (lack of parking spaces, absence of Public Market, lack of Pedestrian crossings, risk of Road safety, absence of Leisure facilities, lack of Public Toilets etc.) related issues. Therefore, they are under the impression that with this new concept of Green City, the current heavy burden of environment-related concerns would be minimized eventually.

However, the majority of these problems have a direct relationship with the mandatory role of the Mannar Urban Council (MUC). It is evident that the limited resource base of the MUC does not permit to overcome all these problems even within a medium-term planning process. Therefore, national, subnational and donor involvement is essential along with meaningful deliberation of the MUC in transforming this Island city to achieve its objective.
## 5.6 Summary of the findings of Stakeholder Consultation

<table>
<thead>
<tr>
<th>Stakeholder Aspirations</th>
<th>Major Potentials and Opportunities identified by the Stakeholders</th>
<th>Main Constraints and Challenges Identified by the Stakeholders</th>
<th>Strategies proposed by Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conservation of the natural resources and environmental systems</td>
<td>An environmentally friendly coastal city that ensures the sustainability of natural resources and ecosystem services</td>
<td>1. Encroachment, unauthorized filling and putting solid waste and debris. 2. Increasing Donkeys and Stray Dogs in the area. 3. Not having proper guidelines, standards and necessary infrastructure 4. Less awareness among the public of the protection and conservation of natural resources 5. The dilapidated condition of retention ponds</td>
<td>1. Preparation of a development plan to boost productivity by enhancing natural capital in the air, water, soil and ecosystems 2. Preparation the special management strategies to protect the sensitive environment within the proposed development plan.</td>
</tr>
<tr>
<td></td>
<td>1. Having very rich biodiversity areas and natural resources (Vankalai Sanctuary was Declared as a ‘Ramsar’ site) 2. Availability of rich fishery ground in and around. 3. Natural sand dunes 4. Dense growth of sea grass, coral reef and sandy beaches</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Preparation of a development plan to boost productivity by enhancing natural capital in the air, water, soil and ecosystems 2. Preparation the special management strategies to protect the sensitive environment within the proposed development plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sustaining the unique features of the social capital and cultural capital</td>
<td>A culturally significant regional town with the positive attitudes and mindset of public</td>
<td>1. Lack of awareness among the local community and social organizations on development projects 2. Unemployment issues 3. Drug addiction among the young generation leads to several social issues.</td>
<td>1. Awareness program for the local community 2. Create job opportunities for a young generation 3. Vocational training centre</td>
</tr>
<tr>
<td></td>
<td>1. Cultural significant 2. Availability of labour forces</td>
<td>1. Lack of awareness among the local community and social organizations on development projects 2. Unemployment issues 3. Drug addiction among the young generation leads to several social issues.</td>
<td>1. Awareness program for the local community 2. Create job opportunities for a young generation 3. Vocational training centre</td>
</tr>
<tr>
<td>3. Provision of Safe, Comfortable, and Inclusive Public Realm and Public Spaces</td>
<td>To give a good and memorable sense for the visitors who enter to Mannar Island and create a safe public realm and public spaces for the local community.</td>
<td>1. Natural hazards (flood, erosion, coastal surge, drought, lightning and high wind) 2. Most of the areas below mean sea level 3. Not having strong coordination among development partners and overlapping some duties and responsibilities among institutions.</td>
<td>1. An integrated approach to developing green and blue network of Mannar. 2. Preparation of a Comprehensive drainage plan and environmental plan as an integral part of Development plan. 3. Identification of untapped resources and open up undeveloped areas.</td>
</tr>
<tr>
<td></td>
<td>1. Availability of enough bare lands and vacant lands. 2. Undiscovered and undeveloped areas suitable for tourist destinations, recreational spaces and open spaces.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Energy Conservation and Clean Energy usage</td>
<td>N/A</td>
<td>1. Lack of investments on the renewable energy sector</td>
<td>1. Implementation of an awareness program on the use of clean energy</td>
</tr>
<tr>
<td></td>
<td>1. Availability of renewable energy sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Green Buildings that foster Human Health</td>
<td>N/A</td>
<td>1. Lack of knowledge in green building</td>
<td>1. Educate the public on use of green buildings and clean energy and model green building</td>
</tr>
<tr>
<td></td>
<td>1. Institutional capacity to implement the green building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Sustainable modes of Local Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper interior road networks and improvement of the transportation amenities</td>
<td>1. Institutional capacity</td>
<td>1. Inefficiency public transportation network in suburban areas and interior villages</td>
<td>1. Proposal to develop the sub arterial roads</td>
</tr>
<tr>
<td>2. Absence of a proper vehicle park in Mannar town</td>
<td>3. Traffic signal system in town area not arranged</td>
<td>2. Public consultations need to be conducted before the implementation of a project</td>
<td></td>
</tr>
<tr>
<td>3. Engineering and technical experts should be involved in the designing of roads</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 7. Clean, Green and Efficient Public Services in-house & outside

| Proper public services through the modern technologies | 1. Inadequate financial allocation for waste management |
| 2. Unsatisfactory management of public services |
| Lack of adaptation to modern technologies |
| 3. Absence of PHI for the LA. |

#### 1. Formulation of bylaws to strengthen the LA
#### 2. Adaptation of new technologies and concepts for waste management and increase the waste collection schedule

### 8. Resilience towards disaster and pandemic situations

| Disaster adaptation through proper surface drainage networks system | 1. The public in a position to change their mindset to reduce the hazard. |
| 2. Availability of an agency to handle the issue |
| 1. Occurrence of flood, drought and cyclones |
| 2. No proper safe places during the disaster occurrences |
| 1. Awareness programs on climate change and disaster resilient |
| 2. Establishment of safety locations during flood |

### 9. Sustainable Solid and Liquid Waste Management

| Efficient solid waste management and positive attitudes of the public | 1. Availability of resources and system to implement better SWM. |
| 1. Lack of proper solid waste management |
| 2. Disposal of hazardous waste in coastal areas and public spaces |
| 3. Lack of labour force and funding to implement the proper solid water management |
| 4. The inefficiency of compost plant’s operation |
| 5. Public mindset on waste disposal and waste segregation |
| 1. Introduce the new concepts and technologies for SWM. |
| 2. Increase the manpower and machinery |
| 3. Establishment of a proper dumping site with applicable guidelines |

### 10. Storm and Surface Water Drainage

| Systematic drainage network for storm water and wastewater disposal | 1. Availability of constructed main channels |
| 1. Lack of proper drainage system |
| 1. Construction of new sub channels and connect with the available main channels |
| 2. Get advice from engineers and technical experts in this matter. |
CHAPTER - 06

INDEPENDENT STUDIES ON MANNAR

Note: Chapters 1 – 3 are in the Volume I of this Report.
6. INDEPENDENT STUDIES ON MANNAR

6.1 Geo-Spatial Analysis:

Mannar Urban Council is located in Mannar District in the Northern Province, bordering the South-Eastern coast edge of the Mannar Island, in the Dry/Arid Zone of the country. The area falls within Hydrological Zone 2 and Agro-ecological Zone DL3 with an annual average rainfall of 500 – 1,000 mm. The nearest principal gauging station in Mannar records an average annual temperature of 29.5 °C (85.1 °F) with an annual average rainfall of 749 mm (29.5 inches). The climate is affected mainly by the Second Inter-monsoon Season (October-November) and Northeast Monsoon Season (December - February) with severe rainfall and a lesser bi-modal weather pattern is shown no or rarely intermittent showers in the Southwest -monsoon Season (May - September). The highest rainfall is recorded during the period from October to January, and the period from June to August/September is the time of dry weather. Accordingly, the driest months are June and July while the highest amount of precipitation occurs in November and December, with accumulated monthly rainfall values usually exceeding 150 mm.

The terrain in the area is extremely flat with undulations as it is situated in the Lowermost (First) peneplane (0 – 300 m MSL). The average ground profile elevations range from 0 – 6 m MSL with only some areas rising up to 8 m MSL in sporadic locations. In terms of topographic features characteristic of flat terrain with no undulations and sub-zero elevation lowland areas, the main soil types of the area are Sandy regosols, which are usually dry in nature with fluctuating water tables.

![Figure 6-1: Overview of Mannar UC from Google Satellite Image – 2021](Source: Survey Dept. and UDA)

6.1.1 Spatial Distribution

The Mannar Urban Council covers an area of 14.11 km². There are 15 Grama Niladhari Divisions within that limit. According to the Resource Profile of Mannar urban council 2019 bellow table been created. With reference to the document, there are 24,414 population living within the DSD with around 5,879 Houses. Highest Population remark in Eluthur Grama Niladhari Division and it’s with 3452 population in 2.62501 km² land extend at the same time, lowest Population remark in Periyakadi Grama Niladhari Division and it’s with 672 population in 0.22 km² land extend. The average population of Grama Niladhari Division was around 1628 (Total population Dive into number of GNDs)
6.1.2 Distribution of Transport Network

As per available sources, the total length of the main road segments (Class A, B and C) have recorded as 28Km out of which the A14 national highway that connects Madawachiya and Talaimannar demarked with the length of 18Km within the Mannar UC boundary. The type A, B roads are mainly managed by RDA while the type C roads (Approx. 130Km) are managed by Mannar UC.
Table 6-1: Table of Road Lengths of Existing Road Network – Mannar UC

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Road Length (meters)</th>
<th>% of Total Road Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Roads</td>
<td>2,782.30</td>
<td>2.12</td>
</tr>
<tr>
<td>Existing Other Roads</td>
<td>128,666.26</td>
<td>97.88</td>
</tr>
<tr>
<td><strong>Total Road Length</strong></td>
<td><strong>131,448.56</strong></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Survey Dept. and UDA)

6.1.3 Administrative, Public, Health and Other Institutions Distribution

Table 6-2: Table of Extents of Admin, Public, Health and Other Institutions - Mannar UC

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Extent (ha)</th>
<th>% of Total Extent of Mannar UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration Institutions</td>
<td>14.13</td>
<td>0.96</td>
</tr>
<tr>
<td>Health Institutions</td>
<td>8.62</td>
<td>0.58</td>
</tr>
<tr>
<td>Other Institutions</td>
<td>4.51</td>
<td>0.31</td>
</tr>
<tr>
<td>Public Institutions</td>
<td>2.34</td>
<td>0.16</td>
</tr>
<tr>
<td><strong>Total Extent</strong></td>
<td><strong>29.59</strong></td>
<td><strong>2.01</strong></td>
</tr>
<tr>
<td>Total Extent of Mannar UC</td>
<td>1,474.28</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Survey Dept. and UDA)
6.2 Environmental System Analysis

Mannar has both coastal and land-based ecosystems that support a diversity of fauna and flora. These ecosystems vary from coral reefs, seagrass and sea weeds, sand dunes, salt marshes, Mangroves, dry evergreen shrub forests and woodlands.

![Figure 6-5: Palm groves in Mannar](image1)

![Figure 6-6: Vankali wetlands](image2)

The major mangrove patches near the Mannar city in the areas are found in the areas of Vankalai and north of the Mannar town (Kanankottiko). Major species of mangroves found are *Sonneratia cassowarises*, *Avicennia marina* observed. Rare mangrove species *Pemphis acidula* which has being recorded as available only at Puttalam lagoon so far was recorded at Achchankulam\(^1\). It is observed that *Prosopsis juliflora* (commonly known as Kalapu Andara) the thorny woody tree has become invasive in most of the coastal areas of Mannar. This is an invasive plant recorded in many other parts of the island. When travelling towards Thalaimannar several Bayobab trees too are found. Most of the island fringing mangroves is scrub mangroves mainly comprised of *Avicennia marina*. The reason for the shorter stature could be prevailing long term of droughts, high saline conditions and frequent cutting by humans for security reasons.

![Figure 6-7: Bayobab tree](image3)

![Figure 6-8: Sea Beach in Mannar city](image4)

Sea grass habitats are considered to be among the most productive submerged systems. Most common sea grass species found in the shallow bays of Mannar Sea is *Enhalus acoroids*. Other species common to the area are *Cymodacea rotundata*, *C. serulata*, *Syringodium isotifolium*, *Halodule pinifolia*, *H. uninervis* and *Halophila ovalis*. Very shallow pans area mostly exposed to the air and in these salt flats, *Halophila ovalis* and *Ruppia maritima* are observed.
The shallow sea grass is a useful habitat for several herbivores such as turtles, birds and marine mammals (*Dugon dugon*). Many species of prawns and fish use the sea grass meadows as nurseries and even as adults are dependent on sea grasses for the food and for breeding. Hence sea grass ecosystems are very high in diversity compared to the ecosystems where sea grasses are not present. There are 15 sea grass species are found in Sri Lanka and are most of them are associated with seas weeds in Mannar coast. Mostly, sea weed *Gracillaria* is found to be associated with sea grasses. Brown algae Sargassum spp, *Turbinaria* also dominate in these habitats.

Salt pans or salt marshes are also found lining the mangrove areas which are dominated by *Salicenia* spp which turns reddish as they mature and gives a mosaic of colours to the areas.

The area has been gifted with a considerable donkey population, brought into Mannar island during Dutch ruling of the area. Donkeys have been freely breaging since late 1600s and by now the count has increased 100. At times they have been reported to have caused nuisance to residents and spreading diseases among children. They too have been the cause of many road accidents because astray behavior with no guardians. However, a few NGOs have recently implemented a caregiving service for these animals who have no other means of survival.
6.2.1 Natural Resources Distribution

Figure 6-11: Map of Existing Natural Resources – Mannar UC
(Source: Survey Dept. and UDA)

Table 6-3: Table of Extents of Natural Resources – Mannar UC

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Extent (ha)</th>
<th>% of Total Extent of Mannar UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coconut</td>
<td>45.10</td>
<td>3.06</td>
</tr>
<tr>
<td>Grass Land</td>
<td>35.45</td>
<td>2.40</td>
</tr>
<tr>
<td>Mixed Tree (Coconut, Palmyra, Scrub)</td>
<td>22.43</td>
<td>1.52</td>
</tr>
<tr>
<td>Salt Pan Area</td>
<td>65.86</td>
<td>4.47</td>
</tr>
<tr>
<td>Sand</td>
<td>50.58</td>
<td>3.43</td>
</tr>
<tr>
<td>Scrub</td>
<td>378.96</td>
<td>25.70</td>
</tr>
<tr>
<td>Sea Shore</td>
<td>38.71</td>
<td>2.63</td>
</tr>
<tr>
<td>Water Bodies</td>
<td>72.12</td>
<td>4.89</td>
</tr>
<tr>
<td><strong>Total Extent</strong></td>
<td><strong>709.22</strong></td>
<td><strong>48.11</strong></td>
</tr>
<tr>
<td><strong>Total Extent of Mannar UC</strong></td>
<td><strong>1,474.28</strong></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Survey Dept. and UDA)
6.2.2 Water Resources Distribution

Figure 6-12: Map of Existing Water Resources in Mannar UC  
(Source: Survey Dept. and UDA)

Table 6-4: Table of Extents of Water Resources in Mannar UC

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Extent (ha)</th>
<th>% of Total Extent of Mannar UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Bodies</td>
<td>72.12</td>
<td>0.05</td>
</tr>
<tr>
<td>Total Extent</td>
<td>72.12</td>
<td>0.05</td>
</tr>
<tr>
<td>Total Extent of Mannar UC</td>
<td>1,474.28</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Survey Dept. and UDA)

6.3 Hydrology and Drainage

6.3.1 Water Resources

The Mannar UC is entirely located within the 3.0 km ~ 4.2 km wide island strip of naturally compacted beach dune sand that forms Mannar Island. The tidal variation is approximately 0.45 m ~ 0.60 m in this area. The topography of the Mannar UC area can be described as generally a flat morphology with a mild slope towards the coastal beach sands on either side of the island. Due to the extremely flat terrain and high permeable topsoil conditions in the area, except for the South Bar Pond and several dry canals or ara, there are no other natural water bodies within the Mannar UC area. The small sized Kora Kulam Tank/Reservoir is located outside the UC bounds on North-west edge. The natural drainage after rainfall is presumed to occur as thin sheet flow in flat terrain and mainly runs towards these dry canals and shoreline of the ocean.

6.3.2 Hydrology and Drainage

There is no proper drainage canal network in the Mannar UC area. The existing dry canal network which also functions as stormwater release means and is termed as ara or drainage channels in the Mannar UC area is an important landmark in the city topography. In the absence of a proper drainage network in the city, these partially established drains convey
the accumulated stormwater runoff generated in the city into the sea during rainy periods. However, these channels frequently overflow and lead to localized floods and inundation on flat terrain due to capacity inadequacy, low gradient flow and manmade causes like blockages due to encroachment and solid waste dumping, causing disturbance to the day to day life of the city communities.

The canal banks and reservations are not properly maintained due to the reason that they remain dry during the non-monsoonal period with no flows and unauthorized constructions and solid waste dumping have blocked or reduced the channel flow conveyance capacity further worsening the existing drainage problems.

Increased rainfall intensities during the wet period and extended droughts in dry periods are predicted as a result of impending climate change impacts. These extremities are expected to exacerbate the flooding issues frequently observed during the northeast monsoon period with strong storm activities and extreme events occurring at an increasing frequency over the recent past.

![Figure 6-13: Hydrology, Drainage and Water Resources in the Mannar Urban Council area](image)

Further, the drainage canals and minor water bodies in the township area are polluted due to the dumping of solid waste as well as due to the illegal connection of sewage water/household waste pipes or drains to canals/drains. At present, only a part of Mannar UC or town area has a proper drainage network, and the other areas do not have a planned drainage network, despite the long-felt need. Frequent stormwater stagnations are occurring in the rainy seasons due to dilapidated surface drainage networks. Potable water pollution due to waste dumping, and encroachment of canal reservations are compounding the above inadequacies in surface and sanitary drainage.

**6.3.3 Current Status of Drainage and Flood Management**

Mannar township has no drainage management master plan and local regulation on drainage and flood/drought control yet, although these are urgently needed prior to implementing further development activities. At present, responses to drainage issues are ad hoc, mainly by engaging communities and authorities in a periodical or occasional cleaning of drains, and desilting/dredging canals to remove excessive sediment. Detailed engineering designs (DED) should be prepared for all sub-catchments with an integrated approach to urban flood risk management, with construction and
maintenance implementation on a priority basis. There is insufficient enforcement of discipline in properly disposing of household, commercial, and industrial wastes which should also be addressed in future development plans.

6.4 Social Network Analysis

The details of the applicable policies, laws and regulations are discussed in detail in a separate section on the institution analysis of this report. Therefore, level of compliance of these policies, laws and regulations are briefly discussed in this section. The organizational structure of the UC has evolved over time and therefore, sound structural arrangements are apparent in the functional order at present. However, the main issues of the UC are not heavily dependent on structure but on its functions. Similarly, the policies, laws and regulations of LGs in Sri Lanka have been continuously enhanced by the Ministry of local government and also its department over time, but their effectiveness depends on their application of them and more importantly on the functions of the LGs.

The UCs have policies and by-laws developed by the Council of LGs comprised, the politics of the elected members inevitably influence the effectuation of such policies and by-laws. For example, some important decisions on development projects, except routine services of LGs, are heavily influenced by the desires and the will of the political authority. On one hand lack of a comprehensive development program with firmly decided short, medium and long-term development projects have paved opportunity for council members to interfere for changes. On the other hand, the necessity to comply with or contest the national and regional level political agendas compels such local-level policies to be overlooked. The understanding gained out of this situation is that the UC is not as autonomous as it is expected by the relevant laws and any project implemented within the UC area and therefore, needs the blessings of the local representatives of the national and provincial level governance. Further, such projects have to be strategically integrated into a superior development program such as the UDA Urban Development Plan, which constitutes of the needy legitimacy and the superiority built into it.

The ineffective application and enforcement of laws contribute significantly to many of the existing social and environmental issues in the areas managed by LGs. The UC is supposed to manage most of the critical aspects of environment with effective coordination of other agencies such as the Road Development Authority (RDA), UDA and CEB. The networking arrangements of the UC have indicated some drawbacks as observed by the Project Team. Information on such drawbacks in managing issues in LG is summarized below.

