

# GREEN CITY MASTER PLAN AND IMPLEMENTATION ROAD MAP KATTANKUDY



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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.

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## Message from the Chairman, Kattankudy Urban Council

I have had the privilege of serving in the Kattankudy Urban Council as a member since 2006 and I am now the Chairman of the Council. Through my years of extensive experience in the Urban Council, I have developed a great appreciation of the importance of planning as the foundation for a successful development initiative. The Council has implemented various initiatives to improve the locality through projects aimed at zero solid waste and making the city green, clean and smart. I was very pleased to hear that UNDP-CDLG had selected Kattankudy to develop the green city master plan, and no doubt our city's tireless efforts towards green development are one of the reasons why we won the competition.

I would like to thank the Commissioner of Local Government, Eastern Province, the Assistant Commissioner of Local Government, the Secretary of Kattankudy Urban Council and all accountants and officers involved and the UNDP-CDLG Project.

I am very much grateful to the EML Consultants for preparing a very comprehensive Green City Master Plan with the input of all stakeholders, Kattankudy Urban Council, intellectuals and representatives from all institutions and sectors in Kattankudy.

I look forward to supporting the Kattankudy Urban Council in implementing the recommendations set out in the Green City Master Plan and I hope that UNDP-CDLG will continue to offer these types of opportunities in the future as well to support sustainable local development.

**S.H. Muhammad Asfar**

Chairman,  
Urban Council,  
Kattankudy

## 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

## Message from the Commissioner of Local Government

A Local Authority is an organization that is in charge of the public services for a community, and which is located and operates at the closest distance from the general public. The local authorities are responsible for lower-level administrative institutions and to provide public services as recognized by the law. LAs are required to provide services for the comfort, convenience, and well-being of the community in their respective areas.

Local authorities perform regulatory and administrative-related functions, such as promoting public health and sanitation; managing public thoroughfares and public utility services; and many more. However, in practice, the majority of LAs struggle to fulfill the needs of the public as they do not have adequate revenue or required resources to meet the needs of the people. Additionally, many LAs lack comprehensive plans for their operations, including the master plan for the council. As such, the Department of Local Government urges local authorities to prepare their own comprehensive master plans to comprehensively address key working areas.

Accordingly, the CDLG project with the financial support of the EU and UNDP, in partnership with the Department of Local Government, has initiated this intervention to facilitate local authorities to prepare their master plan to ensure an integrated and holistic approach to development. The Department has invited proposals from LAs, especially from the Municipalities and Urban Councils of the Eastern Province based on predetermined criteria to select suitable LAs for assistance under the first phase of the development of master plans.

Against this competitive process, the Kattankudy Local Authority scored the highest marks compared to the proposals submitted by other LAs. Subsequently, a consultative firm initiated a series of consultations to obtain the required inputs to inform the development of the Green City Master Plan for Kattankudy Urban Council. The department and the respective LAs are now in the process of implementing the sub projects listed in the master plan to help realize the aspirations of the plan in promoting green and sustainable local development.

As Commissioner of Local Government for Eastern Province, I have to extend my sincere gratitude for all the support and guidance received from the Hon. Governor, Chief Secretary, and the Secretary to the Chief Ministry to prepare this master plan. I would also like to thank the consultant team, and the staff of UNDP especially the Eastern Coordinator of UNDP, Chairman and Secretary of Kattankudy Urban Council, and Assistant Commissioner of Local Government, Batticaloa for their tireless efforts in preparing the master plan for Kattankudy Urban Council. Finally, I would like to congratulate Kattankudy Urban Council for this milestone achievement and I am confident that the master plan will bring more positive changes to the Local Authority to make it a thriving institution in the Eastern Province.

### **N. Manivannan**

Commissioner of Local Government  
Eastern Province





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## LIST OF ABBREVIATIONS

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



## 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 Kattankudy 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 this the Kattankudy 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 concepts 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 the 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:

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

## 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 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 toward 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](http://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 that 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 / with 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 provider 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 CDLG 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) that supports the livelihoods and the eco-services 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 Corvid-19 epidemic situation.
- (b) Some important information (updated GIS maps or the latest satellite images, micro economic data, socio-economic activities, etc.) was 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.
- (c) 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 and 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 raw 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 'ecosystemic' 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

Figure 2-1 illustrates the conceptualization of an 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.