The area being a major fishery-based economy, there are many village-based fisherman societies those are influential in fishing related decisions. Additionally, the Mannar town area have traders’ association and many smaller three-wheeler driver societies, which can be potentially engaged for the development of the township. Adequate potentials are available with the religious institutions-based organizations. There are a number of Catholic churches in the area and the church communities are highly active in social welfare activities. Similarly, the Hindu and Muslim communities are also present and organize many activities in the area. Mobilization of these communities towards Green city initiatives and the awarding custodianship of the projects on them will be strategic for the sustainable implementation of the plan.

The Mannar UC at present does not have its own projects and programs for the development of social and cultural capitals. Lack of practices in participatory management approaches within UC is one of the significant features reflecting poor social capital. The interactions and the meetings of the UC are confined to few segments of the staff. Therefore, potential for getting entire staff as contributors for achieving the vision of the UC has not been properly materialized. Despite many potentials available to develop effective interaction with relevant external stakeholders such potentials have not yet been properly captured.

The potentials identified by stakeholders can be regarded as seeds for Mannar UC to improve its land areas in its jurisdiction. These stakeholders perceived some features that they would prefer to see in future in Mannar after the implementation of green-friendly interventions. They also identified some factors as potentials to enhance Mannar as green city. These agency-level stakeholders were aware some of the constraints available for Urban Council to attempt at removal during green city implementation project.
The agency stakeholders participated in the workshop made a few suggestions for UC to attempt at the institutional strengthening process. These suggestions include;

- Conducting community awareness workshops and explain about the unity and participation in the city development process
- School children focused awareness programs and environment-friendly attitudes development activities
- Conducting integrated workshops for the officers in different institutions/organizations
- Giving opportunities, leaderships and responsibilities to the youths
- Incorporate the general public in the decision-making process

However, the possibilities expressed by agency personnel and community leaders are not comprehensive enough to realize the expectations on the development of social and cultural capitals. The cultural components of the institutions such as respecting the knowledge and experience of stakeholders, prepared to share such knowledge and experience, transparency in decision-making, the principle of inclusion and accountability can be strengthened in the UC.

A comprehensive institutional development program will be proposed under the green city project for strengthening the capacity of institutions in LG. This project will include interventions to enhance knowledge and skills of relevant stakeholders. It is expected that such skills developed will lead to cultivate positive attitudes among them. EML consultants recommend to develop capacity enhancement program as in-built component of all other physical development interventions to be implemented under the Green City project.

6.5 Built Environment Analysis

6.5.1 Current status:

Mannar Administrative area consists of 14.11km² and 15 Grama Niladhari Divisions within the Urban Council Limits. It has tropical weather conditions (within the Dry Arid zone). Mannar town area is very flat, and a notable feature of the topography is the low elevation towards the interior of the island. The highest point on Mannar Island is 0.75m in elevation above mean sea while however, some areas of the Mannar Island have an elevation that is lower than mean sea level.

The Mannar UC area has a special landscape with the coastal setting, Moderate land cover, bordering to the famous Vankalei wetland sanctuary and the sea at its three sides. Notable current status of the built environment is not having high density areas compared with other coastal cities in Sri Lanka.
According to the above table, the predominant land use categories in the Mannar Island are Mixed Trees (Coconut, Palmyra, Scrub etc.) (8,095 ha, 58%), Scrub (1,315 ha, 10%), and Residential (1014 ha, 8%) respectively. A considerable portion of the UC area are either below or at the mean sea level. The natural ponds and canal-based drainage system, which had been protecting the area from floods, was badly encroached for various uses. Due to the Impact of climate change both coastal vegetation and green spaces are diminishing very rapidly.

It is noted that though Mannar has enough vacant land and scrub jungles, most of them are privately owned. Another special characteristic is that the internal roads are very narrow and poorly maintained. Natural hazards such as flood, erosion, coastal surge, drought, lightning and high wind are frequently reported.

6.5.2 Existing Open Spaces, & Vacant Lands, Recreational Places and Barren Lands Distribution

Figure 6-14: Existing Land use of Mannar Town:

Figure 6-15: Map of Open Spaces & Vacant Lands, Recreational Places and Barren Lands in Mannar UC
(Source: Survey Dept. and UDA).
Table 6-5: Table of Extents of Open Spaces & Vacant Lands, Recreational Places and Barren Lands in Mannar UC

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Extent (ha)</th>
<th>% of Total Extent of Mannar UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barren Land</td>
<td>24.80</td>
<td>1.68</td>
</tr>
<tr>
<td>Open Space &amp; Vacant Land</td>
<td>24.98</td>
<td>1.69</td>
</tr>
<tr>
<td>Recreational Places</td>
<td>8.24</td>
<td>0.56</td>
</tr>
<tr>
<td><strong>Total Extent</strong></td>
<td><strong>58.02</strong></td>
<td><strong>3.94</strong></td>
</tr>
<tr>
<td>Total Extent of Mannar UC</td>
<td>1,474.28</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Survey Dept. and UDA)

Mannar UC has Open Spaces & Vacant Lands a total of 25 ha (1.69%), Barren Lands 24.8ha (1.68%) and Recreational Places 8 ha (0.56%).

6.5.3 The existing policies, laws, and regulations applicable and the level of compliance

According to the National Physical Plan, Mannar city is identified as one of the main cities.

Mannar Town Council area was declared as urban development area on 1st June 1979 under the Urban Development Authority Act No: 41 of 1978.

6.5.4 The potentials for improvement and constraints to move forward

- Guild line and directives of approved national physical plan
- Approved development plan of Mannar
- Availability of Disaster resilient city programme.
- Undiscovered and undeveloped areas suitable for tourist destinations, recreational space and open space.
- Availability of basic infrastructure and municipal services
- Availability of social infrastructure (health and education) in satisfactory level except open spaces and recreational facilities.

6.5.5 Comparison of the possibilities as against the expectations

The expectation of the stakeholders of Mannar is very positive and ready to accept new changes and trends. Their main expectation is to develop an environmentally friendly coastal city that ensures the sustainability of natural resources and ecosystem service. There are enough potential to develop green and blue network of Mannar. There is a possibility to prepare a comprehensive drainage plan and environmental plan as an integral part of the development plan. Identification of untapped resources and open up undeveloped areas is a key factor to open up the new avenue to generate income in the city of Mannar.

6.6 Institutional and Legislative Framework Analysis

6.6.1 Institutional Framework:

The Mannar Urban Council consists of 07 wards and 16 councilors including the Chairman and the Vice Chairman and three female Members within an area of 14.11 Sq.km. The annual budget is Rs.210 ml. The total staff strength is 120 (approved cadre) and currently MUC is running with 96 staff members and 24 vacancies. The one of the notable features is that there is no Committee setup established form the very inception. The Sec. 29 of the Urban Councils Ordinance
has made provisions to have Committees jointly with Councilors and prominent citizens of the city jurisdiction “for the purpose of advising the Council with reference to any of its powers, duties, or responsibilities or any matter under the consideration of the Council, and may from time to time, subject to such instructions or conditions as it may determine, delegate any if its powers or duties to such Committees other than the power to raise any loan, to levy any rate, or to impose any tax.” Accordingly, if the MUC wish to have this opportunity the Council has the option to create such committees as a participatory tool for the city administration. Presumably, if such a system was in placed the proposed Green City initiatives could have been implemented through the participatory approach.

The internal departmental structure of the MUC for efficient decision-making and service delivery ought to be critically reviewed and following navel features are proposed. In order to ensure line responsibility immediately under the secretary (SLASii-ii) (the chief administrative officer) instead of currently limited units, following heads of departments to be introduced

1. Internal Administration – Administrative officer (Management Assistants Service Supra Gr.)
2. Accountant (class-ii-ii) to oversee Revenue, Expenditure, Budget, Procurement, and Stores.
3. Civil Engineer (ii-ii) and a post of Superintendent of works (Technical Officer Gr. i) to look after the Roads, Buildings, Drainage, Solid Waste Management, Sewerage, Water Supply, Street Illumination, Playgrounds etc.
4. MOH/CPHI to lead the Public Health Department, to be charged with Public Health & Sanitation etc.
5. Veterinary Service Department with a Veterinary Officer to oversee Markets, Food Safety, Dangerous & offensive Trades Slaughterhouses, Fish & Meat stalls, Cemeteries & Burial grounds etc.
6. Local Government Officer (LGA) or similar senior officer to look after all Welfare activities including Libraries, Community Centers, Recreational Facilities and Environmental matters etc.
7. Fire Safety Officer to manage Fire Prevention and Control Department to ensure public life and properties of the Town and its inhabitants.
There is sufficient space for the MUC to go for cadre revision and the expansion of the existing organization structure in the wake of this new program because entire provincial administration including ACLG, CLG and the Chief Secretary have given their advanced approval for Mannar Urban Council to be the first Green City in the Northern Province.

### 6.6.2 Legal Framework:

The Legal framework of MUC primarily consists of following legal instruments.

- a. Governing Legislations (UCO)
- b. Other related Legislations
- c. Provincial Statutes
- d. Subsidiary Legislations (Stranded By- Laws, Council By- Laws, Regulations, Rules, and Orders)

All these legal instruments are being applied by the MUC in its day to day routine city administration and service delivery operations. UCO has given comprehensive legal provisions on Powers, Duties, Functions, Responsibilities and the Role of the Council, the Chairman, Secretary.

At the same time as, entire concerns cannot be addressed by a particular piece of legislation, in addition to the UCO there are number of other laws which are directly as well as marginally related to the subject of Local Government. For instance, Town & Country Planning Ordinance, Butchers Ordinance, Entertainment Tax Ordinance, Urban Development Authority Law, and Interpretation Ordinance could be sighted. There are nearly a hundred legislations of that nature and many of them must be referred when some important decisions are taken by the Council. The Northern Provincial Council has made very few Local government Statutes so far, but it has formulated a updated set of Stranded By-Laws for all LGs.

However, at FGD sessions various segments have pointed out that Law enforcement aspect is very weak in many instances by MUC authorities. The main reason behind this unsatisfactory situation is that elected Councilors as well as appointed staff do not familiar with the existing legal provisions as they never associate with this legal literature both in their official or Private life. To overcome this the Council may provide separate set of all essential Laws, Statutes, By-Laws, Rules etc. in a briefcase to be used only at the Council / Committee meetings for the Councilors.

### 6.6.3 Service Delivery:

The Mannar Urban Council area consists of relatively a small extent of land mass with 14.11 sq. km (1411.26-ha.) spread through 15 Grama Niladari divisions. The population of the MUC area is 24925 in 2020 with 7023 families and their main livelihoods are Fishery, Commercial or Trading related activities, Agriculture & Livestock. Comparatively MUC has limited number of public services such as three markets (there is no central public market in Mannar), three playgrounds, three libraries, three cemeteries, 13 community centers, and one public well.

The total road network in Mannar is 167KMs, out of which 137 Km. Class iii roads are owned and maintained by the MUC. The daily solid waste collection in UC limits recorded as 28 MTs and the compassion of collected waste counts 68% residential, 28% commercial and 4% as industrial waste. It was revealed at the focus group discussions that there is no systematic way of solid waste disposal in the city, but haphazardly dumping taking place in low-lying areas in the vicinity.

Other than the MUC-controlled activities there are certain socio-cultural service providers such as educational, health and religious entities in the city limits. Accordingly, there are 37 schools, and five health care centers including one base Hospital. (350 beds) The city population is divided predominantly among four religious groups such as Buddhists-2.38%, Catholic-52.38%, Islam-16.67%, Hindu-28.57%.

The total expenditure of MUC for the year 2020 is Rs. 210 Ml. and out of which Rs. 54.3Ml. has spent on public health, Rs. 81.8 Ml. has spent on physical planning (roads & buildings) Rs. 7.1 Ml. has on water services, Rs. 2.0 Ml. on utility services and Rs. 1.4Ml. has spent on welfare services. According to the findings of the FGDs stakeholders repeatedly alleged the council over poor basic services such as interior roads, solid waste management, absence of road crossings,
public toilets, public leisure facilities, and poor condition of the public library as well as the stray animal menaces (Dogs, Cattle, Donkeys) which should be under the purview of the MUC.

In this backdrop with the limited income of Rs. 210 Ml. per annum it is obvious this LG is struggling to meet the heavy service demand of the ratepayers of the city. As there are a number of potentials in Mannar to be a green city (natural clean beach, mangroves & vegetation, less air, and noise pollution) external support both in terms of financial and technical are essential.

6.6.4 Administration:

Mannar Urban Council’s current administrative setup is a long standing one derived from the former Pradeshiya Sabha the predecessor of the present UC. Still the limited scope, as well as functions, have been continued in many service delivery aspects such as engineering, health & sanitation, leisure & welfare activities and safety of the city life and the property which cannot be cope up with the growing service delivery demand of the residential and business community of the city.

As the prime LG of the District MUC administration should organized with fully equipped engineering department comprising of up to date vehicle maintenance unit a fully equipped drainage division. In addition, the solid and liquid waste management related functions also should be handled more professionally by the engineering department to ensure the service efficiency.

As already stated above under the institutional analysis, the public health department should be brought under the MOH of the area and reorganize with fully equipped Maternity & childcare unit, food hygiene & security unit, Hazardous waste control unit etc. Moreover, a new up to date fire controlling & prevention department should be established as a priority basis to look after the entire Mannar Island and the mainland LA’s interests in terms of public life and the property. The other most significant service area is the welfare, leisure, and sport facilities. Under this new department there must be different sub- departments with senior qualified staff for Public Libraries, Playgrounds, Gymnasiums, Swimming Pools and to manage all welfare activities of the city dwellers.

6.6.5 Governance:

The Mannar urban Council was established in 2006 carving down the township of mannar town area from the former Mannar Ps. However, this was co-terminus with the Mannar Town Council which abolished in 1987 to create Pradeshiya Sabha as its successor. With the introduction of LG electoral reforms re-introducing the ward system and ensuring increased women participation in 2017 by the LGs Elections (Amendment) Act No. 16 of 2017 the MUC consists of 7 wards and 16 members including 03 women representatives at present.

In terms of the provisions of the Urban Councils Ordinance section 29 (1) the council has empowered to appoint committees consisting either of council members or partly of members of the council and partly of the members of the inhabitance of the town,

However, despite this clear legal space, MUC has not taken action to appoint committees for the past 15 years history of the council. With the appointment of such committees, the council could get relieved from routine administrative and service delivery functions by delegating them to respective committees and devote its time and energy more for policy and legislative processors which are significant for visionary & strategic city administration. There is a fine opportunity for the MUC to pay its critical attention and appoint committees with gender balance in next January as per above legal provisions to manage incoming green city administration for the year 2022.
6.6.6 Current Legislative Provisions:

Current legal provisions related to green city program for the MUC could be summarized as follows.

i. Provisions of governing legislations

Basically, Urban Councils Ordinance No. 61 of 1939 (chapter 255) contain legal provisions related to all service delivery aspects which are connected to greening concepts.

ii. Provisions of other related legislations

There are considerable number of pieces of legislations under this category such as Town & Country planning Ordinance No. 13 of 1915 (Chapter 193), Butchers Ordinance No.19 of 1893 (Chapter 272), Nuisances Ordinance No15 of 1862 (230), Cemeteries and Burial Grounds Ordinance No. 9 of 1899 (Chapter 321), Registration of Dogs Ordinance No. 25 of 1901 (Chapter 477), Central Environmental Authority Act No. 47 of 1980, Urban Development Authority Law No. 41 of 1978, Coast Conservation Act No. 57 of 1950, National Water Supply & Drainage Board Law No. 2 of 1974.

iii. Provincial Council Statutes

Under this category statutes passed by the Northern Provincial Council will be taken into consideration if any.

iv. Provisions of subsidiary legislations

Under this category Urban Councils standard by-laws published in Government Gazette No. 1952/15 of 02 02 2016 by the Minister of Local Government of the Northern Province are being taken into consideration. These new standard by-laws are quite amenable to the prospected green city concepts and participatory governance approaches. Likewise, the provisions of the UCO and other legislations are having many pro-green provisions, particularly in terms of service delivery aspects.

6.6.7 Available Systems

Basically, Mannar Urban Council’s existing city administrative systems and service delivery systems should be taken into consideration in this respect. Urban Council administrative systems have been organized under the guidance of the legal and administrative procedures provided by the successive Local government Departments and Commissioners of LGs (CLGs) from time to time since very inception.

Accordingly, MUC’s General Administrative system, Council Administration system, Financial Management system, Procurement & Stories Management system and Audit system can be considered as prominent available internal management systems. These systems are very much amenable to green concepts through the application of information technology and paperless office automation concepts.

The second category, service delivery systems such as roads & building construction and maintenance systems, solid waste collections and disposal systems, Drainage management systems, Disaster Mitigation systems, welfare service provision systems and so on are predominantly based on conventional methods using outdated technology and tools. With the introduction of green concepts through dynamic capacity building and in-house training programs existing outdated service delivery systems could be modified, and new green-friendly systems would be incorporated into the MUC administration.

6.7 Solid and Liquid Waste Management

Effective and efficient Solid and Liquid Waste has been considered as one of the essential requirements of a Green City. The following sections highlight the findings of the Project Team on the status of waste management in Mannar UC.
6.7.1 Solid Waste Management

The Mannar UC is located in the Mannar Town Divisional secretariate area consists of 15 Grama Niladari Divisions. The total area of the UC is 14.11 km². Total population is 24,925. The solid waste collection covers the entire UC area.

The composition of waste depends on the land use pattern of the area. The major land uses of the area are mixed residential, scrub and lowlands, which account for 27%, 25% and 9% respectively. The rest of the land is covered by water bodies, and used by institutional, small and medium-scale industrial and commercial activities. As 75% of the land is built-up area, the waste generation is very high. Out of the total waste, nearly 68% produced by the residential activity and 4% is produced by the industrial sector and 28% produced by the commercial sector (UDA, 2019). According to the information collected from the Mannar UC that 16% are compostable, 1.2% Polythene, 1.2% paper, other non-recyclable waste and the balance large amount of coconut tree waste such as tree trunk, tree leaves, coconut fiber, etc.

Table 6-6: Composition of waste collected from Mannar UC

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Ton / Day</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compostable</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>polythene</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Paper</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>other</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Balance</td>
<td>20.1</td>
<td>80.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 6-7: Composition of waste with the National Level

<table>
<thead>
<tr>
<th>Composition of Waste in %</th>
<th>Compostable / Bio degradable</th>
<th>Paper</th>
<th>Polythene/Plastic</th>
<th>Wooden</th>
<th>Glass</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Level</td>
<td>62</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Mannar UC</td>
<td>16</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td></td>
<td>80.4</td>
</tr>
</tbody>
</table>

Based on the above table, the composition of the waste collected by the Mannar UC is very much different from the national level. According to the UC officials, there are a large quantity of coconut leaves and garden wastes generated in the UC area. Because of this, the composition of waste is very much different from the national level.

In general, 20-25 tons of solid waste generating in the Mannar UC area in a day. Assuming 25 tons/day of solid waste generation in a population of 24,925, the per capita waste generation per day is 1.003 kg/day which is much higher than the National level.

At present, the solid waste collection has been handle by the contracted laborers and the UC labors. The minimum staff is available for supervising the contracted works.

There are 8 Tractors, 2 Compactors, and two Gully bousers are available with the UC for the solid waste operation.

Waste collection is done by the UC hiring part of the labourers from private contractors. Some initiatives have been taken by the UC to source segregation at the household level. But it was failed due to a lack of proper cooperation from the community. At present, the organic waste mainly from road sweeping, garden waste, and the common area clearing/cleaning waste is collected for composting. There is shorted recyclable mixed waste also being collected and processed in Sinnakaddai, a waste processing site. The total extent of the land is 4 Acres. The UC follows a time schedule for the waste collection, but only Thursday is allocated for the recyclable waste collection in certain areas.
Proper waste segregation is not practiced in the Mannar UC area and as a result, large quantities of waste collected by UC are mixed waste which is haphazardly dumped in the Papamodai in 10 Acres about 10 km away from the UC area. With the financial support of the National Solid Waste Management Support Center (NSWMSC) of Ministry of Local Government and Provincial Councils (MOLGPC) a small-scale compost plant has been established in the UC area. The composting plant is located at Sinnakaddai, Mannar. About 4 tons of solid waste is composed and the residue is disposed of in the same premises.

Non-compostable: Plastic (crushed / no crush) & Polythene (no crush) items had been collected from the collection agent from Colombo – 1-3 months.

![Compost Yard](image1.png) ![Dumping site at Pappamodai](image2.png)

Figure 6-16: (A) Compost Yard (B) Dumping site at Pappamodai

### 6.7.2 Waste Water Disposal

The wastewater generated from the domestic level is discharged into the septic tank and stockage pits. No sewerage treatment system is available in the Mannar UC area. There are some houses and business establishments connected their grey water to the common road drains causing bad smell, mosquito breeding due to the stagnation of wastewater etc.

Overflow of the septic tanks particularly during the rainy seasons are collected and treated in a septage treatment system constructed under World Bank-funded Water Supply and Sanitation Improvement Project (WaSSIP) Project at the dumping site in Papamodai. The septage treatment system is not properly maintained as the wastewater is only generated during the rainy season only.

The improper maintenance of the septage treatment system, the sustainability of the process is in question.

The LG officer’s capacity to be updated to the proper maintenance of the treatment plant.
6.8 Energy Systems Analysis

The use of renewable energy is not apparent in the Mannar UC area, with little or no data either from the public or from the LG as to the use of renewable energy or its policies and by-laws. Hence this report will be referring to the national scenario for renewable energy.

Based on the information presented by the Sri Lanka Sustainable Energy Authority, Sri Lanka’s energy demand is currently being catered to by several energy sources consisting of both indigenous non-fossil fuels and imported fossil fuels. Most of the country’s energy needs are met through biomass, an indigenous fuel source, and imported fossil fuels, such as petroleum and coal. The remainder is made up of other indigenous sources which, include large hydro and renewables such as solar, small hydro and wind. Biomass is the second largest energy supply source, satisfying a greater portion of the cooking energy requirements of the domestic sector.

In Mannar area the CEB main grid electricity supply is available to more than 90% of the households. But it is evident that electricity is used mainly for illumination purposes, while LP gas is commonly used for household cooking purposes, and commercial cooking in restaurants, bakeries, and institutions (eg: hospitals). Industrial usage is not that high, but small-scale industries and domestic industries may record a substantial portion of consumption.

Despite numerous setbacks in the power sector, solar energy has broken new ground in commercial progress and in rooftop sector under the programme titled Sooryabala Sangramaya. Social and legal issues continue to hamper the development of new renewable energy projects.

The configuration across sectors may be little different to the national figures where the largest energy consuming sector in is the household, commercial and other sector, using a share of 39.4% of the country’s total energy demand. Transport sector’s share of energy consumption, which was mainly met through liquid petroleum, accounted for a share of 36.3%. The share of the industrial consumption was 24.3%.

6.9 Economy of the Area and the Financial Capacity of Mannar UC

6.9.1 Introduction

The characteristics of the four LGs (LA) under study vary considerably in terms of socioeconomic and environmental conditions, population, ethnicity, and natural, physical and other resources. Mannar district has more natural resources including agricultural lands, a large number of irrigation tanks, forests and coastal resources including lagoons, sea beaches and fishery resources. However, its climate is hot, dry and windy with seasonal rainfall.
6.9.2 Local Government Budget

Estimated or actual budgets (latest budgets available) of the four LGs were examined. The proportion of own revenues to total revenue was low, ranging from 30% to 37% for all LGs except Talawa, where the proportion of own revenue was over 50%. The rest of the revenue came from revenue (recurrent) and capital grants either provided through the government or from aid or project funds. The recurrent grant is paid to the LGs to pay the salaries, travelling and other payments. Thus the LGs depend on government grants to pay the staff salaries. Recurrent revenue grants made up to 93% and 100% of the total grants in Talawa and Bandarawela respectively and 64% in Kattankudy and 27% in Mannar. The LAs are thus restricted to a certain cadre of staff and cannot increase such staff without the approval of the government. Such restrictions thus lower the capacity of the LAs to provide adequate services to the citizens. Capital grants are provided by the government as well by NGOs, state sponsored projects or from foreign aid funds. However, the LG can spend its own funds in financing any capital projects. A high proportion of capital grants (72%) was observed in Mannar and a moderate proportion of 36% in Kattankudy. Capital grants was about 7% in Talawa and 0% in Bandarawela. Nearly 80%-100% of the capital expenditure came from project funds. This suggests that all the LGs are making efforts to obtain funds for new projects and programmes through project funding, which is an encouraging sign as the funding available for many of the activities from other sources is inadequate.

Table 6-8: Revenue Sources of LGs

<table>
<thead>
<tr>
<th>Mannar</th>
<th>Population</th>
<th>25000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Own Revenues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rates &amp; Taxes</td>
<td>Rs M</td>
<td>%</td>
</tr>
<tr>
<td>17.98</td>
<td>22.5</td>
<td>1498</td>
</tr>
<tr>
<td>Rent</td>
<td>30.04</td>
<td>37.7</td>
</tr>
<tr>
<td>Trade Licenses</td>
<td>1.51</td>
<td>1.9</td>
</tr>
<tr>
<td>Service Charges</td>
<td>5.57</td>
<td>7.0</td>
</tr>
<tr>
<td>Warrants &amp; Fines</td>
<td>4.73</td>
<td>5.9</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>19.93</td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>79.76</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Grants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent Revenue Grants</td>
<td>50.62</td>
<td>27.4</td>
</tr>
<tr>
<td>Capital &amp; Other Grants</td>
<td>134.1</td>
<td>72.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>184.8</td>
<td>100</td>
</tr>
</tbody>
</table>

| **Total Revenue** | | |
| Own Revenues | Rs M | % | Rs Per Capita |
| 79.76 | 30.2 | 6647 |
| Revenue & Capital Grants | 184.8 | 69.8 | 15397 |
| **Total** | 264.5 | 100 | 22043 |

In the case of Mannar the main income was from rent (38%), followed by other revenue (25%) and rates and taxes 23%. The own revenue was indicated in Mannar as Rs 80 M. Rates and taxes are collected from all premises within the LA. One reason for poor collection may be that not all institutions and households have been brought into the tax net. This is a common failing in many LGs and can be particularly observed in Mannar.

Revenue from trade licenses appear to be low for all LGs except Bandarwela. Revenue from trade licenses depend on the proportion of licenses that need to be renewed annually and those that are one time. Thus, if renewable licenses are few, then collections will be low, which appears to be the case in in at least three of the LGs. Revenue from rents depends on the number of premises owned by the LG that can be rented out. Revenue from rent depends on the number of premises owned by the LG and rented out. The proportion of own revenue from rent was high in Talawa and Mannar and low in Bandarawela and Kattankudy. This seems to suggest that the resources for renting out by latter two LGs are less or that LGs have not been able to find tenants for their premises.
The LGs also need to be more enterprising and market-oriented in order to succeed. It is also possible that there are only a few opportunities for earning income from this activity either due to lack of resources or unavailability of land or building assets with the LGs. The proportion of revenue collected from service charges was low for Talawa and Bandarawela and a little higher for Mannar and was the highest in Kantankudy. Thus it appears that fewer services are offered by Talawa and Bandarawela LGs, while Kantankudy and Mannar obtain a greater proportion of revenue from services. All LGs should try to offer more services to the public and such services should be useful to the public that they are willing to pay for such services. Such services could include the preparation of building plans, inspections for environmental and other requirements or permits for construction, the opening of new businesses and certificates of conformity and adherence to the laws of the LGs.

Another source of revenue for LGs is from warrants and fines. Revenue depends on the level of adherence to the laws and regulations of the LG. A high proportion of revenue from this source may be also due to the strict enactment of the laws and regulations of the LG. Bandarawela had the highest proportion of income (38%) from this source, followed by Talawa (19%). The other two LGs had a low proportion of income from this source, suggesting that either the citizens were law abiding or that laws are not being enforced properly by the LGs. The latter is likely to be the reason. This may be due to inadequate staffing or inefficient work force. Revenue from other sources ranged from 1% -2% (Talawa and Bandarawela) to 25% (Kattankudy and Mannar). This suggests that the both Kantankudy and Mannar are making more efforts to obtain revenues from other sources, while Bandawela and Talawa appear to be lax in this area.

Table 6-9: Details of Expenditure of LGs

<table>
<thead>
<tr>
<th>Recurrent Expenditure</th>
<th>Rs M</th>
<th>%</th>
<th>Rs Per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>63</td>
<td>70.6</td>
<td>5250</td>
</tr>
<tr>
<td>Travelling</td>
<td>0.33</td>
<td>0.4</td>
<td>28</td>
</tr>
<tr>
<td>Supplies</td>
<td>9.7</td>
<td>10.9</td>
<td>808</td>
</tr>
<tr>
<td>Maintenance of Capital Assets</td>
<td>7.9</td>
<td>8.9</td>
<td>658</td>
</tr>
<tr>
<td>Transport &amp; Communication</td>
<td>5.5</td>
<td>6.2</td>
<td>458</td>
</tr>
<tr>
<td>Repayment of Loans &amp; Interest</td>
<td>2.64</td>
<td>3.0</td>
<td>220</td>
</tr>
<tr>
<td>Pension</td>
<td>0.03</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>Welfare Grants</td>
<td>0.12</td>
<td>0.1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89.22</strong></td>
<td><strong>100.0</strong></td>
<td><strong>7435</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capital Expenditure</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>58.8</td>
<td>100</td>
<td>4900</td>
</tr>
<tr>
<td>Asset purchase</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58.8</strong></td>
<td><strong>100</strong></td>
<td><strong>4900</strong></td>
</tr>
</tbody>
</table>

The highest expenditure (both capital and recurrent) was in Bandarawela (Rs 610 M), followed by Kattankudy (Rs 192 M), Mannar (Rs 148 M) and Talawa (Rs 50 M). Per capita expenditure was the highest in Bandarawela (Rs 25,000) followed by Mannar (Rs 12,000), Kattankudy (Rs 4000) and Talawa (Rs 700). Thus there is a wide variation in per capita expenditure among the four LGs. The best performance was by Bandarawela MC and the worst by Talawa. Thus Talawa PS and to some extent Kattankudy UC and Mannar UC need to increase their own incomes as well as diversify their sources of income. This can be done by preparing suitable projects for financing by NGOs, the GOSL or AID agencies. They can also improve their enforcement of laws and regulations, bring unlicensed institutions to comply with the regulations and pay the fees required, register all houses and premises not registered for payment of rates and taxes and recover the payments unpaid up to the present, register all commercial and trading institutions to comply with the licensing requirements and recover due fees. There is also a need for expanding the sources of other revenue, such as identifying tourism interest areas and charging fees for visiting places of such tourist interest, payment for public toilet use, charging fees for registering three-
wheelers and other hiring vehicles for operating in the LG areas, collect parking fees, impose fines for improper disposal of solid and liquid waste, construct facilities for commercial and service activities, such as markets, office complexes, halls for holding weddings and other ceremonies, etc.

The highest proportion of recurrent expenditure ranged from 4% - 80% of total recurrent expenditure of LGs. The lowest proportion was in Talawa, while it ranged from 70%-80% in the other three LGs. Thus the bulk of the recurrent expenditure is spent on salaries of the staff of the LGs. Maintenance of capital assets made up between 5%-12% of the total expenditure and provision of supplies ranged from 6% -11% in all LGs except Talawa where a high proportion of 23% was spent on maintenance. The expenditure in these two areas appears to be inadequate. These two areas are important for the proper functioning of the LG and therefore a greater allocation is needed for these activities. Capital expenditure was very low with only Rs 5 million expended in Talawa. The highest capital expenditure of over Rs 300 million was reported by Bandarawela MC, and a moderate level of about Rs 60 million was reported by Kattankudy and Mannar UCs. There is a need to substantially increase capital spending on projects and programmes of the LGs if the Green City objectives are to be achieved. Strategies for enhancing capital expenditure should be drawn up and implemented by the LGs. This should involve strategies for increasing own revenue, preparing bankable projects with the help of suitable consultants to be financed by the Government or Aid agencies, active promotion of such projects with financing agencies, increasing the efficiency of operation of the LGs through staff training and providing rewards for achieving objectives and bringing all taxable premises and lands for compliance with the tax laws as well as commercial agencies to comply with the licensing requirements, increasing the services provided by the LGs and charging appropriately for these services as well as other innovative measures to improve their financial status.

6.9.3 Recommendations for Improving the Financial Health of LGs

Measures are needed to improve the revenues of LGs from their own resources. In addition, the LGs need to canvass financial assistance from as many funding sources as possible if they are to execute the greening proposals suggested by the Master Plan. This may include the central government, NGOs, Aid agencies and wealthy philanthropists. Unused physical resources may be also sold to improve the finances. The following specific measures are proposed:

- Improve collection of rates and taxes by imposing fines for non-payment and registering all houses, premises, commercial buildings and land that are not registered or not listed in the books of the LA. About 20% to 30% of the total number may not be paying such rates and taxes as the LGs have been slow or ineffective in collecting data on such instances and in implementing the taxing regime.

- Warrants and court fines are other sources of revenue, which may not be utilized to full potential for raising revenues. This may be due to lack of staff and other resources to prosecute the offenders. Additional training, staff and other resources may be needed to exploit the full potential for raising revenues through this activity.

- Efforts must be made to rent out all available land, buildings, commercial spaces, etc in order to obtain the maximum revenue from renting. There are many LGs which have lands and buildings idling with no income. All such lands and buildings should be made marketable through repairs and rehabilitation of such buildings and given on rent to add to the revenue of the LA.

- There are a considerable number of entrepreneurs operating their businesses without licenses. Such places are easier to identify than premises not paying rates or taxes. Kattankudy, Mannar and Talawa have very low revenues from trade licenses. Therefore with some effort those operating without licenses can be brought to book and revenues increased by this means.

- Service charges bring in a small proportion of income to LGs. Except for Kattankudy and Mannar which have a moderate income from such services, the other LGs obtain only a small proportion of income from this source. The feasibility of increasing the level of charges of existing services and also adding new services are ways in which revenues from this source can be increased. Such services could include preparation of building plans, inspections for environmental and other requirements or permits for construction, opening of new businesses and certificates of conformity and adherence to the laws of the LGs etc.
● An inventory of all assets of the LGs should be made and all unused resources, as well as those that need repair or cannot be used, should be auctioned off to raise revenue. Even unused or unusable lands and buildings can be sold to increase revenues.

● Other income could also be raised through innovative or enterprising activities. For example, entrance to places of tourist interest such as archaeological sites, historical forts or sites, gardens, entrance to parks, parking, etc could be charged by the issuance of entry tickets if feasible. Even a small amount could be charged and that would be useful in the maintenance of these places and add to the revenue of the LA. Fines could be imposed for improper disposal of waste, charges could be made for use of public toilets, three-wheelers and hiring vehicles could be registered through a small fee for operating in the LG area. Likewise several innovative ideas may be forthcoming from residents and officials for raising the revenue of LGs.

● Capital expenditure could be increased through loans and aid from banks and donors. The LG should have a list of bankable projects to obtain aid or grants from aid agencies. Such bankable projects should be prepared by qualified consultants in order to obtain acceptability from such agencies.

● The efficiency of the staff should be increased through training and through financial rewards and recognition for their work.
GREEN CITY MASTER PLAN
AND IMPLEMENTATION ROAD MAP
MANNAR

VOLUME III
CHAPTER - 07

THE MASTER PLAN (GENERAL FRAMEWORK)
7. THE MASTER PLAN (GENERAL FRAMEWORK)

7.1 The Vision

Mannar Town is the ‘gateway’ to Thalei Mannar island from the mainland and it also has throughout been the gateway to the visitors into mainland Sri Lanka. The best potential that Mannar town possesses is its unique landscape resulting in by the meeting of the wrinkling shallow and weedy seascape with the largely undulating, sandy and arid landscape shaped by the hot-dry climatic conditions available in the North-western coast of Sri Lanka. As it was correctly identified by the Urban Development Authority in the Development Plan prepared for the area and enacted in 2019, the speaking seascape and the marine resources are the heritage and the key features those need to be sustained towards a more sensitive, inclusive and comprehensive socio-economic development that would assure the sustainability of its environmental systems, socio-cultural setting and the unique identity. The Green City of Mannar shall be the gateway towards such a scenario.
The Master Plan (General Framework)

The Vision

The Urban (Green) Gateway to Marine Heritage in the Speaking Seascape of Manthottam.

Mannar Town is the ‘gateway’ to Thalaimannar island from the mainland and it also has throughout been the gateway to the visitors into mainland Sri Lanka. The best potential that Mannar town possesses is its unique landscape resulting in by the meeting of the wrinkling shallow and weedy seascape with the largely undulating, sandy and arid landscape shaped by the hot-dry climatic conditions available in the North-western coast of Sri Lanka. As it was correctly identified by the Urban Development Authority in the Development Plan prepared for the area and enacted in 2019, the speaking seascape and the marine resources are the heritage and the key features those need to be sustained towards a more sensitive, inclusive and comprehensive socio-economic development that would assure the sustainability of its environmental systems, socio-cultural setting and the unique identity. The Green City of Mannar shall be the gateway towards such a scenario.
7.2 Formulation of Goals

The three fundamental queries in relation to the Action Units identified for the Mannar UC, are.

1. Where is each LA now? (The current status of affairs related to each Action Unit)
   Answering this query will reveal the current state of affairs of each LA in relation to matters considered under each Action Unit.

2. Where can it be within the given time targets? (The level which it can achieve within the time horizons given below)
   This query enables the formulation of the Goals and Objectives of the Green City Master Plans for each Local Authority.

3. How can it reach there? (The strategies to achieve this level within the given time)
   The answers to this query will be the strategies and Actions needed to be included into the Green City Master Plan.

The following are the Goals formulated for Mannar UC area.

**Goal 1:** The norms associated with ‘Green’ to be available in the Facilities, Services, Environment, Buildings, Streets and Public Spaces, etc.