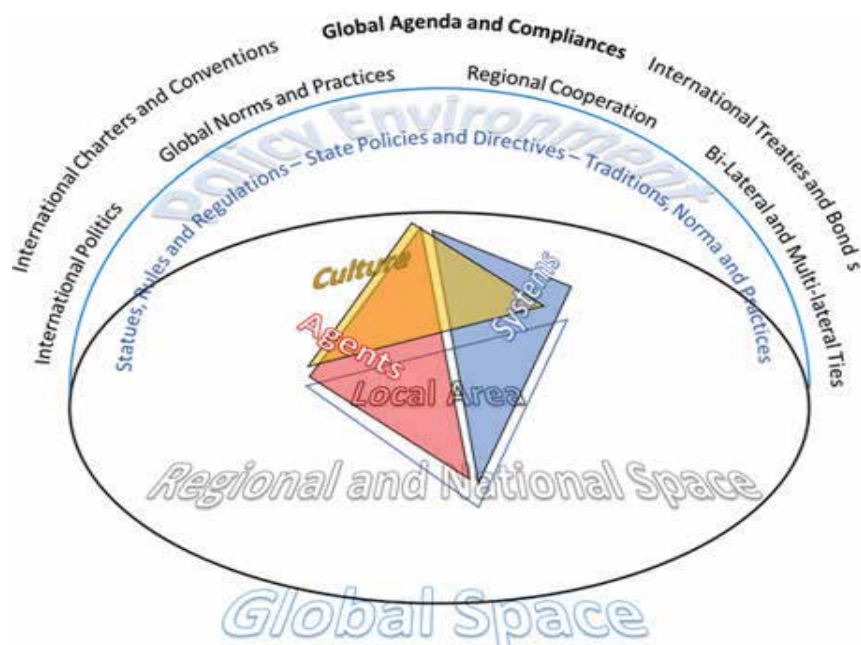


Figure 2-1: Conceptualization of an LG as an ecosystem (the tetrahedron at the center) in its spatial and policy environments, placed in the broader global context.

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 in 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 an LG is generally formed by:**

- a. The Defined Local Area
- b. The Broader Physical Landscape
- c. The Policy Context

#### **2.4.3 An 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, compose 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 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.

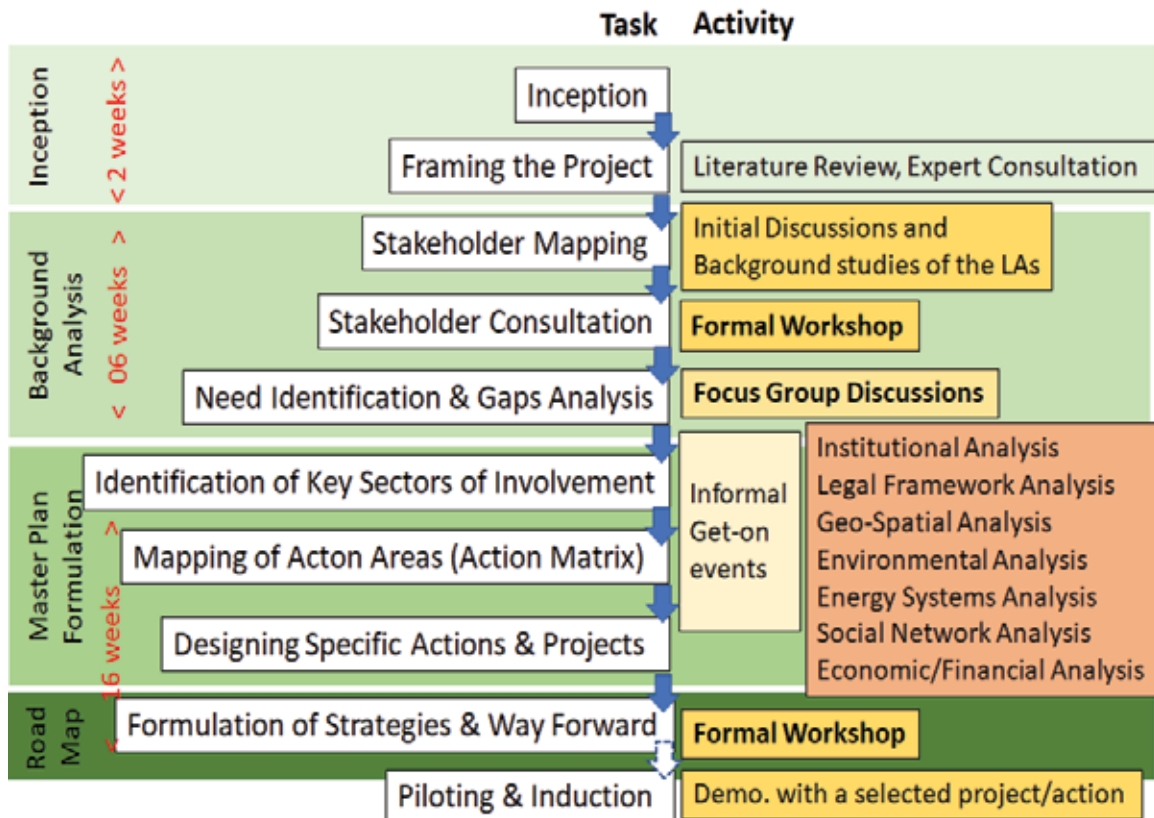


Figure 2-2: The Method of Work in preparation for the Green City Master Plan

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 actioner', 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 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
  - Economic and Financial Resource Analysis: Current revenue and expenditure, financial status and potentials.

- c. A long-term Vision for the respective LA, formulated considering its 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, concerning 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 how 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 Greening a Local Authority (along with the area under its jurisdiction), that has 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 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 the 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**, and 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 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 their 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 widely acclaimed international programs such as the UN Sustainable Development Goals, 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 of 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 statutes

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 been 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 that 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 toward 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. Notwithstanding the fact that 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 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 into 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, marginalized groups/communities were 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 required 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 learned 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 and 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 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, the conservation of such natural resources and the beneficial features 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 the 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.

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 process may come to a standstill. From lighting a household to the 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 the 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, to meet greening objectives, the LGs and other institutions in the LA could look into possibilities of supplementing the demand with available renewable sources and also introduce better and more efficient demand-side management measures to reduce the wastage in energy use.

### **2.12.5 Green Buildings that foster human health and 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.

Green buildings 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 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 use 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 affect the overall efficiency, business success and 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 statutes, the scope of Sri Lankan LGs are 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 governance 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 to determine 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 several 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 declared 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 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 and abolishing long-standing Town Councils and Village Councils. In 1980 there were 683 LGs on the Island, and it was dramatically reduced to 75 as a result of this structural change. (12 MCs, 39UCs, and 24 DDCs)<sup>1</sup>

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        |
| <b>Total number of LGs</b> | <b>341</b> |

#### 3.2 The powers, functions, and duties of the LGs

The Scope, the degree of Autonomy and Powers, Duties, and extent of Functions that 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 concerning the concept of LGs. In certain developing countries

<sup>1</sup> P20- Report of the Commission of Inquiry on LGs Reforms, 1999. (SL-Sessional Paper 1 of 1999)

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.<sup>2</sup>

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;"<sup>3</sup> 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 a 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 to enforce or protect 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 Legislation 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.

<sup>2</sup> P- 3 – Managing Local Governance, USAID, EML Consultants 2013, Colombo.

<sup>3</sup> 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 for the purpose of promoting and securing 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 3-1: Rates, Taxes & License Duties of LGs.

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

**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 set off 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 Budgetary provisions are clearly 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 each year be elected by ballot from among the councilors a **Standing Committee on Finance** and not less than two other Standing Committees.
3. The third important duty of a 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 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 the 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 dairies. (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 of 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 LGst 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 of 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 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 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 is 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 in nature 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 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.<sup>4</sup>

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

<sup>4</sup> P.70, Urban Councils Ordinance No. 61 of 1939, (Chapter 255) 1987, Dept. of Printing, Colombo.

enterprises are supposed to manufacture such machinery, equipment, articles, materials, and goods as may be 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, and 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 its 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 1950s and 60s Colombo Municipal Council operated a *Tram Car & Trolley 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 Kattankudy UC

Kattankudy is located in the Batticaloa district of Sri Lanka, bordering the Eastern coast at one end and the Batticaloa lagoon at the other. Some sources reveal that Kattankudy UC area currently records one of the world's highest population densities. The estimated population of around 48,750 (2019 based on 2012 Census) is concentrated into a limited area out of its total extent of 4.1 Square kilometers, divided into 18 GN Divisions.

It can be studied that the continuous expansion of Batticaloa City out of its administrative area into its surrounding area was the formation of Kattankudy urbanity. The limits caused by the coast and the lagoon might have compelled the urban growth to take a linear form extending to several kilometers of settlements. Because of this exposure, the entire area was devastated by the 2004 Tsunami and the unplanned development patterns existing in the area made rescue measures more difficult.

Kattankudy is known for its handloom woven clothing, which is mostly run as a domestic industry. Fishing and service sector employment contributes to the household income of the inhabitants of the area. Kattankudy PS was upgraded to



a UC in 1999 and the Council consists of 10 wards and 18 members. The annual budget of the UC is Rs.163 million (2019). The Greening process of Kattankudy can expect many challenges because of the density, location and observably rooted socio-cultural practices in the area.