**Goal 2:** Providing Facilities required by the visitors to the region, Tourists, Industries, Services, Fishing, etc.

**Goal 3:** Conserved Coastal landscape and Transitional zone Heritage

**Goal 4:** Urban Council and other Institutions, Communities and Businesses geared towards Green Practices

These Goals and are designed within three time horizons:

1. Short term (immediately implementable depending on the preparedness of the LA)
2. Medium term (implementable within the project period with required ground preparatory work)
3. Long term (that will be implemented in the long run, but the relevant background and capacity developments will be planned within the project period)

Accordingly, a series of actions have been designed for each LA, addressing each constituent and under each sector, and they will be formulated through the process discussed in the next section.
### 7.3 The Analysis of SWOT towards the accomplishment of Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
</table>
| **Goal 1:** The norms associated with ‘Green’ to be available in the Facilities, Services, Environment, Buildings, Streets and Public Spaces, etc. | - Positive attitude and interest of the Local Leadership willing to adopt Green practices:  
  - Willingness and Preparedness to adopt: 100%  
  - Council Members: 100%  
  - Technical Staff: 100%  
  - Admin Staff: 100%  
  - Others: 100% | - Low usage of SMART facilities for businesses:  
  - Less interest and initiatives to encourage the use of renewable energy  
  - Inadequate Facilities for Solid Waste Management:  
  - Load disposed: 25 MT  
  - Load composed: 04 MT  
  - Labour availability: 50  
  - Labour requirement: 10 | - Enhanced support from LA leadership, local politicians, and UNDP for implementing Green City project.  
  - Government project for the development of Digital Infrastructure among Local authorities and other organizations  
  - Government Policy to meet 100% Renewable Energy by 2050. | |
| **Goal 2:** Providing Facilities required by the visitors to the region, Tourists, Industries, Services, Fishing, etc. | - Availability of an Integrated Development Plan for the UC area (prepared and enacted by the UDA)  
  - Location of the town bordering a Ramsar declared wetland site (Vankalei Bird Sanctuary) and Marine Wildlife and bird migratory route  
  - Historically known archaeological and nature heritage sites and identity established as ‘Gateway’ to Island Thalai-Mannar  
  - Existing Beach and Lagoon/Bay front  
  - Established Fishing and Business Communities in the area  
  - Existing Road Network coverage and accessibility  
  - Rail and Road Connectivity with the other parts of the country.  
  - Existing electricity network that well covers and serves the entire area of human settlements.  
  - Pipe borne uninterrupted (24x7) water supply available | - Lands at lower elevations and inadequate surface and stormwater drainage:  
  - Lack of tourism-related facilities and promotion activities:  
  - Non-availability of sewerage disposal system:  
  - Poor connectivity between Railway Station and the Town center.  
  - Distance: 1.8 KM  
  - Non-availability of sewerage disposal system: | - Widening interest in Eco-Tourism linked to bird watching and marine environments related (dugongs, sea grasses etc)  
  - Potential to be the city servicing main natural energy production hub (Oil and gas explorations, wind and solar energy production)  
  - Marine environment conducive for pearl culture and other | - Vulnerability of the area and its resources to Climate Change impacts and other disasters. |
<table>
<thead>
<tr>
<th>Goal 3: Conserved Coastal Landscape and Transitional zone Heritage</th>
<th>Goal 4: Urban Council and other Institutions, Communities and Businesses geared towards Green Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Lagoon/Bay, Ponds and Canal system available to facilitate drainage and the breeding of aquatic resources:</td>
<td>- The number of Schools, training centers and educational institutions that can be used to impart knowledge on environmental management and conservation practices</td>
</tr>
<tr>
<td>- Ponds, canal reservations and beach encroached for developments:</td>
<td>- The number of regional and local level Agencies and NGOs engaged in Projects in the area:</td>
</tr>
<tr>
<td>- Beaches polluted with solid waste and abandoned fishing gear</td>
<td>- Well established farmer communities, societies and supportive institutions which can be organized for Green practices.</td>
</tr>
<tr>
<td>- Existing government policies, Powerful Laws, and sound Institutional arrangements to regulate and regenerate the built environment:</td>
<td></td>
</tr>
<tr>
<td>- Vulnerability of the area and its resources to Climate Change impacts and other disasters.</td>
<td>- Low awareness and interest among general public on Green Practices, value of their locality and its resources, etc.</td>
</tr>
<tr>
<td></td>
<td>- Active youth community in the area that can be equipped with awareness and capacity for development initiatives, conservation, green practices, etc.</td>
</tr>
</tbody>
</table>
### 7.4 The Baseline Indicators and Targets

Out of the SWOT analysis, the following baseline indicators and targets could be set out in order to monitor the Greening Process under each Sector of Engagement:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Baseline Indicators</th>
<th>Units of Measurement</th>
<th>Current State</th>
<th>Mid Term Targets (2-3 years)</th>
<th>Long Term Targets (20-30 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequent sightings of migratory birds and threatened (IUCN Red List) species in Mannar Town and its surrounding areas</td>
<td>Number of threatened plant and animal species and migratory birds sighted in the area</td>
<td>To be surveyed before implementation</td>
<td>Clear minimum of 20% encroachments</td>
<td>To be maintained</td>
</tr>
<tr>
<td>2</td>
<td>Nature reserves and areas worthy of conservation free of encroachments</td>
<td>Percentage areas of Nature Reserves and Conservation Zones affected by encroachment</td>
<td>To be surveyed before implementation</td>
<td>Percentage of households that has no safe drinking water affected due to floods and droughts</td>
<td>Fulfill minimum 50% of the total requirement for all households</td>
</tr>
<tr>
<td>3</td>
<td>Availability of safe drinking water with no shortage throughout the year for all households in the Mannar UC</td>
<td>Percentage of households that have safe drinking water supply unaffected due to floods and droughts</td>
<td>To be surveyed before implementation</td>
<td>The level of service</td>
<td>Adequate initiatives</td>
</tr>
<tr>
<td>4</td>
<td>Well maintained Ponds, Canals, and other drainage-related infrastructure</td>
<td>The level of service</td>
<td>To be surveyed before implementation</td>
<td>Annual expenditure against an estimated cost</td>
<td>Standards achieved</td>
</tr>
<tr>
<td>5</td>
<td>The extent of non-contagious and contagious diseases in the area</td>
<td>Number of patients annually treated for vector and water-borne diseases</td>
<td>To be surveyed before implementation</td>
<td>Health Ministry data</td>
<td>Reduce by 20%</td>
</tr>
<tr>
<td>6</td>
<td>Ambient Air Quality in public areas of the Mannar Town CO2</td>
<td>Standard Units</td>
<td>No information available</td>
<td>Number of formal and informal social networks that operate at the town level</td>
<td>Standards achieved</td>
</tr>
<tr>
<td>7</td>
<td>Well established Social and Community networks that operate in the area with SMART technology and Green practices</td>
<td>Number of formal and informal social networks that operate at the local level for the social and economic benefit of the area</td>
<td>Local Traders Associations, Church and other religions-based societies</td>
<td>Number of informal networks such as three-wheeler riders, retail traders operate at locality level</td>
<td>Standards achieved</td>
</tr>
<tr>
<td></td>
<td>Community level initiatives for Green practices</td>
<td>Number of CBOs</td>
<td>Only about 10% of the GNDs in DSD area have CBOs established</td>
<td>Establishment of CBOs spread in 50% of total number of GNDs</td>
<td>Establishment of CBOs spread in 75% of total number of GNDs</td>
</tr>
<tr>
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<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>8</td>
<td>LG and other institutions geared for Green practices</td>
<td>Percentage of employees (employee satisfaction survey)</td>
<td>Only about a few employees are aware and satisfied on Green practices</td>
<td>Employee satisfaction level on Green practices is increased up to 25%</td>
<td>Employee satisfaction level is increased up to 75%</td>
</tr>
<tr>
<td>9</td>
<td>Involvement of the Local Community in Planning and Development of the LA.</td>
<td>Number of activities planned and implemented with Local stakeholders.</td>
<td>To be studied</td>
<td>Minimum 25% of the activities</td>
<td>Minimum 50% of the activities</td>
</tr>
<tr>
<td>10</td>
<td>Availability of 1.4-hectare Public Open Recreation Space for every 1000 persons. Availability of Public Open Spaces within a reach of 500m from every neighborhood (Proximity).</td>
<td>Per-capita public space area (ha per person) Coverage by distance range from the public space</td>
<td>Available, but not organized and well-maintained Spaces available, but not organized with necessary public amenities and facilities.</td>
<td>Minimum 50% of available public open space planned and equipped with necessary facilities</td>
<td>100% of the requirement served</td>
</tr>
<tr>
<td>11</td>
<td>Availability streets in UC area shaded with tree canopies.</td>
<td>Percentage length of Main (A, B and C) and MC Roads shaded with local species of trees</td>
<td>Not properly organized</td>
<td>03 km length in main roads in the UC area planted with trees.</td>
<td>All main roads (A and B Class) to be planted with shady trees</td>
</tr>
<tr>
<td>12</td>
<td>Availability of paved intersections - safe for pedestrians, disabled and children along main roads in the town area.</td>
<td>As a percentage length of Main (A, B and C) and MC Roads with paved pedestrian areas in the Mannar town Limited areas with paved pedestrian areas Poor condition of road network and poor open drainage system</td>
<td>Minimum of 01 km along three major roads in the town facilitated with paved pedestrian areas and side drains, shaded with trees</td>
<td>Minimum 50% of the pedestrian areas in the town, served with necessary facilities and shaded with threes</td>
<td>100% of the pedestrian areas in all three towns, served with necessary facilities and shaded with threes</td>
</tr>
<tr>
<td>13</td>
<td>Availability of paved intersections - safe for pedestrians, disabled and children along main roads in the town area.</td>
<td>Number of critical (pre-determined) locations in the UC area</td>
<td>Only marked pedestrian crossings in the town areas.</td>
<td>Pedestrian crossings in the town at critical locations, equipped with signal lights in needy ones.</td>
<td>To be maintained</td>
</tr>
<tr>
<td>14</td>
<td>Use of non-motorized bicycles for trips within the LA</td>
<td>Percentage households that use push-bicycles for local trips</td>
<td>Relatively higher, and need to be surveyed</td>
<td>30% of the households in the UC area to use bicycles for minimum 60% of local trips</td>
<td>All households in the UC area to use bicycles for minimum 60% of local trips</td>
</tr>
<tr>
<td>15</td>
<td>Use of non-motorized bicycles for trips within the LA</td>
<td>Decibels at Public Spaces</td>
<td>No information available</td>
<td>Adequate initiatives</td>
<td>Standards achieved</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Percentage (%)</td>
<td>Insignificant percentage</td>
<td>20% of the total consumption in government institutional buildings</td>
<td>60% of the total consumption in government institutional buildings</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>17</td>
<td>Amount of renewable energy produced in the LA</td>
<td>Percentage (in kWh being exported by consumer to the CEB network), of Renewable Energy consumed in the LA</td>
<td>Insignificant percentage</td>
<td>20% of the total consumption in the government institutional buildings</td>
<td>60% of the total consumption in the government institutional buildings</td>
</tr>
<tr>
<td>18</td>
<td>Streets and public spaces illuminated with solar powered lamps</td>
<td>Percentage lamp fittings within the town area powered with solar energy</td>
<td>Zero</td>
<td>Minimum of 20% of the street lamps powered with solar energy</td>
<td>Minimum of 50% of the street lamps in the town to be powered with solar energy</td>
</tr>
<tr>
<td>19</td>
<td>Number of Green Certified buildings.</td>
<td>The UDA Rating System</td>
<td>Green Platinum – 0</td>
<td>All New Buildings to be Green Certified (compliance with the UDA regulation)</td>
<td>Minimum of 20% of existing buildings: Green Certified</td>
</tr>
<tr>
<td>20</td>
<td>Local Roads (610 kms) properly paved and completed.</td>
<td>Total length of Roads completed with surface paving and drains</td>
<td>To be surveyed</td>
<td>10 Km. of the road length pavements in four townships to be completed.</td>
<td>All roads in the area to be completed with surface paving and side drains</td>
</tr>
<tr>
<td>21</td>
<td>Electric (Solar powered) three wheelers used in LA</td>
<td>Percentage of vehicles that use electricity/non-polluting energy sources</td>
<td>None</td>
<td>10 percent of the total three-wheelers to be hybrid with renewable energy</td>
<td>50 percent of the total three-wheelers and other public vehicles to be hybrid</td>
</tr>
<tr>
<td>22</td>
<td>Fully Automated Office Environment in LG. and Fully web-based public services and relations</td>
<td>Reduced number of persons involved in office activities and Reduced use of paper in transactions for financial, permits and approvals in clean, pleasant office environment. 100% Web-based public services (Tax and payments, approvals, licenses, etc.)</td>
<td>None</td>
<td>All admin matters (internal) of the LG to be automated All Payments and Approvals to be available on-line</td>
<td>All internal and Public Relation matters (Tax payments, licenses, approvals, etc.) of the LA to be web-based All public relations to be web-based</td>
</tr>
<tr>
<td>23</td>
<td>All uses connected to proper sewerage and waste water disposal system.</td>
<td>Residential and other units with proper sewerage disposal system.</td>
<td>To be surveyed</td>
<td>All commercial, industrial, and institutional uses to have properly designed systems</td>
<td>All buildings to have properly designed systems</td>
</tr>
<tr>
<td>24</td>
<td>Solid Waste collection system that covers all needy areas of the LA</td>
<td>Percentage area covered</td>
<td>Satisfactorily covered</td>
<td>To be maintained</td>
<td>To be maintained</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>---</td>
</tr>
<tr>
<td>25</td>
<td><strong>Zero Waste exported from the LA</strong></td>
<td>Percentage solid waste reused, recycled, and value added within the LA</td>
<td>To be studied</td>
<td>Minimum 30% solid waste recycled/reused</td>
<td>100% solid waste recycled/reused</td>
</tr>
<tr>
<td></td>
<td>Reduced of waste generation at sources</td>
<td>Composting plant available, but not in full operation</td>
<td>Composting plant to be in full operation</td>
<td>Reduction of currently generated quantity by 20%</td>
<td>Reduction of currently generated quantity by 50%</td>
</tr>
<tr>
<td></td>
<td>Excess waste dumped open at Sewer Treatment plant site</td>
<td>Reduction of currently generated quantity by 20%</td>
<td>To be maintained</td>
<td>To be maintained.</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td><strong>Safety from disaster situations (natural and epidemics)</strong></td>
<td>Number of deaths due to disasters and epidemics</td>
<td>Guide lines developed by DMC and Health Ministry</td>
<td>Guide lines developed by DMC and Health Ministry</td>
<td>Guide lines developed by DMC and Health Ministry</td>
</tr>
<tr>
<td>27</td>
<td><strong>Occurrence of flood incidents in relations to heavy rainfall situations</strong></td>
<td>Number of people affected by floods and related situations</td>
<td>DMC data</td>
<td>Reduce the numbers by 30%</td>
<td>Reduce the numbers by 60%</td>
</tr>
<tr>
<td></td>
<td>Extent of roads inundated and damaged due to floods in a year</td>
<td>Expenditure incurred for the payment of flood damages and to repair flood affected infrastructure facilities</td>
<td>Reduce by 60% of the 2021 baseline</td>
<td>No casualities due to natural disasters</td>
<td>Reduce by 100 of the 2021 baseline</td>
</tr>
<tr>
<td>28</td>
<td><strong>Proper Drainage Network in the town centers</strong></td>
<td>To be studied.</td>
<td>Number of Kms. completed.</td>
<td>Number of Kms. completed.</td>
<td>Number of Kms. completed.</td>
</tr>
<tr>
<td>29</td>
<td><strong>Area free from stray dogs</strong></td>
<td>Reduction of the number of stray dogs found in the area</td>
<td>To be surveyed</td>
<td>To be reduced by minimum 50%</td>
<td>No stray dogs</td>
</tr>
<tr>
<td></td>
<td>To be surveyed</td>
<td>To be reduced by minimum 50%</td>
<td>Number of stray dogs</td>
<td>To be maintained</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td><strong>Healthy and controlled growth of Donkey populations</strong></td>
<td>Number of Donkeys that exceed more than the bearable capacity (number to be decided through a study)</td>
<td>To be surveyed</td>
<td>The excess numbers to be controlled</td>
<td>Only the sustainable number to be maintained</td>
</tr>
<tr>
<td></td>
<td>To be surveyed</td>
<td>The excess numbers to be controlled</td>
<td>Number of Donkeys</td>
<td>To be maintained</td>
<td>Number of Donkeys</td>
</tr>
</tbody>
</table>
7.5 The Objectives

Objective 1: Enhancement of the *Northern Coastal Gateway Town* image within the framework of Urban Development Plan prepared by the UDA

- An urban design cum landscape proposal to enhance the architectural character, seascape, and the other environmental features of the town, especially in the sea front and the causeway entrance area.
- Development of a grand living ‘green forecourt’ with shady coastal vegetation, fisher boat anchoring facilities and museum features at the entrance from the causeway (on either side, up to Mannar fort area).
- Conservation of the historic buildings along with a ten-year (2030) retrofitting/regeneration scheme for existing buildings, built with non-compliance with the architectural character, safety standards, sanitary conditions and other regulations, redesigned and implemented through the collective engagement of resident community and incentivizing/promotional means.
- Strict enforcement of laws and regulations through community engagement and institutional capacity building.
- Mobilization of local stakeholders including communities in the city on the possibility of converting Mannar as Coastal Gateway town with essential urban features through awareness program, getting local stakeholders actively involved in green city-related development interventions.

Objective 2: Upgrading the Urban infrastructures and facilities (parking, open spaces, internal road networks)

- Development of paved sidewalks and ‘Shading Public Spaces’ with planting medium size, wider canopy local tree species along selected major local roads (approx 02 km)
- UC area wide Tree Planting program in the lagoon front, beach front and public areas, implemented by the UC in collaboration with the Divisional Secretariat, UDA, RDA, CCD, CEA, and the local residents.
- Active Engagement of local business community to implement maintain the landscape of the town.
- A program to be planned and implemented continuously to make the local stakeholders including the community aware on the needs of improved public places and also on the role of them during their construction and operation phases. The program will be designed in such a way to enhance knowledge, skills and thereby influence for attitudinal change to make them to be accountable for sustaining the created infrastructure in public places.

Objective 3: Improvement to Surface and Storm water drainage system.

- Total clearance of the exiting pond and canal system from encroachments.
- Active Engagement of local business community to conserve and maintain drainage network.
- Develop participatory storm water maintenance institutional model to maintain ponds and canal system jointly by community, other relevant agencies and LA. Make this model enhanced with good management practices to make key actors of the model to be responsible and accountable for clearing the town from stagnated storm water.

Objective 4: Promote the use of Solar Energy up to 100% local requirement and Green Buildings by 2050.

- Minimum mandatory requirement to match current total energy demand of all state and local government buildings with solar power by 2025.
- Minimum mandatory requirement to match 30% of current energy demand of all privately owned non-residential buildings by 2030.
- Engagement of private sector solar providers on competitive basis with the involvement of Urban Council.
● Strict enforcement of UDA Green Building Certification in the area from 2022, and retrofitting exiting buildings to minimum Green Certificate level by 2030.

● Introduction of solar powered/hybrid three-wheeler/taxi service within the town.

● Plan and implement a stakeholder awareness program to convince the need and significance of promoting Solar and also carry out continuous monitoring program to assess the process of implementing solar and the other impacts to the economy and the environment using relevant indicators.


● Full automation of main internal activities of the UC by 2025.

● Introduction of web-based public relations and service delivery (Rent payments, Development Permits, Licenses, Public Complains handling, etc.) by 2022 and mandatory by 2025.

● Training for PS staff and wider public awareness program on SMART practices and Green Service Delivery implemented in 2022.

● Develop monitoring program and apply it to assess the implementation process and outcomes of activities carried out under SMART and Green practices in Mannar by LA together with other stakeholders.

Objective 6: Implementation of Sustainable (‘Zero Waste’) Waste Management Program (Reduction of use, Sorting at source and Recycling of renewables)

● Maintain the existing composting facilities in Pallimunei at their present capacities

● Enhance the solid waste collection and transportation fleet.

● Introduction of mandatory per capita reduction and sorting for domestic and commercial waste

● Develop and apply a program as inbuilt component of Waste management project. Enhancement of knowledge and skills of stakeholders including the community on sustainable waste management will be a strong element of this software management package and also the introduction of joint/participatory continuous monitoring will be an important activity under this component of the waste management project.

Objective 7: Implementation of wider training, educational and awareness development program in schools, community centers and youth societies on the Greening Project, Healthy Livings and Hygienic Practices.

And widen the awareness on the importance of Mannar’s identity / Cultural significance among residents, business communities and the other stakeholders.

● Plan and implement a social marketing program to convince the school community, officials of the education ministry, provincial Department of Education and also other public agencies on the need of getting school community especially students to enhance their knowledge and skills and influencing to change their attitudes to be responsible and accountable for getting engage in development projects and contribute to sustaining their functions in the long run.
8. THE STRATEGIC ACTION PROJECTS

Pre-Requisite Projects

These projects are important prerequisites for the successful implementation of the projects mentioned of specific projects and common projects given in the forthcoming sections. The sustainability of the other projects fully depends upon the success of these three projects.

All of these projects shall be initiated with the leadership of the LG (Mannar UC) with the involvement of the other stakeholders and monitored by the Council of the UC.
Pre-requisite Project No 01: Mannar UC area

| Justification | The Green City Master Plan envisages transforming an existing operational LA into a Locality that upholds and actively works towards sustainability in all of its functions and development programs. This transformation involves many aspects including reforms to existing systems, changes in institutional cultures and active engagement of specific actors. Generally, changes in any UC are not smooth and resisted. In order to manage the changes effectively, good leadership and teamwork is essential. Changes are smooth and sustainable when stakeholders actively and effectively take part in the process of change. The formation of the leadership committee under the Chairmanship of the Chairman of the UC is a pre-requisite to accomplish the goals of the Green City. |
| Relevant Pre-requisites for formulation and the implementation | Formal agreement between the UC and the other agencies to work in the Standing Committee and a well-drafted terms of reference for a thorough understanding of the purpose and the functions of the committee towards Green City objectives. Acceptance and continuous supports to provide regulatory backing from the Provincial Government Ministry and the Provincial Department of Local Government. |
| The current status of the coordination mechanisms | The LA is made up of many different agencies operating in different sectors to serve the community. The community too is diverse and have many expectations. However, all wish to see a Green City environment where the communities live a healthy lifestyle. There is no institutional mechanism inbuilt to the UC management to coordinate the multifunctional activities required for sustainable development and management of the LA. Ad-hoc committees, such as the Local Development Committee with the leadership of parliamentary political authority and dominated by local politicians and with the participation of officials, but they are mostly driven by national level development agenda. Interactions are maintained by individual employees of UC with other individual officers of stakeholder agencies. These are not regular institutional mechanisms established to provide strategic guidance on sustainable manner. |
| Resources Available/ Potentials | Natural resources in the area are increasingly subject to various impacts due to development activities as well as illegal destructive actions by individuals and agencies. The natural capital provides direct and indirect benefits to the community which are usually never accounted or appreciated as the information on them are not recorded or available to the public. There is a need to identify the role played by them in providing ecosystem services, economy and heritage of the area and take necessary actions in coordination with the people in the area. The community in the area possess many potentials which need to be harnessed and given opportunities to perform for the betterment of the LA and its surroundings. All needy government agencies available in the area even though they are not being used for coordinated efforts to develop and sustain natural capital. |
| Project Details | The Project Components | Setting up of the Standing Committee to undertake and to lead the implementation of the Green City Master Plan proposals. Preparing ToR for the Standing committee and defining the scope Workshop for the membership and stakeholders involved Commencement of the work and monitoring reports to be produced and published in print and in the web. |
| Tentative Budget | To be estimated |
| The Main Stakeholders | LA and the other agencies involved in implementing the projects |
| The Expected Outcome | Greening the City | A leadership forum to guide and monitor the progress of implementing projects |
| Duration with phasing | Immediate actions | Design and planning (Immediate): Setting up of the Standing Committee Training and Guidance (Medium): Training workshop for the membership. Operational (Long term): Conduct of the sessions and preparation of the progress monitoring reports |
| Mid. Term actions | |
| Long Term action | |
| The Method of Formulation | Planning & designin | By the UC |
| Funding | Through UC budget and other funding mechanisms |
| Legal clearances and Approvals required | Council approval to establish the Standing Committee |
| Likely Risks and uncertainties | Formal acceptance of the new standing committee by the Provincial Local Government Ministry, Provincial local Government Department, and the likely resistance from National and Provincial political authorities |
| Maintenance | A regular mechanism to be established to monitor the process and the functions of standing committee. Systematic recording of events and decisions to learn lessons. Regular auditing of the matters and actions of the Committee by the Council. |
### Pre-requisite Project No 02: Mannar UC Area

<p>| Justification | The Green City Master Plan envisages transforming an existing operational LA into a Locality that upholds and actively works towards sustainability in all of its functions and development programs. The projects may span from building, removing or modifying infrastructure to establishing coordination mechanisms and conduction awareness programs. Although Strategic Environmental Assessments (SEA) are not yet mandatory by law, this is a tool that can provide the decision makers a wholistic approach to developmental activities. As there is not regulatory mechanism in place to guide SEAs unlike EIAs, it also allows defining its scope covering the intended changes in the LA and to provide guidance to other development projects that are to be launched in the future. Such pro-active action will enable the UC to ensure that proposed development projects are compatible with one another. |
| Relevant Pre-requisites for formulation and the implementation | Agreement by other agencies to work with the UC staff to provide required information on their work plans and future projects that may have an impact on cityscape and lives. Continuous policy and macro-level institutional support for the institutions working on integrated planning and implementation programs in LAs |
| The Location and the surroundings | In the area under UC jurisdictions, but required interactions for planning and implementation of the proposed project will go beyond the geographical boundaries of LA (Natural, provincial, District, DS and LA) |
| The current status of the coordination mechanisms | Current physical developments mostly happen in an ad-hoc manner. This poses challenges to LA which expects to provide utility services, comforts and environmental quality to ensure healthy and vibrant lifestyle for the residents and visitors to the LA. Integrated efforts of all relevant sectors is advocated by many for sustainable developments, but there is no mechanism for integrated planning and implementation addressing the environmental issues. |
| Resources Available/ Potentials | Natural resources in the area are increasingly subject to various impacts due to development activities as well as illegal destructive actions by individuals and agencies. The natural capital provides direct and indirect benefits to the community which are usually never accounted or appreciated as the information on them are not recorded or available to the public. There is a need to identify the role played by them in providing ecosystem services, economy and heritage of the area and take necessary actions in coordination with the people in the area. The preparation of the SEA at the beginning and thereafter in future to update it will help the Local Authorities in enhancing the quality of the development to be compatible with the sustainable goals. Availability of institutions including polices in LA areas is a resource to be identified and analysis in SEA proposed. |
| Project Details | The Project Components |
| | The SEA can be done in consultation with the Central Environmental Authority (CEA) which is assigned with the legal provisions for such study. Drawing of the TOR based on the expected scope of the SEA and its relevance for future projects need to be clearly defined. Once the TOR is ready request for proposals from professional agencies capable of handling SEA could be called or obtain services of the University faculty located in the vicinity/region. The Standing Committee set up/recommended for guiding the Green City development may take the responsibility of steering the study and regular presentation to the committee during SEA preparation will be required. The production of the SEA to be presented to all stakeholders in the city and endorsed for its recommendations to be carried out. The Standing Committee on Green City Development (proposed under Project 1) shall make arrangements to update the SEA on a five-year basis. The TOR should cover Ecological and natural resources, ecosystem services and biodiversity, Hydrology and drainage issues, health and related issues, mineral available, trade and other economic activities, Energy, transportation and logistical services, Waste management, utility services, Topographic and landscape in the area, cultural and social aspects, natural and man-made risks under the said study report. The study should finally project the cumulative or integrated impacts of the projects, on changing scenario such as increase population growth, increase in solid waste management challenges, depleting physical space, stress on the natural resources etc. To make the study more decision making oriented it is also recommended that extended cost-benefit (economic) study be carried out to estimate and quantify the potential benefits and impacts to the community. It is recommended that this document be published on the internet so that every person interested on the city development can access and follow the guidelines.[H2] |
| Tentative Budget | The SEA to cost around Rs. 5-8 million |</p>
<table>
<thead>
<tr>
<th>The Expected Outcome</th>
<th>Greening the City</th>
<th>Document with environmental Guidance and preparation of the zoning plan accordingly. The SEA and cost benefit will help by providing research-based information to identify priority needs for greening the city</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit to LA</td>
<td>A holistic study will provide the decision makers an idea and guidance to make sure the proposed projects and approvals to be granted for projects which are within the purview of the SEA. Cost effective but result oriented projects can be identified by the local authority using the information in SEA and extended cost benefit analysis.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-requisite Project No 03: Mannar UC Area</th>
<th>A community based Green City monitoring program with educational and training opportunities involving future generations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justification</td>
<td>Mannar UC area has several schools that are attended by more than 5,000 students. Their active engagement can have a sizeable impact on the success of any development initiative similar to the Green City transformation. On one hand, the teachers and students in the area represents a significant portion of the total population. Since students directly influence their parents, their involvement will take the Green City project to a substantial stratum of the local community. On the other hand, the benefits of the proposed Green City are mainly for the younger and future generations to come. Therefore, in order to develop a sense of ownership of the project, it is essential that these youngsters are made part of the project and they will take charge of the activities and projects and their sustenance. The government has made a strategic decision to make the curriculum of students more field oriented so that the education they receive is meaningful and pragmatic. Students in all grades from 6 to 13 years are to be oriented and guided under this latest strategic change in education towards focusing education to get involved and learn through the surrounding environment and learning opportunities. This strategy presents an ideal scenario for involving the students in the design and development of a future Green City.</td>
</tr>
<tr>
<td>Relevant Pre-requisites for formulation and the implementation</td>
<td>Schools and its staff including the principals are to be made fully aware of the project, its benefits and relevance towards curriculum and education of students and their performances. UC Staff shall be willing to support the program with a clear focus on nurturing and developing of responsible citizens that will help conserve the environment and green city status in future. Relevant authorities under whose jurisdiction the natural resources are maintained or managed shall agree to work with the school program and promote the activities.</td>
</tr>
<tr>
<td>The current status of the structure</td>
<td>The area has several important and sensitive ecosystems that contained water bodies, heritage sites, etc., and the schools are located in either within or associated with them. The school curriculum provides opportunities for various engagements in projects of this nature.</td>
</tr>
<tr>
<td>Resources Available/ Potentials</td>
<td>Natural resources in the area are increasingly subject to various impacts due to development activities as well as illegal destructive actions by individuals and agencies. Natural capital provides direct and indirect benefits to the community which are usually never accounted or appreciated as the information on them are not recorded or available to the public. There is a need to identify the role played by them in providing ecosystem services, economy and heritage of the area and take necessary actions in coordination with the people in the area. UC and the DS office have Environmental Management units and graduate Environmental Officers, who are resourceful for the project.</td>
</tr>
<tr>
<td>Project Details</td>
<td>Setting up of a school program to involve students from Grade 6-10 training where their field activities will provide information on the status of the environment and actions needed to safeguard the environmental quality parameters at a zero cost to the authorities. It's a win-win situation where both the authorities and students benefits from the opportunities and resources available. Setting up a monitoring forum for community reporting: This is the forum in which each school is asked to report the environmental status and performance of their program on an annual basis at seminar attended by Mayor, and other head of departments in charge of the natural resources under the program and parents of the students. At these sessions the UC may organize competitions or appreciation annual awards to be granted those schools who have carried out remarkable work to protect the environment and green status.</td>
</tr>
<tr>
<td>Facilities</td>
<td>Those schools may need to be provided with the training facilities such as projectors and other similar training facilities for conducting training sessions Monitoring programs will need to be done using simple testing equipment such as water testing and few laboratory equipment that can be used by the students to test basic parameters Repair and upgrading of the training facilities and laboratories in the schools where such facilities are needed for the training</td>
</tr>
<tr>
<td>Tentative Budget</td>
<td>To be estimated</td>
</tr>
<tr>
<td>The Main Stakeholders</td>
<td>All citizens in Mannar UC area through younger generation in Schools</td>
</tr>
<tr>
<td>The Expected Outcome</td>
<td>Greening the City</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Benefit to LA</td>
<td>The monitoring of the key ecosystems and their services by group of young and energetic population will provide reports. Overall benefits accrued through political and economic due to the creation of healthy and safe environment in the area.</td>
</tr>
</tbody>
</table>
| Project Duration with phasing | Immediate actions | **Design and planning (Immediate)**
- Agree with schools (Principals) on the natural resources that their respective schools will take-up under the project.
- Prepare an agreement with the respective agencies allowing the schools to use the area as a training and research project sites for the students.
- Develop a profile of the resources identified. |
| | Medium Term Actions | **Training and Guidance (Medium)**
At the respective sites conduct a training and awareness program in collaboration with the respective agencies to provide insight and understanding of the resource and its important ecological services to the school staff and guide in developing a student program that will allow involvement of all grades of students. |
| | Long Term action | **Operational (Long term)**
Program for the grade 6-10 on understanding and taking responsibility of ecosystems in the environment.
- Grade 6: Educate them on the usefulness of urban tree cover and plant cover for people and the responsibilities. Start a school plant nursery or home nursery and record plant germination and survival, nutrient requirement etc.
- Grade 7: Allocate a tree per student in the street or home or in another vicinity to understand the growth and life cycle of the trees and how these need to be cared and nurtured. Teach them on how to maintain the records and pass them to the next class next year for continuity.
- Grade 8: Take students to see Botanical gardens and other plant conservation areas including national herbarium, forest areas and special trees in the area and their value etc. Introduce them to understand the habitats and interdependency of plants and animals in an ecosystem such as salt marshes, dry shrub jungles, mangroves etc. found in the area.
- Grade 9: Educate them on how to keep simple records of the environmental indicators and parameters to show the status of the environment and ecosystems in the area. Educate them on potential destruction and environmental impacts in the area due to unplanned and unscrupulous activities and how these can be stopped. The role of them as future adults in the process of conservation efforts.
- Grade 10: Making measurements and recording of the environmental and ecosystem status and impacts for reporting. How to prepare simple monitoring reports that gives an indication of the status of the environment. Also, the setting up of the annual reporting event on state of the environment with the participation of larger segment of the society and other stakeholders and giving awards to schools who have performed a useful role in the reporting. |
| The Method of Formulation | Planning & designing | Educational department and UC |
| | Funding | UC through local sponsorships and the School funding mechanisms including donations |
| | Legal clearances and Approvals required | Approval of the Educational Authorities |
| Likely Risks and uncertainties | Natural disasters |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/Construction | Mannar UC |
| | Operations | Parent Teachers Associations in each school
And the Environmental Officers in the UC |
| | Maintenance | Supervised by Mannar UC |
Specific Projects for Mannar

These projects are specific to the Mannar UC area. The implementation of these projects will improve the physical environment, social quality of life of the people, local economy and generally the green development of the region.

All of these projects shall be initiated with the leadership of the UC (Mannar UC) with the involvement of the other stakeholders and monitored by the Council of the UC.
<table>
<thead>
<tr>
<th>Specific Project No. 01: Mannar UC Area</th>
<th>Development of a Living ‘Green Forecourt’ to Mannar Town Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>The main Objective of the Master to be served by the Development/Project</td>
<td>Enhancement of the Northern Coastal Gateway Town image within the framework of Urban Development Plan prepared by the UDA</td>
</tr>
<tr>
<td>Sub Objectives:</td>
<td></td>
</tr>
<tr>
<td>● Maintain the underlying character of Mannar by providing urban design responses that reflect and build upon the distinctive character and context (historical, social, landscape) of the City</td>
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</tr>
<tr>
<td>● Integrate economic and commercial initiatives that support businesses and tourism and broaden recreation experiences as part of public realm.</td>
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</tr>
<tr>
<td>● Ensure public realm is adaptive and responsive in order to meet the demands of the business community and other community in and around the locality</td>
<td></td>
</tr>
<tr>
<td>The Location and the surroundings</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Map of Mannar Town Center" /></td>
<td></td>
</tr>
<tr>
<td>Relevant Pre-requisites for the development and implementation of the project</td>
<td>Lands earmarked for the proposed fore-court need to be cleared by the relevant agencies/institutes. <strong>Introduced land readjustment and land pooling techniques parallel to the design of Green forecourt and make sure smooth operation and monitoring.</strong></td>
</tr>
<tr>
<td>The current status of the land and its vicinity</td>
<td>Part of the land earmarked for this project is occupied by run-down cooperative society building. The major portion of the land is abandoned bare land (reclaimed marsh/pond) The portion in front of the fishermen's boat anchoring point is used for a temporary parking facility.</td>
</tr>
<tr>
<td>The Land Ownership</td>
<td>Cooperative Society Mannar Urban Council (major portion) District/Divisional Secretary (Fishing Boat anchoring site)</td>
</tr>
<tr>
<td>Resources Available/Potentials</td>
<td>Surrounded by the fish market, vegetable market, shops and abutting ThalaiMannar road Located within close proximity (100m) to Bus Stand, Public Market, Bazzar, UC, Divisional Secretariat, Public Library and other frequently visited public facilities.</td>
</tr>
</tbody>
</table>
## Project Details

### The Physical Developments

Reorganization of the lands into a landscaped courtyard with:
- Shady local tree species planted,
- Areas paved with eco-blocks and placed with museum objects,
- Approx. 50% of the area with grass-grown lawns and 30% of the area occupied by storm water pond
- Small single storey building that will not exceed 1000 sq meters and house information center, souvenir shop, handloom and other local products
- Buildings shall be certified as a UDA Platinum Green Building,
- Buildings shall be powered totally by renewable energy and strive to be net positive.
- Buildings to be air conditioned using a low-energy system
- Buildings to be provided with potable water generated within the site.
- Building to use smart technology, for the purpose of being a show case of modern and cost-effective technologies
- Open air, shaded area for resting
- All roofs of the building and shade structures shall be covered with Solar PV
- All rainwater shall be collected and reused on site
- All storm, waste and sewerage shall be recycled and reused on the site.
- Electric charging stations for battery-operated vehicles shall be provided
- Green and Renewable energy education and information systems shall be provided.
- Periphery surrounded by the roads and properly designed drains
- Lit totally with Solar Energy (Panels Installed within premises)
- Block of land allocated for the proposed market of the UC (Developed as the backdrop to the forecourt at the New Bus Terminal end of the land)

### The Project Components

- Development of the single storey Building of 1,000 sq m.
- Construction of the rainwater pond approx. 1,000 sq meters
- Eco block paving – 5,000 sq meters
- Grass lawn
- Planting of 30 no trees of local species, with necessary ground preparation work.
- UDA Green Platinum Budling
- Net Positive electricity generation by renewable energy
- Surface water drains at the periphery of the court.
- Lighting with solar installations.
- Necessary utilities: Electricity, Water, Toilet Facilities, etc.
- Parking facilities,
- Information center

### Tentative Budget

To be estimated

### The Main Stakeholders

Mannar UC
Traders of the shops
Cooperative Society
General Public
Infrastructure agencies (RDA, NWS&DB, CEB, Telecom etc)

### The Expected Outcome

**Greening the City**
A needy 'green' element that provides bio diversity, environmental quality and pride to the community.

**Physical Improvements**
An active urban space that provides sense of entering into Mannar Town.
Development of high-quality green spaces to create multifunctional open spaces usable and enjoyable for wide public.
Provide safe, accessible and functional environments in high profile
Demonstration Project for healthy, energy and resource efficient living.
A pleasant environment to the users of the town

**Quality of Life and other Social Benefits**
An organized public space for residents in the area, daily visitors to the city and tourists.
Provide activity opportunities that support physical activity, health and wellbeing, (mental and physical) and social connection for all age groups
| **Benefit to Local Authority** | Income by means of renting out space for public activities.  
Delivery of public space requirement and the sense of pride to the citizens of Mannar UC.  
Value appreciation of the adjacent properties and possibility to introduce a 'Development Charge' computed on value added  
Build up strong relationship with multiple stakeholders specially Chamber of Commerce, Chamber of Industries, Private Entrepreneurs in common forums with public agencies to engage in consensus-oriented decision making regarding open spaces and public realm and other environmental issues in the project area. |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Project Duration with phasing</strong></td>
<td>To be decided</td>
</tr>
</tbody>
</table>
| **The Method of Formulation** | Planning & designing  
UDA to support Mannar UC to develop the design and procurement.  
Or  
Call Design Proposals on a competitive basis  
or  
Design Build turnkey contract. |
| **Funding** | Funded by Business holdings/Shop owners, in the vicinity  
Chambers of commerce and chamber of industries and private sector.  
Arranged through UC as a direct spending of the assessment taxes of the beneficiaries + Development Charge (computed on value added to properties and businesses).  
Or  
Build, Operate and Transfer  
or  
Public, Private Partnership |
| **Legal clearances and Approvals required** | Road development authority  
Urban Development Authority  
Department of Wild life conservation (if part of buffer zone of sanctuary coming under the project area.)  
Department of archeology (it is close proximity to the buffer zone of Mannar rampart.) |
| **Likely Risks and uncertainties** | To be studied |
| **The Method and the Lead Agency for Implementation and Sustaining** | Procurement/Construction  
Mannar UC |
| **Operations** | By Business Holders Association  
Supervised by Mannar UC |
| **Maintenance** | By Business Holders Association  
Supervised by Mannar UC |

Examples from existing situations similar to the proposed.
Examples from existing situations similar to the proposed.