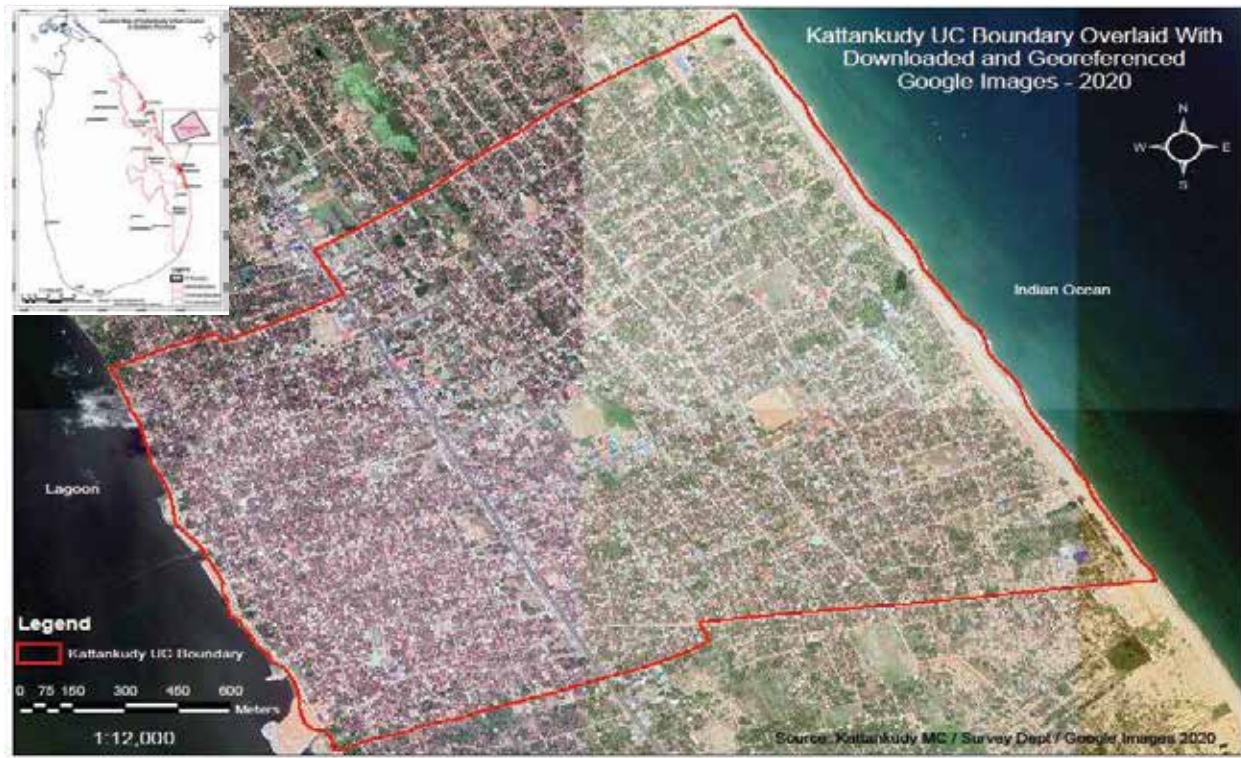


Figure 3-1: Location Map of Kattankudy UC area

Some important information on Mannar UC area

| Items                                   | Description   |
|---|---|
| Administrative District:                | Batticaloa  |
| Divisional Secretariat Divisions:       | Kattankudy  |
| Total Land Extent:                      | 4.10 Square Kilometers  |
| Major Land Uses:                        | Mixed Residential uses occupy 94 percent and water bodies cover 2 percent of the lands. The rest of the area consists of fragmented coconut lands, small industries, and marshes.                                       |
| Total Population (2020 estimated):      | 50,555  |
| Number of Families:                     | 15,336  |
| Main Sources of Livelihood:             | Trading, industries and daily wage  |
| Number of Housing Units:                | 14,215 (2020)   |
| Conditions of the House Units:          | Permanent (11,165), semi-permanent (1,172), temporary (715) and combined living houses (1,163)  |
| Houses with Pipe-borne Water Supply:    | 11,570 water connections, 4000m <sup>3</sup> per/month for the UC area, 11 km connection pipes laid, it is noted that more than 1000 connections are zero bill due to lack of awareness about the water borne diseases. |
| Houses with Sanitary Toilet Facilities: | 13,178 (2020)   |
| Houses connected Main Grid Electricity  | 13,017 (2020)   |

|   |   |
|---|---|
| Main Sources of Energy for cooking:             | Gas and Kerosene  |
| Solid Waste Collection:                         | 1121.04 MT per Month. Out of the Total waste collection bio-waste (57.20%), non-bio waste (42.36%), and total special waste (0.44%). (2014) |
| Number of Tube Wells UC:                        | 2973 numbers. Dug well found in the whole area in the UC but those are not used for the drinking due to polluted by fecal                   |
| Number of Families affected by other disasters: | Male – 7<br>Female –105   |
| Frequently reported diseases:                   | Dengue fever  |



Figure 3-2: Images of coastal area in Kattankudy UC area



# **GREEN CITY MASTER PLAN AND IMPLEMENTATION ROAD MAP**

**KATTANKUDY**

**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 Kattankudy UC area is a coastal town, bordered on either side by the sea and lagoon. It is often quoted as one of the most densely populated localities in South Asia with 50,555 people of 15,336 families (2020), residing within an area of 6.5 square kilometers leading to a net density of nearly 78 persons per hectare, which is a relatively higher compared to other urban areas of the country. The land area is heavily built, with low rise (mostly single-story and maximum of four or five storied) buildings. The residential population in the area is near-exclusively Muslim, and as a result, inherits a highly cohesive community living, that is manifested in its compact and densely packed physical environment.