Source: https://www.urbansystems.design

### Specific Project No.2: Mannar UC Area

<table>
<thead>
<tr>
<th>The main Objective of the Master Plan to be served by the Development/Project</th>
<th>Capitalize on Natural resources</th>
</tr>
</thead>
</table>

**Justifications**

Mannar is unique in many ways and offers many tourism attractions. Starting with the heritage sites which ranges from infamous Adams bridge in the Ramayana found in the northern end of the island, Dutch fort, to the historical baobab trees and donkeys found in the area are all part of the cultural and heritage associated with the area.

Vankalai birds sanctuary declared as a Ramsar site is located in the direct path of the birds migrating from India and is visited by large number of birds lovers during the seasons (October to December).

Visitors arrive by train as well as by roads but the city is ill prepared to guide them and capitalize from the potential income. As the city is the main service point for these interest groups, it could benefit largely by providing the facilities, and services needed by the visitors.

**Relevant Pre-requisites for the development and implementation of the project**

Revival of the tourism development in the country

**The Location and the surroundings**

Vankalai Birds sanctuary
And Heritage sites

**The current status**

The area is served by the National railway and road network and also a small airstrip that is found may help the arrival of tourists.

The site has limited hotels and is less known among tourists as limited literature and promotional material are available. Facilities available currently in the city in terms of restaurants and hotels are also limited. However, as there are many returnees from the middle east the possibility of more tourist hotels for accommodation being set up is there.

There are no signage and information available to the tourists who arrive in the area to guide them on sites to visit.

**The Land Ownership**
Several locations of tourist interest

**Resources Available/Potentials**
Natural and heritage attractions and the tourist interest
### Project Details

**The Physical Developments**

At the arrival locations where the city is receiving public (both rail, and roads) it is necessary to establish attractive active electronic boards that inform or provide information on tourist sites and various other details sought by the tourists. For instance, where to stay, vehicles hire, and locations of the sites of interests can be provided and the cost of these can be recovered from those service providers. Sometimes the responsibility of manning of the information offices/desk can be handed over to the tourism operators associations as they will be one of the key stakeholders to benefit from tourist arrivals.

It is highly recommended that a web site be opened that will be run in collaboration with the Tourist Development Authority to promote Mannar as a natural heritage site and eco-tourism site among local and international visitors.

The Vankalai birds’ sanctuary can be one of the sites to be promoted and it is recommended that the municipality in collaboration with the Wildlife department to start a bird watching tower and slow-moving boat service across the sanctuary to observe the birds in closer proximity.

Some of the tourism activities that can be included are developing a trail for visiting the heritage sites by walk where tourists can be encouraged to follow a route recommended. The trails can be supported with proper signage to guide the visitors. Activities they can engage while on travel can also be recommended.

### The Project Components

- Develop a Mannar Tourism web site to attract international and local tourists.
- Establish required signage to guide tourists.
- Encourage the private sector to invest on tourism-related infrastructure and provide possible incentives such as free car parking for tourist vehicles, reduce rental etc.

### Tentative Budget

To be estimated with a detailed design proposal.

### The Main Stakeholders

- Local Authorities
- Locals who have an interest in tourism
- Sri Lanka Tourism industry

### The Expected Outcome

**Greening the City**

The eco-tourism and cultural tourism help to protect and conserve some of the areas and resources that may slip the national and local efforts due to lack of funds. The interest and the potential to generate income from such resources will create a group of investors and stakeholders who will take necessary precautions and actions to protect the resource or even push the authorities to arrest potential threats.

- **Physical Improvements**: Tourism infrastructure, facilities and signages
- **Quality of Life and other Social Benefits**: Many people will find employment benefits and links with the tourism industry elsewhere.
- **Benefit to Local Authority**: Increase income potentials

### Project Duration with phasing

- Develop a tourism map that can be published in a web created for promoting Mannar tourism.
- Identify the infrastructure and service gaps needed and provide such facilities.

### The Method of Formulation

Planning & designing

Carry out the Mannar tourism development plan in collaboration with the TDA.

### Funding

To be organized in collaboration with the Tourism Development Authority and the Nature Conservation interest groups.

### Legal clearances and Approvals required

- Wild life Conservation Department,
- Coast Conservation Department,
- Urban Development Authority
- Archaeology Department
- Central Environmental Authority

### Likely Risks and uncertainties

- Climate change impacts on nature reserves and pandemic and the similar situations that affect tourism industry behavior

### The Method and the Lead Agency for Implementation and Sustaining

- **Procurement/Construction**: Mannar UC jointly with Sri Lanka Tourism Development Authority
- **Operations and Maintenance**: Mannar UC jointly with Wildlife Conservation Department, possibly with private sector participation

Examples from existing situations similar to the proposed.
### Specific Project No. 03: Mannar UC Area

#### Provision and green network with green lungs for the city of Manna

<table>
<thead>
<tr>
<th>The main Objective of the Master plan to be served by the Development/Project</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>An equitable spread of good quality, functional green network across the city and make the town a desirable place to live, work and play having pleasure and leisure</td>
<td></td>
</tr>
</tbody>
</table>

#### Sub objectives.
- Ensure all residents can enjoy public open space and public realm according the acceptable standard. (At least 1.4 ha for 1000 inhabitants)
- Development of high-quality green spaces to create multifunctional open space usable and enjoyable for wide public
- Increase the green cover and volume
- Minimize heat island effect.

#### Relevant Pre-requisites for the development and implementation of the project
- Lands identified for the tree planting, green belt and open spaces need to be studied and cleared by the relevant agencies/institutes specially
- Urban Development Authority, Road Development Authority and Mannar Urban Council.

#### The Location and the surroundings

![Map of Mannar UC Area](Source: https://visitabudhabi.ae)

![Aerial view of Mannar UC Area](Source: https://tuktukdude.com)
The current status of the land and its vicinity: There is no green belt or tree planting either side of main roads or secondary roads. There are some small green patches along the lagoon and local roads. Already UDA and Mannar UC identified 17 places as suitable places for open spaces. Most of the lands are vacant land with grass and scrub.

The Land Ownership: Public and private

Resources Available/Potentials: Availability of public and private land within the city limit. Underutilized land along the roads, coastal belt and the close proximity to neighborhoods. Availability of necessary basic infrastructure (road network, electricity, water).

Project Details:

| The Physical Developments | Tree planting in selected roads (major, secondary roads and local roads) considering the availability of space, free from vulnerability. A diversity of activities in public spaces that extend the hours of use (depend on the location) Locate public toilets, play and recreation facilities in accessible and active areas in identified open spaces install signs with maps to show connections and destinations (depend on the size) |
| The Project Components | ● Tree planting (appropriate for the area, climate and soil) Street furniture ● Diversity of activities (for suitable for all age category) ● Spaces for vendor stalls- Kiosk (to support local community) ● Use the edge of a public space for informal seating. ● Planting trees as appropriate. ● Required facilities, amenities and utilities |

Tentative Budget: To be estimated

The Main Stakeholders: Mannar UC, Urban Development Authority, Private sector and community organizations.

The Expected Outcome:

| Greening the City | Safeguard the Environment, improvement of green cover and volume A needy ‘green’ element that provides biodiversity, environmental quality and pride to the community. |
| Physical Improvements | Eye pleasing and attractive areas for residents and commuters. |
| Social Benefits | Promote Healthy Lifestyles. |
| Benefit to Local Authority | Minimize the expenses for health issues. Easy management Get some income through recreational activities |

Project Duration with phasing: To be decided

The Method of Formulation: Planning & designing UDA (landscape and environment division) to support the road development authority, Provincial RDA, Mannar UC to develop the design and procurement. Or Private sector with the supervision of UDA

Funding: Private sector/INGO's / NGO's and CBO's

Legal clearances and Approvals required: Urban Development Authority and UDA

Likely Risks and uncertainties: Climate change impact

The Method and the Lead Agency for Implementation and Sustaining: Procurement/Construction Mannar UC

Operations: Mannar UC with other key stakeholders.

Maintenance: Mannar UC with Community and possibly with Private Sector sponsorships

Examples from existing situations similar to the proposed.
Specific Project No.04: Mannar UC Area

**The main Objective of the Master Plan to be served by the Development/Project**
Implementation of an integrated solid waste management system and ensuring the environment and social safeguard of the local community by end of 2022.

**Relevant Pre-requisites (if there are any) for the development and implementation of the project**
CEA approval is required for the expansion of the project and the establishment of sanitary landfill.

**The Location and the surroundings**
In the current location at Palliunei.

**The current status of the land and its vicinity**
Currently there is a waste processing center including composting. The Surroundings are residential area. The solid waste dumping site is located in Papamodal about 5 km from the town. The land is a water-logged area. Solid wastes are dumped and burned in open air.

**The Land Ownership**
Both lands come under the preview of the Mannar UC

**Resources Available/Potentials**
The land and the labors for the solid waste management and equipment are available.
<table>
<thead>
<tr>
<th>Project Details</th>
<th>The Physical Developments</th>
<th>Construction of proper sanitary landfill for residue disposal at Papamodai, and the expansion of the sorting center and storage facilities at Pallimunei. Provision of Solar power on the roof top.</th>
</tr>
</thead>
</table>
| The Project Components | ● Construction of proper sanitary landfill for residue disposal  
● Expansion of the sorting centre and storage facilities.  
● Provide chopping/cutting machine  
● Conduct awareness program for the community on the source segregation.  
● Improve waste collection system with smart technology including GIS tracking system  
● Install soler panels for the compensation of electricity used for the machinery operation  
● Banning of polythene usage in the UC area by passing by-law | |
| Tentative Budget | To be estimated | |
| The Main Stakeholders | Mannar UC  
General Public | |
| The Expected Outcome | Greening the City | Keeping City clean  
Resource recovery from the waste including the compost and recyclable wastes such as paper, polythene, glasses and bottle, metals, e-waste etc,  
Reducing carbon emission by recycling wastes  
Contributing green energy to the national grid |
| Physical Improvements | Easy access to the public to dispose their municipal solid waste  
The PS ensures the proper disposal of solid waste | |
| Quality of Life and other Social Benefits | Ensures the environmental health and social safeguard of the community in the area by reducing the spreading of diseases | |
| Benefit to Local Authority | Opportunity to stand with good e-governance system for the solid waste management.  
Additional income through selling of compost and soler energy. | |
| Project Duration with phasing | Immediate action on the improvement of the composting facility, provision of cutting machine and establishment of sanitary landfill  
Medium term action for the installation of soler panel | |
| The Method of Formulation | Planning & designing | For the development sanitary landfill for the residue, the assistance of the National Solid Waste Management Support Centre (NSWMSC) of the Ministry of Local Government.  
Currently Chrysalis I-NGO is assisting in solid waste management for the Mannar UC. |
| Funding | Funded by the PS of other sources, National Solid Waste Management Support Centre (NSWMSC) of the Ministry of Local Government.  
Currently the Chrysalis an I-NGO assisting in solid waste management for the Mannar UC. | |
| Legal clearances and Approvals required | CEA approval for the establishment of Sanatory land fill | |
| Likely Risks and uncertainties | No major risk is expected | |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/Construction | Mannar UC |
| Operations and Maintenance | Mananr UC |
Common Projects for all Local Areas

These projects have been designed in conformity with the National and Global level sustainable development projects and to contribute towards the accomplishment of the National targets set out by the Government of Sri Lanka. Hence, they are commonly applicable in all LAs, but with necessary adaptations required under the given local situations.
<table>
<thead>
<tr>
<th>Common Project No: 01</th>
<th>Change introduction and knowledge generation/enhancement of stakeholders on green city Master Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Objectives of the Master Plan served by the Project</td>
<td>Implementation of wider training, educational and awareness development program in schools, community centers and youth societies on the Greening Project and Practices (objective 7). This project will also facilitate partially all the other objectives in 4 LAs that are focused on specific development interventions in 10 different sectors concentrated in Master Plan. The proposed project will address an initial element of Change management project. A total change management project should cover Introduction of desired change and comprehensive strategies/tools to be planned and implemented in managing introduced change for ensuring sustainability but, this project will address only the element of change introduction. The process of change management project has 3 interrelated elements from other analytical perspectives including knowledge generation, skill development and thereby influencing for attitudinal change of the planners, implementers, and beneficiaries of the project. Again this proposed project will address only the first component of this process, knowledge generation. This is regarded as a prerequisite of any project that will intend to plan, implement and sustain in the long run.</td>
</tr>
</tbody>
</table>
| Relevant Pre-requisites for the implementation of the project | Following pre-requisites are identified for planning and implementation of the proposed project:  
- The top level decision makers of all relevant stakeholders including Local Government Department as project executing agency and LA as project implementing agency should be convinced the need of introducing desired changes and their related knowledge to plan and implement all other possible interventions suggested under the Green city Master Plan  
- Further they also should be convinced the need of knowledge generation/sharing project for initial preparation of institutions including formal and informal and also Government and Nongovernment and CBOs for meaningful and effective involvement for project planning, implementation and sustaining them to maintain candidate cities as green cities |
| The Location and the surroundings | The proposed project on initial interventions to prepare stakeholders with accurate information to empower them with knowledge is not confined to any particular geographical location within LA areas. The interventions are on all the relevant institutions including government, nongovernment, formal, informal etc. located in various locations (Villages, LA areas, DS areas, Townships, District, Provinces and even National etc.) |
| The current status of the land and its vicinity | This aspect is not relevant to the proposed project which is not based on a particular land |
| The Land Ownership | Not relevant to this project due to its focus |
| Resources Available/ Potentials | If the executing and implementing agencies are willing to accept this project it can be assumed that relevant project beneficiary institutions can be mobilized for project implementation. The financial resources required for the project will not be comparatively high due to the nature of the interventions. UNDP ongoing project may be willing to fund for the project. |
| Project Details | The Physical Developments  
The project does not involve in hardware development, but it will directly facilitate the successful planning and implementation of hardware development-related interventions under the Master Plan and also to influence for the sustainability of the hardware development interventions intended to carry out under the Master Plan. |
| Project Components | The principal component of the project is training for various institutions identified as relevant stakeholders for the planning and implementation of specific projects recommended in the Master Plan. The specific aspects of training will include:  
- Needs for greening the cities in the country due to ongoing sustainability-related issues  
- Concepts of Green cities  
- Best practices of green cities in the world and the country  
- Need for Knowledge, skills and attitudinal changes of the stakeholders to plan, implement and sustain the interventions for greening the cities  
- Strengths and weaknesses existing  
- Opportunities and threats to be used for planning and implementing of green city related projects under the Master plan  
- The roles, responsibilities and accountability related behavior expected from the stakeholders. |
| Tentative Budget | The activities such as training modules/manuals development, mobilization of trainees, preparation of venues with leaning environment, mobilization of resource persons with knowledge on multi-disciplines etc. will require funds. |
### The Main Stakeholders

The institutions and in most cases individuals with different stakes on developing and managing a city will include in the list of stakeholders in the proposed project. The project proposed is a fundamental need to be addressed prior to commencement of planning and implementation of specific physical interventions. Therefore comprehensive list of stakeholders will be included and their main categories may include:

- Institutions directly involved in development activities and management /maintenance activities of the city infrastructure (e.g. LA, UDA, RDA etc.)
- Institutions indirectly involved in development and management functions of the city (e.g. Forest Department, Archeology Department, and wildlife Department etc.)
- Institutions involved in development as well as benefitting from such development (e.g. Business institutions)
- Beneficiaries of the town ship (e.g. visitors)
- Interested parties
- Other to be identified

### The Expected Outcome

| Greening the City | The main outcome of the proposed project is to prepare all the project relevant stakeholders with required knowledge and types of changes required. It is realistically assumed that this outcome will generate cumulative impacts such as effective contribution of knowledgeable stakeholders for planning, implementation and maintenance of the infrastructure facilities. Therefore, it can mention that this project will directly contribute for knowledge generation and indirectly contribute for all the elements of green city such as the 4 outcomes mentioned here. |
| Physical Improvements | |
| Quality of Life and other Social Benefits | |
| Benefit to Local Authority | |

### Project Duration with phasing

The proposed project actions will be confined to immediate actions and medium term actions. The project will contribute for long term in different mode of planning and implementation but not under this caption of the proposed project. The proposed project will have 3 different phases within it implementation 1) mobilization for training 2) implementation of training and 3) outcome mapping as comprehensive activity (not usual assessment of the training sessions) after the training to work out methodologies to use trained stakeholders in the follow up infrastructure related projects under the Master Plan.

### The Method of Formulation

| Planning & designing | Planning and designing will be carried out using comprehensive and effective participatory tools/methods to get stakeholders actively involved in designing the package of knowledge generation/sharing and brokering. |
| Funding | Either from the Local Government or from the UNDP’s ongoing project |
| Clearances and Approvals required | The concurrence from the Council of UC and heads of other stakeholder agencies |
| Likely Risks and uncertainties | The risk would be likelihood misconception of the proposed training as another conventional activity but, it is not conventional instead conventional tool is designed as new innovative approach |

### The Method and the Lead Agency for Implementation and Sustaining

<p>| Procurement/Construction | Procurement will include identification and hiring of suitable resource persons and other training related logistics |
| Operations | Operations of the program will be facilitated by capable, skill persons on behalf of LA but all the operations will be highly participatory. |
| Maintenance | The proposed project will contribute indirectly but positively for suitable programs on suitable O&amp;M to be worked on all the infrastructure projects to be implemented under the Master Plan. |</p>
<table>
<thead>
<tr>
<th>Common Project No: 02</th>
<th>Environmental reporting and communication with public</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The General Objective of the Master Plan to be served by the Development/Project</strong></td>
<td>Monitoring of environmental parameters and making/keeping people aware/informed of the changes happening to the city they live</td>
</tr>
<tr>
<td><strong>Justification</strong></td>
<td>The Green city Master Plan expects to improve the city outlook as well its functions to become more environmentally friendly. These changes will be experienced by the people and people need to be part of these changes. However, not all changes can be experienced directly but could be appreciated when certain other aspects affecting lives, change. It is necessary to identify what these parameters that we could expect to show the impact of changes. These may also be the indicators that would be used to report the progress and performances. It is noteworthy, that the public is the main stakeholder of this program whose tax money is used to make the changes and will be anxious to know the impact of actions taken. However, they may not be privileged or have access to find the progress and impact levels of the projects. It is for this reason that it is useful to communicate the progress and impacts in easy to understand manner to the general public.</td>
</tr>
<tr>
<td><strong>Pre-requisites for the implementation of the project</strong></td>
<td>Agreement by other agencies to work with the LA staff in the Standing Committee and understanding that this is formed for coordination and integration purpose to make the best use of the opportunity to make their respective subject areas also environmentally friendly</td>
</tr>
<tr>
<td><strong>The Location and the surroundings</strong></td>
<td>At the LA</td>
</tr>
<tr>
<td><strong>The current status of the coordination mechanisms</strong></td>
<td>City council is the place where the decisions are taken and actions are initiated. However public at large may only become aware and feel project impacts only after they are completed on the ground. Also, many projects that are expected to have long terms impacts are never felt by potential beneficiaries as the changes may be slow and unnoticeable due to many factors including slow pace. Currently there is no special mechanism or tools used to communicate or relay the information on the project’s progress or the impacts it makes to the public except for the plagues that are constructed opened at the time of laying foundation stones or opening of a facility or service centers.</td>
</tr>
<tr>
<td><strong>Resources Available/ Potentials</strong></td>
<td>Most LA’s in the country have no websites or digital format for communicating with the public. The younger segment of the public use digital media profusely and can be the conduit to reach other older population with information. Hence it is recommended that the LAs take immediate step to develop an interactive web/App to be used for interacting and communicating with the public and keep the public informed of the intended/planned changes. Electronic display boards to be established to report on selected environmental parameters and other social aspects as of current. The board can also take the current situation as the reference point and start displaying the ongoing or progress achieved in terms of environmental quality parameter. It may be necessary to set up an effective monitoring mechanism for reporting on selected parameters/indicators and warning levels. Environmental aspects, weather and disaster warnings, messages</td>
</tr>
<tr>
<td><strong>Environmental aspects, weather and disaster warnings, messages</strong></td>
<td>• Air quality: Particle size PM 10 levels • Water quality • Solid waste collection as a percentage of production on each day • Biodiversity and ecosystem services • Green cover in the city • Also use such medium to give short messages targeting public and interest groups • Rainfall and flood threats if any • Landslide warnings (for Bandrawela) • Lightning strikes and storm warnings</td>
</tr>
<tr>
<td><strong>Social and Health information for the area (disease outbreaks and actions)</strong></td>
<td>Financial and economic impacts (budget and expenditure made etc.)</td>
</tr>
<tr>
<td><strong>Project Details</strong></td>
<td><strong>The Project Components</strong></td>
</tr>
<tr>
<td></td>
<td>• Setting up of the a unit at the LA to be in charge of the data collection and reporting to the public • Provide training to the staff on carrying out these tasks • Commencement of the work and monitoring reports to be produced and published on the internet</td>
</tr>
<tr>
<td></td>
<td><strong>Physical development</strong></td>
</tr>
<tr>
<td></td>
<td>• Set up the Web and APUC needed for communication and the computers for data entry • Set up two or three large electronic display boards at strategic locations to inform the public of the green city status and other messages to the public • Prepare a monthly report on the web/app comments received from the public to the Standing Committee on Green City development and to the Council.</td>
</tr>
<tr>
<td><strong>Tentative Budget</strong></td>
<td>To be estimated</td>
</tr>
<tr>
<td><strong>The Main Stakeholders</strong></td>
<td>LA and the other agencies involved in implementing the projects</td>
</tr>
<tr>
<td>The Expected Outcome</td>
<td>Greening the City</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>To the UC</td>
<td>Many including meeting facilities at the LA</td>
</tr>
<tr>
<td>Project Duration with phasing</td>
<td>Immediate actions</td>
</tr>
<tr>
<td></td>
<td>Setting up of the unit and development of software needed</td>
</tr>
<tr>
<td></td>
<td>Training and Guidance (Medium)</td>
</tr>
<tr>
<td></td>
<td>Operational (Long term)</td>
</tr>
<tr>
<td>The Method of Formulation</td>
<td>Planning &amp; designing</td>
</tr>
<tr>
<td>Funding</td>
<td>UC and the School funding mechanisms including donations</td>
</tr>
<tr>
<td>Clearances and Approvals required</td>
<td>Council approval for Standing Committee</td>
</tr>
<tr>
<td>The Method and the Lead Agency for Implementation and Sustaining</td>
<td>Procurement/Construction</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>LA</td>
</tr>
</tbody>
</table>