Kattankudy is known for the entrepreneurial culture of its people, who have been successful to earn a reputation in locally produced handloom clothing, footwear and snack-food items. These are mostly produced in domestic industries, for which the workshops are integrated parts of the residences. The Kattankudy Urban Council has been managing its resources, income sources, public services and community activities effectively, and looking for avenues for improvement and enhancement.

In order to make Kattankudy a Green city, the social capital which is apparent in the form of community spirit, political will and a sense of community, is a major potential. However, the existing and ongoing pattern of physical developments, which has little regard for sensitive environmental systems and cannot be considered 'healthy' and 'sustainable' under accepted standards, is the major constraint to progress towards a Green city. Even though the planning initiatives, and the possible local and foreign funding sources provide numerous opportunities for the area to be developed in a planned manner, such endeavor encounters enormous challenges posed by the need for major rehabilitation, and regeneration of the existing built environment amidst the complexities associated with land tenure, cultural norms, surface drainage and sanitary facilities, etc.

### 4.2 History and the Evolution of the area

The historic legends say that the Qahtan's, the descendants of an Arabian community whose origins were said to be in the Southern part of the Arabian Peninsula, and who came to this area in the early days were the source of the name 'Kattan-Kudi'. Perhaps, the Qahtani merchants that came here in the 16th and 17th centuries, must have married women in this area and settled therein. Historically, Kattankudy is reputed for its religious conservatism, placed on an equal footing with some orthodox Muslim communities in Tamil Nadu, such as those Muslims in Kayalpatnam, Karaikkal, and Keelakkar (source: Institute of Muslim Minority Affairs)

Kattankudy local area is carved out of the linear land strip along the east coast, bordered by the Ocean in the east and the Batticaloa lagoon in the west, Manmunai North Divisional to the north and Manmunaipattu Divisional to the south. It can be noted that a separate local government was formed for the area based on ethnicity. The Kattankudy UC was established with effect from 11th June 1999 under the Gazette (Extraordinary) notification of 11th December 1998 by the Minister of Local Government. The area under the jurisdiction of the Urban Council consists of 18 GNDs.

A part of the Kattankudy area (1 Km coastal area) has been declared as an Urban Development area by the gazette notification No.223/16 dated 17th December 1982 by the Minister in charge of the subject urban development and henceforth the physical developments in that portion has been regulated by the UDA. The UC has a long-standing disagreement for the declaration of the rest of the area as an Urban Development Area and to subjugate its regulatory powers and functions to the UDA.

### 4.3 Geographic Characteristics

Kattankudy has grown as a peripheral township to Batticaloa city to the south of it, on 7.690721 N, 81.731211 E. The 6.5 square kilometer consists of a highland area of approximately 472 hectares and 183 hectares of inland water bodies.

Under general classification, Kattankudy is located within the low country dry zone, where the climate is characterized by high temperature and low rainfall. The annual daytime temperature ranges between 24.4°C to 31.7°C. Relative Humidity varies from 70% during the day to 90% at night. Tropical Cyclones, occasionally experienced by Sri Lanka, usually pass through the Eastern province, Along Batticaloa and Kattankudy area. Annual rainfall varies between 357 mm - 400mm. The area is influenced by the two rainy seasons, namely, the Northeast monsoon from December to February and Second Inter monsoon from October to November.

The land area is relatively flat and is at a low elevation. The surface and stormwater drainage is supported by creeks, known as *Thonas*, opening into sea and flowing both ways balancing inflows and outflows resulting in high and low tides of sea and lagoon waters. The area is gifted with three main natural water bodies/creeks (*Thonas*). The main creek runs across the area, following the linear setting of the land mass, and the two minor ones are located within close proximity to the coast.

The settlements have grown most intensely along the main artery from Batticaloa to Pottuvil and gradually spread into the areas on the eastsides of it, but because of the constraints imposed by waters at both east and west, the fast growth has been leading to crowding and congestion in some parts of its built environment. The natural creeks (*Thonas*) are gradually encroached by the settlements, sometimes built upon the water surface. Therefore, the area experiences severe floods during rainy periods.



Figure 4-1: Map of Kattankudy UC

#### 4.4 Land use

Land use in Kattankudy is dominated by the built-up area, mainly of mixed residential uses, that occupied nearly 90 percent of the land area. Most of the residences integrated non-residential (domestic industrial and commercial) activities. The mixed residential uses cover approximately 340 hectares and the rest of the lands include business establishments, open lands, cemeteries and other services. A smaller fraction of coconut cultivation is in an area less than 8 hectares.





Figure 4-2: Non-Built-up land use map of Kattankudy UC – 2021

#### 4.5 Local Economy

Kattankudy earned a name for locally woven high quality cotton sarongs (traditional wrappers for males) and other handlooms in the past. In the present-day context, the area is known for the entrepreneurial culture of its people, who have been successfully continuing with handloom clothing products in addition to footwear and snack food items. The area is also known for the production of fake and imitations of most of the branded products ranging from dress items to electronics.

As per the statistical handbook (2019), approximately 4,800 families find their livelihood from the daily waged employment of a family member, while 3800 families depend on persons engaged in commercial sector employment or businesses. A large portion (37%) of the income-earning population in the area work as day workers i.e.: waged agricultural workers in nearby areas, peddlers and traders. Around 8% of the income earners are employed in Government institutions.

Nearly 30% of the economic activities are in wholesale and retail businesses and domestic Industries. There is a significant group of wholesale and retail businesspersons whose businesses are extended into other parts of the country. Although Kattankudy has high potential marine resources and Lagoon resources with potential fishing areas, only 3% have engaged with them.





## **CHAPTER - 05**

# **STAKEHOLDER CONSULTATION IN KATTANKUDY**

**Note: Chapters 1 – 3 are in the Volume I of this Report.**



## 5. STAKEHOLDER CONSULTATION IN MANNAR

### 5.1 General

The Project Team's first visit to Kattankudy was on 02nd February 2021. There was a meeting organized by the Kattankudy UC at the request of the UNDP and attended by the Chairman and the Secretary of the council, council members, development officers, technical officers, divisional secretariat representatives, representatives from a few other agencies and the members of the UNDP.

At this meeting all participants expressed positive thoughts towards the proposed Green City initiative. The Kattankudy UC has been enthusiastic about the project, but the Council and UC staff expected technical and financial assistance to plan and implement the project. The UC informed the meeting of the following work that it had already initiated in the area.

- a. The UC initiated a city greening process in early 2019 with a few projects: tree-planting, improvement of green space, energy-efficient practices and solid waste management.
- b. The UC currently implements the projects related to solid waste management, renewable energy development and livelihood improvement of inhabitants.

The following issues were mentioned as that needed to be addressed in future development projects:

#### A. Ad-hoc development and illegal construction

Land scarcity for expansion of the existing developments and further developments lead to high-density developments in the area. Nevertheless, most of the construction activities are ad hoc in nature and have not obtained necessary approvals. In some locations the buildings are put up on slabs over main canals and the retention areas for both private and public purposes.

#### B. Water pollution and drainage issues

Because of the high-density developments, and lack of sewer-based sewage disposal systems, the groundwater is highly polluted and the same can be noted on open water bodies mainly because of solid waste dumping and discharge of toilet and liquid waste. The long-standing solution would be to build an underground sewage disposal system covering the entire UC area.

#### C. Non-communicable diseases

Relatively lower life expectancy level is recorded in Kattankudy area, mainly due to non-communicable diseases such as cardiac disorders, diabetics and metabolic disorders.

#### D. Issues with Solid Waste Management System

A well-planned solid waste management system has been installed but only collection is effective. The fully-fledged composting facility at the disposal yard is not functioning due to technical issues.

### 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 to be 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 workshop was organized on 21st February 2021 at the main hall in Hotel Beach way. It was attended by a total of 64 stakeholder representatives including the Chairman of the UC, 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 detailed list of participants is given in Annexure 5.2.A

All participants were invited by the Chairman of the Kattankudy 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 Kattankudy 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 Kattankudy is given in Annexure 5.2.B

### 5.2.2 The Objectives of the Workshop

The objectives of the workshop 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 UC, and the representatives of the Local Communities.
2. To work out a feasible Green City wish list of Kattankudy UC and the other stakeholders.
3. To identify critical issues that hinder the Greening of the Kattankudy area which remains unresolved
4. To develop a wider awareness among all participants on the projects that are being implemented in the Kattankudy 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 Kattankudy 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 as given 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 the workshop are summarized below:

The workshop was 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 PowerPoint Presentation, followed by a discussion session. In Kattankudy the presentations were made in Sinhala medium.

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

The participants were requested to independently record the following:

- i. The three most important/outstanding features/elements/characteristics in their 'Dream Green City' were 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 are identified at item "b" mentioned above.

**c. 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 socioeconomic 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 allowed 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 learned and the feedback received from every preceding workshop were useful for the improvement of the process and the contents of the following workshop in line.

**5.3 The outcome of Kattankudy Workshop I**

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

**A. Common features of the Kattankudy Dream Green City**

It was observed at the initial workshop and subsequent FGD sessions that the notion of the Green City concept for most stakeholders (mainly officials and Council Members) could be seen as an alien picture. What they have understood by the Greening process is confined only to the periodical tree planting campaigns initiated under the guidance of leading organizations (e.g. CEA, PC, NGOs, etc.). The most effective indicator to understand this fact is that the major non-Green activities and practices that negatively affected achieving a Green City, such as the open dumping of solid waste, endorsement of buildings constructed unauthorized and highly incompatible with health standards, etc., are continuously carried out by the Kattankudy UC.