### Common Project No: 03

<table>
<thead>
<tr>
<th>Development of the Administrative and Legal Framework for Clean Energy Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Objective of the Master Plan to be served by the Development/ Project</td>
</tr>
<tr>
<td>1. The elimination of using firewood and kerosine, as a cooking fuel, especially when cooking indoors, Note - addressed further under the Green Building section.</td>
</tr>
<tr>
<td>2. The elimination of burning of organic and non-organic materials, unless in an instance of waste to energy programs.</td>
</tr>
<tr>
<td>3. Mandatory and legal enforcement.</td>
</tr>
</tbody>
</table>

![](image1.jpg) ![](image2.jpg)

<table>
<thead>
<tr>
<th>Relevant Pre-requisites (if there are any) for the development and implementation of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Administrative and Legal framework to mandate the banning of greenhouse gas generation by the burning of organic and non-organic materials.</td>
</tr>
<tr>
<td>Roll out a series of pilot programs mainly as awareness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Location and the surroundings</th>
</tr>
</thead>
<tbody>
<tr>
<td>In general, this would be at the homes where cooking takes place</td>
</tr>
<tr>
<td>All locations were burning of organic and non-organic waste</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources Available/ Potentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are limited resources of LPG gas distribution for this LA.</td>
</tr>
<tr>
<td>The enhancing of the logistics associated with LPG distribution will be necessary.</td>
</tr>
<tr>
<td>Project Details</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
|                | The Main Stakeholders    | Ministry of Health  
Ministry of Environment  
Producers and distributors of LPG  
The LA  
The Consumers |
| The Expected Outcome | Greening the City | The use of clean energy (LPG) leading to a healthy community is a vital component of the Green City development |
| | Physical Improvements | Cutting back on greenhouse gas generation, leading to cleaner local atmosphere, especially where large scale burning of organic and inorganic waste materials takes place. |
| | Quality of Life and other Social Benefits | Contribution to healthy life, especially for the aged, who are mostly engaged in cooking and staying indoors. |
| | Benefit to Local Authority | Indirect source of revenue by converting waste to energy- recycling of waste |
| Project Duration with phasing | Immediate actions | **Immediate actions**  
1. Development of bylaws to enact such federal mandates.  
2. Awareness programs  
3. Capacity building |
| | Medium Term Actions | **Long term**  
1. Elimination of the use of firewood and kerosine for cooking.  
Elimination of the burning of organic and inorganic waste stream to energy and or recycling use. |
| | Long Term action |                                                                                                                  |
| | The Method of Formulation | Planning & designing  
Request assistance of the other project Consultants who are experts in the field of policy and implementation |
| | Funding |                                                                                                                  |
| | Legal clearances and Approvals required |                                                                                                                  |
| | Likely Risks and uncertainties |                                                                                                                  |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/Construction | 1. As this project addresses the administrative and legal framework, construction is not envisaged, except for soft services such offices, signage marketing data, computers and similar.  
2. It is best that such be handled by the regional office of the LA  
3. As a long-term project, construction of a waste to energy project |
| | Operations | The operation of this project would be in 3 sectors.  
1. The implementation of the clean energy program – By the LA  
2. The awareness, marketing – By the LA  
3. The operation of the clean energy systems. |
| | Maintenance | The expected maintenance of this program, will be to ensure  
1. The implemented programs are kept current and updated not later than at 6-month intervals  
2. Retaining of implementation staff to ensure continuity  
3. Implementing a rewards and appreciation program.  
4. Technical maintenance programs set in place by the manufacturers – suppliers-contractors of these clean energy programs. |
<table>
<thead>
<tr>
<th>Common Project No: 04</th>
<th>Development of the Administrative and Legal Framework for Energy Conservation and Clean Energy Generation</th>
</tr>
</thead>
</table>
| **The General Objective of the Master Plan to be served by the Development/ Project** | 1. Promote the generation of the LA’s electricity energy requirements through Renewable Energy. Achieve a target date of end 2050, to generate all electricity energy needs by the.  
2. Implementing energy conservation programs, reducing the draw of energy from the CEB electricity grid.  
3. Implementing a continuous improvement program for the conservation and generation of energy.  
4. Mandatory and legal enforcement of minimum thresholds and incentivize of surprising minimums. |
| **Pre-requisites for the development and implementation of the project** | 1. The Administrative and Legal framework mandates the generation of clean energy based on a national policy.  
2. Sri Lanka, while attending the 22nd UNFCCC Conference of Parties in Marrakech, Morocco, as part of the Climate Vulnerable Forum, pledged to use only Renewable Energy for electricity generation by 2050, thus paving the way for implementation such nationwide.  
3. Currently the 70% use of renewable energy is being gazetted  
4. Roll out a series of pilot programs, implementing energy conservation and renewable energy programs in residential, commercial and industrial facilities.  
5. Ensuring that all government and semi-government buildings and infrastructure programs are completely powered by renewable energy. |
| **The Location and the surroundings** | Participating in the program by the consumer and the government would dictate such. Thus.  
1. Consumer - The most economical location being the roof top of the consumers buildings. Such locations would be most likely be predominant.  
2. Government – In addition government buildings and areas of waste land used as retention or detention ponds for storm water, and in lakes and water bodies adopting floating solar technology |
| **The status of the land and its vicinity** | 1. There is no widespread application of renewable energy currently within this LA  
2. This applies to both consumer as well as government-sponsored programs. |
| **The Land Ownership** | 1. The land ownership will be based on the applicability of the respective consumer owning the subject land–building,  
2. Regarding government projects, the owner of the “Crown Land” will bear title. |
| **Resources Available/ Potentials** | 1. The primary resource available at present is the Government. As the Government’s has pledged to use only Renewable Energy for electricity generation by 2050, it paves the way for implementation of such programs nationwide.  
2. Based on this pledge the Green City initiative would lever on this mammoth resource and backing to implement this renewable energy target within the LA.  
3. Though Sri Lanka including this LA has the technical resources for installing Solar PV, the LA greatly lacks the administrative and legal framework and finance to implement the government’s pledge.  
4. The LA should work with the CEB, to be the CEB’s primary vehicle to implement this renewable energy programs.  
5. The availability of public, private partnerships with the UC should be pursued and used. |
<table>
<thead>
<tr>
<th>Project Details</th>
<th>The Physical Developments</th>
<th>Request assistance of the other project Consultants who are experts in the field of policy and implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Project Components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tentative Budget</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| The Main Stakeholders | 1. Ministry of Energy  
2. The Utility Commission  
3. The CEB  
4. The LA  
5. The Consumer | |
| The Expected Outcome | Greening the City | The use of clean energy is a vital component of the Green City development, and its sustenance.  
Physical Improvements | With the adaptation technical strategies, this decentralized energy generation will be a source of back up electricity during the CEB national grid power failure  
Quality of Life and other Social Benefits | |
| Benefit to Local Authority | Adaptation of Renewable energy on all the LA’s buildings and infrastructure, will be a source of revenue post the completion of the financing period. This is expected post the period following 8-10 years. | |
| Project Duration with phasing | Immediate actions | Following through with the current regulation mandating 50% of the energy be generated by renewable energy. Development of bylaws to enact such federal mandates. Working with CEB to simplify and assist in the adoption of renewable energy. The following targets have been proposed, noting that % indicated pertains to the extent of the energy consumed by the LA consumers;  
Short Term Targets (02–03-year horizon) 30%  
Medium Term Targets (10-year horizon) 60%  
Long Term Targets (20–30-year horizon) 100% | |
| Medium Term Actions | | |
| Long Term action | | |
| The Method of Formulation | Planning & designing | Request assistance of the other project Consultants who are experts in the field of policy and implementation |
| Funding | | |
| Legal clearances and Approvals required | | |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/Construction | ● As the first stage of the project addresses only the administrative and legal framework, construction is not envisaged, except for soft services such offices, signage marketing data, computers and similar.  
● Such should be handled by the regional office of the CEB and the LA  
● Post the setting up of the administrative and legal framework, the LA and other consumers will rely on Govt funding or Public Private Partnerships with the UC to have these renewable energy programs implemented. | |
| Operations | | The operation of this project would be in 3 sectors  
The implementation of the renewable and clean energy program – By the CEB and LA  
The awareness, marketing – By the CEB and LA  
The operation of the renewable and clean energy systems. | |
| Maintenance | ● The expected maintenance of this program, will be to ensure  
● The implemented programs are kept current and updated not later than at 6-month intervals  
● Retaining of implementation staff to ensure continuity  
● Implementing a rewards and appreciation program.  
● Technical maintenance programs set in place by the manufacturers – suppliers- contractors of these renewable energy programs. | |
### Common Project No: 05

#### Development of the Administrative and Legal Framework for implementing Green Buildings that foster Human Health optimized the usage of resources in construction and operations

<table>
<thead>
<tr>
<th>General Objectives of the Master Plan to be served by the Development/ Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Promote the development of green buildings within the LA adopting a staged development program.</td>
</tr>
<tr>
<td>2. Development of new and existing buildings, buildings which are energy, water and resource-efficient buildings which foster human health.</td>
</tr>
<tr>
<td>3. Implementing a continuous improvement program for development of a greener built environment</td>
</tr>
<tr>
<td>4. Mandatory and legal enforcement of minimum thresholds and incentivize of surprising minimums</td>
</tr>
<tr>
<td>5. Address the following Green Building Components</td>
</tr>
<tr>
<td>A. Energy Efficiency, including conservation and renewable energy generation</td>
</tr>
<tr>
<td>B. Sustainable site planning and management</td>
</tr>
<tr>
<td>C. Building material and resources</td>
</tr>
<tr>
<td>D. Quality of interior environment of the building</td>
</tr>
<tr>
<td>E. Water efficiency</td>
</tr>
<tr>
<td>F. Green innovation</td>
</tr>
<tr>
<td>G. Socio-cultural compatibility</td>
</tr>
</tbody>
</table>

Note: Emphasizing more on strategies that address climate change and human health.

<table>
<thead>
<tr>
<th>Relevant Pre-requisites for the implementation of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The key prerequisites, the UDA Green Building regulation is in place.</td>
</tr>
<tr>
<td>2. This needs to be enforced as a bylaw or similar enforcement mechanism or an incentive program or a combination of both</td>
</tr>
<tr>
<td>3. The administrative and legal framework needs to be in place</td>
</tr>
<tr>
<td>4. Capacity building of Green Building Services, Technologies Materials need to be in place.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Location and the surroundings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All new buildings commencing with government and institutional buildings</td>
</tr>
<tr>
<td>2. All new green building partner buildings</td>
</tr>
<tr>
<td>3. All new residential building developments</td>
</tr>
<tr>
<td>4. All new single-home residential buildings</td>
</tr>
<tr>
<td>5. All new commercial buildings</td>
</tr>
<tr>
<td>6. All existing buildings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The current status of the land and its vicinity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT applicable, as buildings will be on land on which there is a title by the owner and new land is not envisaged.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Land Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT applicable for this project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources Available/ Potentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>The UDA Green Building regulations</td>
</tr>
<tr>
<td>Limited green technology support services available and will need to be developed to be mainstream.</td>
</tr>
<tr>
<td>Limited green materials to be developed as mainstream materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Physical Developments</td>
</tr>
<tr>
<td>The Project Components</td>
</tr>
<tr>
<td>Tentative Budget</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Main Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Energy</td>
</tr>
<tr>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>The Utility Commission</td>
</tr>
<tr>
<td>The CEB, Drainage and Water Board</td>
</tr>
<tr>
<td>The LA</td>
</tr>
<tr>
<td>The Consumer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greening the City</td>
</tr>
<tr>
<td>Healthy, beautiful buildings which have been built using environmentally friendly materials, resulting in sustainable community</td>
</tr>
<tr>
<td>Physical Improvements</td>
</tr>
<tr>
<td>Physical improvements of the built environment</td>
</tr>
<tr>
<td>Quality of Life and other Social Benefits</td>
</tr>
<tr>
<td>Improved buildings, which foster human health</td>
</tr>
<tr>
<td>Benefit to Local Authority</td>
</tr>
<tr>
<td>A community that is sustainable, with reduced maintenance</td>
</tr>
<tr>
<td>Project Duration with phasing</td>
</tr>
<tr>
<td>-------------------------------</td>
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<tr>
<td></td>
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</tbody>
</table>

**Short Term Targets (02–03-year horizon)**
20% of the New Buildings to be Green Certified.
- Green Certified 20%
- Of the Above
- Green Platinum –5%
- Green Gold –20%
- Green Silver – 75%

**Medium Term Targets (10-year horizon)**
60% of the New Buildings and 20% of the existing Buildings to be Green Certified.
- Green Certified 60%
- Of the Above
- Green Platinum –7%
- Green Gold –30%
- Green Silver – 63%

**Long Term Targets (20–30-year horizon) 100%**
100% of the New Buildings and 100% of the existing Buildings to be Green Certified.
- Green Certified 100%
- Of the Above
- Green Platinum –10%
- Green Gold – 50%
- Green Silver – 40%

**The Method of Formulation**
- Planning & designing
- Request assistance of the other project Consultants who are experts in the field of policy and implementation

**Funding**
Legal clearances and Approvals required

**Likely Risks and uncertainties**

<table>
<thead>
<tr>
<th>The Method and the Lead Agency for Implementation and Sustaining</th>
<th>Procurement/Construction</th>
<th>The LA Community and Social Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>The Owner and user of the buildings</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>The Owner and user of the buildings</td>
<td></td>
</tr>
</tbody>
</table>
Strategies for Mannar Green City
### Strategy No.1

**The main Objective of the Master plan** to be served by the Development/Project: To establish sustainable, disaster resilient green city in a northern coast (disaster prone region) of Sri Lanka.

**Sub objectives.** Provide realistic and fundamental improvements to the existing DRR framework of the city with other relevant agencies. Motivate stakeholders and create awareness on the importance of Disaster Risk Reduction (DRR) in the city.

**Relevant from SWOT (Please refer to the Combined detail SWOT Analysis)**

<table>
<thead>
<tr>
<th>S</th>
<th>Relevant SWOT</th>
<th>Details</th>
</tr>
</thead>
</table>
|   | Relatively more compact development of the urban center and location of all services with a walking distance: | Density/Proximity index:.....

Historically known archaeological and nature heritage sites and identity established as ‘Gateway’ to Island Thalei-Mannar.

Sites with potential tourist attraction: ..... |

<table>
<thead>
<tr>
<th>W</th>
<th>Relevant SWOT</th>
<th>Details</th>
</tr>
</thead>
</table>
|   | ● Less Green cover in the area: | Total area: .........Green cover: .........

● Lack of tourism related facilities and promotion activities:
  - Hotel Rooms available: .........
  - Other Tourism Facilities: .........
  - Promotional events: .........

● Ponds, canal reservations and beach encroached for developments:
  - Total area /length: .........
  - Area Encroached: ......... |

<table>
<thead>
<tr>
<th>O</th>
<th>Relevant SWOT</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>● Enhanced supports from LA leadership, local politicians, and UNDP for implementing Green City project.</td>
<td></td>
</tr>
</tbody>
</table>

● Existing government policies, Powerful Laws, and sound Institutional arrangements to regulate and regenerate the built environment:
  1. Urban Development Authority and the Law
  2. Urban Councils Ordinance
  3. Coast Conservation Act
  4. Road development authority and Provincial Road Development Authority
  5. Central Environmental Authority Law |

<table>
<thead>
<tr>
<th>T</th>
<th>Relevant SWOT</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>● Vulnerability of the area and its resources to Climate Change impacts and other disasters.</td>
<td></td>
</tr>
</tbody>
</table>

**The Location and the surroundings**

Align the SDG’s and Sendai framework with existing and proposed DRR activities.