The frequently mentioned features of the future Kattankudy city included the necessity of improving the physical environment and efficient institutional services, and waste disposal.

The outcomes revealed the following as important to accomplish the clean physical environments and healthy mentality of inhabitants.

1. A clean, non-polluted city with Zero waste production
2. A city of physically and mentally healthy residents

3. Well-planned city having proper road network and drainage network
4. Sustainably developed residents and consuming renewable energy for the daily energy needs
5. Developed green cover around the city and having adequate recreation places
6. Healthy, safer, disaster free physical environment
7. Smart city with latest technological systems
8. Increased per capita income of the residents, promote Self-sustaining lifestyle
9. Improved social services/ infrastructure in the city i.e. Schools and hospitals
10. Carbon free transportation systems and enhance the efficiency of public transportation
11. Attitude change to achieve best goals of green city development concepts



Figure 5-1: Word cloud of the general perception of the stakeholders on the envisaged Green City of Kattankudy

**B. Commonly identified potentials for Greening of the area**

1. High level of public contribution and volunteer services for implementation of projects that provide the chances to get support from people, society and social institutions
2. The vision of the urban council was formulated towards sustainable and green development. In addition, the necessary initiatives for a Green city have been partially initiated by LA.
3. Availability of domestic business that boosts the local economy and enhances the livelihood of the community that relatively increases the per capita income.
4. The availability of the unique ecosystem services of marine and lagoon on either side of Kattankudy
5. Natural “Thona” ecosystem that functions as a natural storm water disposal during the rainy season.
6. Availability of several production industries (Handloom, Cane products)
7. Religious support and significant community culture
8. Economical center in the eastern part of Sri Lanka
9. The scale of the city (6512 Sq.Km) could be manageable for future projects
10. Road connectivity



## C. Most highlighted constraints and limitations towards Greening the area

### 1 Ongoing city Boundary issues and lack of zoning plans

The Kattankudy town is not divided into separate zones according to land uses. The industrial, commercial and residential activities are accumulated into one place creating the problems with comfort and safety of the city inhabitants.

### 2 Absence of a master plan to address serious issues

The constraints such as frequent floods, drainage and sewerage problems and lagoon water contamination with fecal matters and industrial waste need to be addressed properly in the systematic master plan. It was criticized that the lack of a master plan to manage the wastewater lead to a threatening situation on public health and physical environment. The Kattankudy are facing the issues of flood occurrences during the last decades with the result of climate change

### 3 Population density and land scarcity

The lack of land and dense population of Kattankudy emerged as burning issues to be rectified. The population density is relatively higher than the other cities in Sri Lanka. The land resource within the city has been utilized up to optimum use. Therefore, the future developments need to be limited with the consideration of land scarcity.

### 4 Impact on natural *thona* system

Kattankudy UC area contains three thona systems (one major and three minor) that were affected due to various human activities that took place in recent times. The thona system naturally functions as a flood prevention component and it releases the stormwater to sea during the rainy season. The major thona system dilapidated due to encouragement activities and illegal construction along the stream. The scale of the minor thonas, which is located near the seashore area, has been reduced as well. The filling of the thona system for the development activities resulted in the decrease of the water retention capacity of thonas in Kattankudy.

### 5 Very unsatisfactory solid waste and hazardous waste disposal practices.

It was revealed that the solid waste management system has been improved compared to last year. Nevertheless, the existing collections and condition of the system need to be further improved for better service. Especially, the waste collection and management of the dumping site need to be handled appropriately. The waste generated through industrial activities and other hazardous waste need to be disposed of safely.

### 6 Air pollution due to a higher number of industries in residential areas due to absence of Zoning.

Air pollution in Kattankudy stated in the perspectives of industrial activities and vehicle movements. The absence of a zoning plan to regulate land use resulted in a dense city form that includes industries and residents nearby. Additionally, the increased number of vehicles and traffic congestion also play a role in air pollution.

- 7 Serious social issues such as poverty, unemployment, social unrest, and drug addiction by the younger generation
- 8 No proper infrastructure facilities – the infrastructure facilities need to be implemented through the technical feasibility
- 9 Groundwater contamination and the polluted surface water bodies
- 10 Dengue fever and its frequency.
- 11 Lack of leisure & recreational facilities and vocational Training facilities.
- 12 Absence of By-Laws and weak Law enforcement practices.
- 13 Lack of participatory approach for KUC service delivery.





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

- Infrastructure /Technological Concerns
  1. Absence of zoning plan for Kattankudy town
  2. Land scarcity and pollution density
  3. The regulations for land development (E.g.; maximum floor area) are not followed practically.
  4. Lack of technical aspects on infrastructures development
  5. Lack of proper training for both elected and appointed staff.