**The Location and the surroundings**

Source: UN-Habitat
<table>
<thead>
<tr>
<th>The current status of the land and its vicinity</th>
<th>Lack of disaster-resilient infrastructure development, Improper environmental management, Social and economic development are not integrated with DRR. Lack of awareness and education on DRR and Lack of proper governance in disaster management and technical capacity in the city. There was a special disaster city resilient programme for Mannar Area prepared by UN-habitat with the support of UC and other relevant stake holders. Under this programme hazard assessment, vulnerable assessment and risk assessment were done in 2014. It is recommended that to update the existing programme and revisit the proposed activities with current challenges and future scenarios.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Land Ownership</td>
<td>Public and private</td>
</tr>
<tr>
<td>Resources Available/Potentials</td>
<td>Availability of trained staff for this task and available knowledge on this subject and ongoing programme in this sector. Availability of necessary basic information and tools Well organized community based organization Availability of school children – they can use as social agent to implement part of this programme.</td>
</tr>
<tr>
<td>Project Details</td>
<td>The Physical Developments Identifies the high risk locations where DRR planning solutions should be focused and demarcate them physically for easy reference of the public</td>
</tr>
<tr>
<td>The Project Components</td>
<td>● Awareness for community, school children and youth. ● Improve the drainage system and Physical Environment of the City, with a focus on water management. ● Strengthen Environmental and Natural Resource Management. ● Integrate Social and Economic Development with Disaster Management ● Practice Community Mobilisation to Develop DRR Capacities of UC and with other stakeholders ● Implement a Policy Framework for Developing a Resilient City with special attention to the impact of climate change</td>
</tr>
<tr>
<td>Tentative Budget</td>
<td>To be estimated</td>
</tr>
<tr>
<td>The Main Stakeholders</td>
<td>Disaster Management center District secretary- DRR staff Mannar UC Urban Development Authority Private sector and community organizations.</td>
</tr>
<tr>
<td>The Expected Outcome</td>
<td>Greening the City safeguard the Environment and people and infrastructure Physical Improvements Drainage network and road network with evacuation roads. Quality of Life and other Social Benefits Free from disasters and Promote Healthy Lifestyles. Benefit to Local Authority Minimize the expenses for infrastructure and relief after each disaster Easy management Better management of the city with proper governance system</td>
</tr>
<tr>
<td>Project Duration with phasing</td>
<td>Immediate actions Awareness for school children and youth Mobilize CBOs and NGOs Integrate DRR guidelines to local development plan and gazette and enforce as laws and rules and regulations. Medium Term Actions Long Term action</td>
</tr>
<tr>
<td>The Method of Formulation</td>
<td>Planning &amp; designing Funding Central government Private sector/INGOs / NGOs and CBOs Legal clearances and Approvals required Disaster Management Center, District Secretary and Urban Development Authority and UDA Likely Risks and uncertainties Climate change impact</td>
</tr>
<tr>
<td>The Method and the Lead Agency for Implementation and Sustaining</td>
<td>Procurement/Construction Mannar UC Operations Mannar UC with other key stakeholders. Maintenance Mannar UC with Community</td>
</tr>
<tr>
<td>Strategy No.2</td>
<td>Intervention for building the capacities of Managers/leaders involved in planning and implementation of changes introduced under Green City Master plan</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>The main Objective of the Master Plan to be served by the Development/Project</strong></td>
<td>Capacity building of actors involved in the series of interventions proposed under the Master Plan is observed as a significant gap in planning and implementation of the suggested projects. The strategic actions proposed in this project will lead to fill this significant gap observed. This intervention will provide supplementary direct inputs to achieve the expected objectives of 4 common projects suggested under the Master Plan to be implemented in 4 candidates’ LAs. These 4 common projects include Establishment of standing committees, Community based city monitoring, Environment reporting and communication and Change introduction and knowledge generation. In this context, the objective of this project will be to implement comprehensive interventions to build the capacities of leaders of proposed projects involved in planning and implementation under the Green City Master plan</td>
</tr>
<tr>
<td>Relevant Pre-requisites (if there are any) for the development and implementation of the project</td>
<td>This project can be considered as one important prerequisite to achieve the success of all other projects suggested under the Green City Master Plan. This need should be understood by the decision makers including any donors funding for implementation of series of interventions suggested under the Master Plan. Capable leaders with required knowledge and skills will be an essential need</td>
</tr>
<tr>
<td>The Location and the surroundings</td>
<td>The proposed project on capacity building of Change managers is not confined to any particular geographical location within LA areas. The interventions are on all the relevant institutions including government, nongovernment, formal, informal etc. located in various locations (LA areas, DS areas, Townships, District and Province)</td>
</tr>
<tr>
<td>The current status of the land and its vicinity</td>
<td>Not relevant</td>
</tr>
<tr>
<td>The Land Ownership</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Resources Available/Potentials</td>
<td>If the executing and implementing agencies are willing to accept this project it can be assumed that relevant project beneficiary institutions can be mobilized for project implementation. The financial resources required for the project will not be comparatively high due to the nature of interventions. UNDP ongoing project may be willing to fund for the project.</td>
</tr>
</tbody>
</table>
### Project Details

**The Physical Developments**

The project does not involve in hardware development, but it will directly facilitate the successful planning and implementation of hardware development-related interventions under the Master Plan and also to influence for sustainability of the hardware development interventions intended to carry out under the Master Plan.

**The Project Components**

The principal component of the project is training for capacity building of key actors of project planning and implementation of a series of projects proposed under the Green City Master Plan. The specific aspects of training will include:

- Development and implementation of a training module for leadership qualities
- Training module planned and implemented on project planning and implementation
- Training module developed and implemented on social marketing in Green city projects
- Skill development of leaders on outcome mapping of green city projects

**Tentative Budget**

The activities such as training modules/manuals development, mobilization of trainees, preparation of venues with leaning environment, mobilization of resource persons with knowledge on multi-disciplines etc. will require funds.

**The Main Stakeholders**

Key actors of the principal agencies such as LAs, Department of Local Government in the respective provinces, UDA recommended officers, Officers from other relevant agencies such as Mahaweli, Wild life, RDA, CEB, Divisional secretariats, NGOs, and in some cases main CBOs

However, in general all the stakeholder agencies in Green City Master plan will be considered as stakeholders.

**The Expected Outcome**

**Greening the City**

The main outcome of the proposed project is to facilitate key actors of Green City Master Plan operations to become effective leaders who will be capable in managing the change introduced. It is realistically assumed that this outcome will generate cumulative impacts such as effective planning, implementation and maintenance of the infrastructure facilities. Therefore, it can mention that this project will directly contribute for all the elements of green city such as the outcomes mentioned here.

*Physical Improvements*

*Quality of Life and other Social Benefits*

*Benefit to Local Authority*

### Project Duration with phasing

**Immediate actions**

**Medium Term Actions**

**Long Term action**

The proposed project actions will be confined to immediate actions and medium term actions. The project will contribute for long term in a different mode of planning and implementation. The proposed project will have 3 different phases within it implementation 1) mobilization for training 2) implementation of training and 3) outcome mapping as comprehensive activity (not usual assessment of the training sessions) after the training to work out methodologies to use trained leaders in the follow up infrastructure related projects under the Master Plan.

### The Method of Formulation

**Planning & designing**

Planning and designing will be carried out using comprehensive and effective participatory tools/methods to get stakeholders actively involved in designing the package of leadership training for Change management.

**Funding**

Either from the Local Government or from the UNDP’s ongoing project

**Legal clearances and Approvals required**

The concurrence from the Council of LG and heads of other stakeholder agencies

**Likely Risks and uncertainties**

The risk would be the likelihood of misconception of the proposed training as another conventional activity but, it is not conventional instead conventional tool is designed as new innovative approach

### The Method and the Lead Agency for Implementation and Sustaining

**Procurement/Construction**

Procurement will include the identification and hiring of suitable resource persons and other training-related logistics

**Operations**

Operations of the program will be facilitated by capable, skill persons on behalf of LA but all the operations will be highly participatory.

**Maintenance**

The proposed project will contribute indirectly but positively for suitable programs on sustainable O&M to be worked on all the infrastructure projects to be implemented under the Master Plan.
Strategy No.3: Balancing Green initiatives with opportunity for development

City planners may identify several areas that may need to be preserved or kept free of development activities to ensure the environmental quality and balance the development intensity. For instance, areas where the wildlife habitats are found or the watershed or wetlands are to be preserved for environmental protection as well as for health and safety reasons of the communities, those habitats/ecosystems may either need to be kept free or subject to controlled development activities with greater emphasize paid to the safeguards and protection measures. In such a regulated scenario, the people and institutions who are already established could be subjected to limitations and restrictions with possible economic and social implications due to the environmental sensitivities associated with the areas. For example, a person living in a sensitive wetland environment may be not be allowed to start a factory or grow certain agricultural crops or release effluents that could disturb the habitat integrity and ecosystem dynamics. Such persons could be given a few options such as

a. Leave the areas with compensation paid and allow the habitat restoration
b. Stay and continue with allowed activities while complying with the regulations and restrictions to safeguard the environment
c. Be subject to a swap where the land for planned expansion is provided elsewhere while remaining in the current locations under limitations
d. Compensate the loss of opportunity through tariff and taxation where other beneficiaries pay for the forgone opportunity as an agreed rate

Green resources that are in demand include mainly Water and Land. The users of these resources are diverse and growing. The ways and priorities of using these resources may change with time. Maintaining these resources through proper management of the ecosystems that hold these resources as well as regulating the activities is important to ensure their sustainability. The Local authority who has been empowered with legal provisions to ensure the quality environment is maintained for the benefit of its residence should have a thorough idea and knowledge about the land and water users and demands to ensure that future generations can be provided with quality environment and ecosystem services.

The preparation of the resource profiles of the area which will provide the baseline situation will therefore an important aspect in the process of green city development

Solution: Formation of the Baseline Resource Profile and Maps

Such information made available and updated annually will be useful for the Local authorities engage in providing services to the communities. Together with the profile data its useful to prepare an inventory of the laws and regulations in place of that guide these areas to see the gaps in the management.

Such detail profile will be useful when devising mechanisms to compensate or introduce ways of formulating incentives/disincentives to those who plan to develop these areas or protect them. Hence it is recommended that a land use plan identifying the areas for protection, controlled use (buffer areas) and areas free for all forms of development and management should be developed.

These profiles and land use maps may be useful to identify the alternative lands for those who may become “trapped” and would not be able to develop the lands as they wish due to declaration of the areas as protected or environmentally sensitive.

Strategy No.4: Sustainable Drainage Management

In order to overcome the presently existing hydrology and drainage-related issues and to enhance drainage management aspects, it is recommended to formulate a Drainage Management Masterplan for the Mannar Urban Council area, especially covering the growing township areas in the suburban areas. The aim of this procedure is to respond to the urgent and growing need to reduce, and if possible, eliminate localized floods, inundations, and stagnant water that
degrade usable area, roads and buildings in built-up areas. A master plan needs to be drafted, a local regulation enacted to implement it, and infrastructure needs to be developed. In addition, restoration and regular maintenance of the damaged and dilapidated existing drainage networks including primary and secondary channels with roadside drains as tertiary drains, is also important and will be required to allow quicker discharge of rainwater during intense rainfall events especially during inter-monsoon and monsoon months.

The concepts of ‘Green Water’ should be introduced to incorporate Sustainable Urban Drainage Systems (SuDS) and flood control by means of environmentally friendly, non-structural measures which in turn enhances groundwater recharge, reduce peak discharge, pollutant loading to flow channels and downstream reservoirs, and enhance other associated ecosystem functions.

It is envisaged that because of insufficient drainage and flood control infrastructure, developing city suburbs will increasingly suffer from drainage issues as a result of continuous population growth, urbanizations, loss of greeneries and deforestation, sedimentation, while climate change impacts are predicted to exacerbate these negative impacts.

The possible local inundation in the city causes disruptions to traffic, daily life and agriculture while leading to health hazards and risks to the local economy. If no remedial action is taken at the planning stage, these disruptions will continue to grow in magnitude and significance. Hence, the Mannar Urban Council area needs improved resilience to stormwater management through improved infrastructure, planning, implementation and management/maintenance, as a part of the ongoing or forthcoming Green City Program.

The possible ‘Green Water’ and SuDS concepts that can be applied to dry zone areas include rainwater harvesting (both at household and community scales), green roofs, bio-retention, permeable pavements, soakaway pits, sediment traps and catch pits (to reduce both sediment washout and excess fertilizer inflows) and bio-swales or vegetated channel ways.

Sustainable drainage systems (SuDS) are a natural approach to managing rainwater drainage in and around urbanizing properties and other developments. The SuDS are designed to merge with the existing natural facades to work by slowing and holding back the stormwater that runs off from a site after a heavy rainfall event, allowing natural processes to help reduce peak flows and break down pollutants by mimicking the natural cycle of water management. These concepts should be incorporated in preparing Drainage Master Plan under the proposed city development programs.
Other Projects for Mannar Green City

The following are also identified as the requirements of the LA for the accomplishment of Green City objectives. Some of them are already initiated by the LG, the Ministry or Development Partners, while the others need to be designed with expertise in the relevant subject area, but recommended to be implemented parallel to the projects mentioned in this Green City Master Plan.
1. **Sustainable and harmful management of the donkey population.**

Donkeys have been freely breading in the entire Mannar island for the last 300 years. They have become part of the Mannar landscape by now. This is the only area where donkeys are apparent in Sri Lanka.

The donkeys are regarded as a nuisance and ‘out of place’ element by some residents and visitors to the area because of the damages they incur, the diseases they are said to have propagated, and the increasing number of road accidents caused by their unpredictable behavior, a majority of the citizens may be unlikely to vote for execution of them by the UC as per the provisions given in the Urban Councils Ordinance.

On the above grounds, the most appropriate would be to manage the growth of the donkey population in a sustainable manner with the involvement of veterinary and habitat management expertise, which is beyond the scope of this project.

2. **Conservation and Enlivening of the Biopap Trees**

Mannar is the only location where this gigantic exotic tree species can be found. These plants said to have brought to this area during Dutch or British ruling before 19th century and that qualify the number of trees lying in different parts of the town to be conserved under its list of heritage sites.

Currently most of them are neglected and exposed to the threat of being extinct. Two of them have been visitor attractions and protected to some extent by the conservationists in the area. The UC, along with the Archeology Department and the Forest Conservation Department shall initiate a project to conserve and popularize them as touristic attractions.

3. **Conservation of the bustling character of the Bazar Street**

The Bazar Street of Mannar can be identified as the oldest and busiest urban environment of Mannar town. Starting from the fish and vegetable market at the south end the street extends approximately 700 meters, flanked by three to four storied buildings constructed to the street edge and limiting the width of the street to 6.0 – 7.0 meters throughout. This cohesive setting resembles the classic historic urban response to hot-arid weather conditions and the protective shady and cohesive atmosphere conducive for its wholesale, retail and social functions.

Conservation of this setting with its physical composition, proportions and functional arrangement, but with necessary modernization measures and technological advances is proposed as an urban design intervention by the UDA.

4. **SMART Office environment in Mannar UC**

The internal transactions among different Departments and the external service delivery of the of the Mannar UC are proposed to be fully automated through the introduction of SMART technology and required training for the staff. This will make it a modern and state of the art office environment that will provide convenience to the citizens, management and the employees of the UC, increase the efficiency in the systems and contribute to the accomplishment of Green objectives.
CHAPTER - 09

ROAD MAP
9. THE ROAD MAP

9.1 Introduction

The final draft of the Master Plan was presented at two instances to Mannar UC and the other stakeholders.

The first was the virtual validation meeting organized by the UNDP on 21st September 2021 on a Zoom Platform, with the participation of the Chairman and the members of the UC, Deputy Commissioner of LG-North Central Province, UNDP representatives and a few other participants. Summary of the outcome of the meeting and the other details are given in Annexure 6.3

The Second Validation workshop was organized with the support of the UNDP on 09th November 2021 at Akash Hotel. The details on the participants, the main matters of discussions and the other details of this workshop are given in Annexure 6.3

The main objective of this workshop was twofold:

1. To interact with the Main Stakeholders to obtain their comments, views and suggestions to improve the content of the Green City Master Plan, especially the strategies proposed and the action projects identified therein.

   The Draft Master Plan was provided to Mannar UC in advance in order to be brought into the attention of both the elected members and the technical, financial and administrative officials of the UC. This was regarded as important because the UC officials are well aware of the ground situations and the institutional capabilities, the real needs of the LA and its community, likely constraints and possible means of circumventing such constraints.

2. To get active involvement of the Stakeholders to organize the action projects identified in the Master Plan in an implementable schedule/road map.

   Since the implementation of the Master Plan, and its actions have been confronted with a variety of challenges such as technical limitations, financial constraints and political interests, it is important to organize the strategic action projects in a manner that assures a least obstructed road map/work program.

   The road map shall avoid likely social, political and institutional objections, assure timely organization of resources and the development of capacities of the relevant executors of the actions/projects.

9.2 The Process

The presentation of the Master Plan

The Green City Master Plan was presented to the stakeholders and there were no objections raised or major amendments suggested to the content of the Master Plan. However, it was agreed that some of the detail information related to the projects, that could not be obtained during the preparation stage, due to on-going pandemic situation, need to be incorporated to the Plan. At the same time the EML strongly suggested a detail planning and design, along with a comprehensive evaluation of each and every project proposed herein and an in-depth public consultation before their implementation.

The presentation of the Mannar Green City Master Plan is given in Annexure 6.3

Prioritization and Sequencing of Projects

Having the received the consensus of the stakeholders for the content of the Master Plan, consultation for the preparation of the Implementation Roadmap was commenced.
The participants of the workshop were given an opportunity to identify the priority actions/projects through a comparative evaluation of them under the criteria given below:

A. More amenable to the control of the LG:

Actions/Projects which can be implemented with least objections from the people in the area and other organizations, least requirements for approvals and within the powers and functions of the LG/other implementing agencies.

B. Less capital intensive in the implementation:

Actions/Projects which do not need large sums of funding for their execution. The Estimated Project Cost can be larger still, but substantial parts of some projects are likely to be supported by volunteers, community participation and donations.

C. Catalyst to the other projects of the Green City

The Actions/Projects that support most to realize the Green City objectives of this Master Plan. The implementation of some projects is likely to expedite the path towards the implementation of the other projects, by setting up trends, clearing barriers and providing necessary background.

The evaluation was done in a pair-wise comparison of each project with every other project. Even though a Likert scale could have been used for a more comprehensive comparison of the projects, such was not adopted, having considered the complexity involved in its use in a limited event of this nature, and the complications likely to be experienced by the participants.

Each pairwise comparison had three occurrences under each of the above-mentioned criterion. All three criteria are considered with equal importance and therefore, no weights have been added in the evaluation.

In this exercise, each project could be assigned with a Relative Implementable Score (RIS) which is an indication of the level of readiness for the execution.

The projects that got highest RIS ( >0.5 ) have been selected for immediate implementation / or commencement within short-term horizon. The ones with middle range ( 0.25-0.49 ) have been earmarked for second implementation / mid-term horizon, while the others ( < 0.24 ) have been named projects that could wait for some time for the commencement and execution.

9.3 The Strategic Path

The priority order and the sequencing of the projects identified in the above process is as follows:

| Short term horizon (2022-2025) |
|------------------------------|---------|--------|
| Project No:                  | Description of the Project                          | RIS   |
| Project 01                   | Development of a Living ‘Green Forecourt’ to Mannar Town Center | 0.65  |
| Project 03                   | Provision and green network with green lungs for the city of Mannar | 0.62  |
| Project 04                   | Sustainable Solid Waste Management System for Mannar UC Area | 0.61  |
| Other Projects               | Projects for the Conservation and Enlivening of the Biopap Trees and Sustainable Management of Donkey Population |        |

| Mid-term horizon (2022-2035) |
|------------------------------|---------|--------|
| Project No:                  | Description of the Project                          | RIS   |
| Project 02                   | Promoting ecotourism and culture tourism trails in Mannar city and Vankarai Ramsar wetland site | 0.43  |
| Other Projects               | Automation of the Mannar UC Office                  |        |
Long term horizon (2022-2050)

<table>
<thead>
<tr>
<th>Project No:</th>
<th>Description of the Project</th>
<th>RIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Projects</td>
<td>Conservation of the bustling character of the Bazar Street</td>
<td></td>
</tr>
</tbody>
</table>

**9.4 The Tentative Implementation Road Map**

Even though the Project Team envisioned developing a project implementation road map taking the above sequencing of the projects, it is now realized that the dearth of most of the required information does not warrant a reliable forecast of a future state of affairs with any level of certainty. At the same time, with the changing political situations, along with the highly fragile socio-economic environment, and the priorities changing as a result of them, it is rather difficult to prepare a consolidated implementable road map. Therefore, only the list of projects, in the order of priorities is presented here. It is highly recommended a thorough information survey and detailed economic and financial feasibility studies to be carried out prior to their implementation of them.

**9.5 Conclusion**

It is exclaimed that the smooth and successful implementation of the above Specific Projects depends largely upon the outcome of the effective implementation of the Pre-requisite projects. The prerequisite projects are expected to create the necessary enabling environment and progressive mindsets in political authority, officers, and the residents in the locality on the Greening of the city. Thus, the constituents of the LG: Agents, the Systems and the Culture (explained in Chapter 2 of the report) will be conceptually and attitudinally transformed toward the Greening Process and thereby transform the Mannar UC LA into a Green Area in its own style as expected by the Organic Approach adopted by this project.
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