#### **E. Most commonly proposed strategies**

- Environmental Strategies
  2. Rehabilitation of natural Thona
  3. Establish dustbins in proper places and create awareness among the people
  4. Construct good quality drainage canals
  5. Plant trees on both sides of the road
  6. Put up awareness notices on good environmental practices for people in public places
  7. Build new parks
- Social and Institutional Strategies
  1. Create a mobile application to help the public locate waste collection vehicles and prepare a schedule to inform wastage disposal dates
  2. Conduct an awareness program among all society and all organizations
  3. Conduct capacity development of schools and teachers

- 4 Formulate a set of government rules and policies to manage the land scarcity
  - 5 Obtain support from civil organizations for support on waste disposal (using the zero-waste method) and to create the Green city
  - 6 Provide training to people on how to overcome communicable diseases
  - 7 Create an archive for the maintenance of mental illness
- Infrastructure /Technological Strategies
    - 1 A proper city development plan needs to be implemented with the zoning to reduce the accumulation of the activities. The town developments should be plan accordance with the zoning plan that includes relevant allocation land uses and guidelines
    2. Adaptation of strategies from model towns in a national and global context.
    3. The engineering approach need to be considered to the design of the drainage and sewerage system
    4. Implementation of E-governance system to enhance the public services
    5. Gazette the Land for KK Division through Ministry of Public Administration
    6. The apartment housing project will overcome land issues
    7. Identify land and proposed industrial center
    8. Modernization of light transport facilities

#### 5.4 Focus Group Discussions at Kattankudy

The Focus Group Discussions (FGDs) were organized to facilitate specific key stakeholder groups, whose close interactions were identified as crucial for the purpose of 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 selected stakeholders through closer interactions to share critical information and experience, express their views and opinions and to 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 three FGDs arranged in the Kattankudy UC area. The details of the discussions, the participants and the details of discussions are given in Annexure 5.3 A – B.

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

##### 5.4.1 Major Resources and Potentials for Greening

- a. Availability of marine resources and natural thona system that prevent the flood hazard
- b. Regional economic center
- c. Domestic industries that boost the local economy
- d. Significant cultural and religious background

#### 5.4.2 Major Issues and Constraints towards Greening

- a. Lack of land availability and its impact of public comfort
- b. Groundwater pollution due to the close proximity of septic tanks
- c. Flooding
- d. Air pollution and dusty
- e. Poor waste collection and dumping
- f. Usage of Drugs and related social and economic impacts
- g. Land of entertainment places
- h. Lack of employment opportunities in the area

#### 5.4.3 Priority constraints throughout the consultation process with KUC officials

1. Conversion of all the Canals and surroundings as leisure places to the public throughout the city. This could be more beautified with planting trees.
- b. Making the city and Urban Council more child friendly by providing additional kids play areas.
- c. While protecting the water resources (lagoon & beach) provide more environmentally friendly components to the landscaping.
- d. The option of zoning to overcome the land issue.
- e. Effective ways to handle the impacts of small industries and household industries. (Environment friendly recommendations).

#### 5.4.4 Ongoing and Proposed Projects that can have an impact

- a. Screw type mechanical compost plant (Kawashima plant)
- b. Local Development Support Project (LDSP)

#### 5.4.5 Propose Projects by Local community

- a. Rehabilitation of natural thona system to prevent the impact of flood
- b. Drainage management plan
- c. Social awareness program to prevent the drug addiction
- d. Development of public spaces and open spaces for better health life
- e. Awareness program on diseases

The FGDs and KII sessions revealed that the people of the Kattankudy UC area are very much pressed with socio-economic and health and sanitation-related issues due to congestion and limited land space with non-residential and commercial activities in residential areas. As they continuously experience this situation which is non-conducive for living, they are eagerly waiting for some sort of relief from the current state of the stressed and strained environment. Therefore, many members of the community, both ordinary and well-educated, have appreciated this Green City initiative. They have further stressed that this concept should be planned and designed by a team of subject specialists, legal personnel, and intellectuals for a city like Kattankudy, in which most of the issues are endemic to the location. That itself is an indicator for their anticipation, understanding and knowledge of the Green City concept.

## 5.5 Summary of the findings of Stakeholder Consultation

| Stakeholder Aspirations   | Major Potentials and Opportunities identified by the Stakeholders  | Main Constraints and Challenges Identified by the Stakeholders  | Strategies proposed by Stakeholders   |
|---|--|---|---|
| <b>1. Conservation of natural resources and environmental systems</b>                               |  |   |   |
| Clean and green environment without any pollution.  | <ol style="list-style-type: none"> <li>1. Availability of marine resources and lagoon ecosystem</li> <li>2. Natural "Thona" ecosystem</li> </ol>   | <ol style="list-style-type: none"> <li>1. Land scarcity and encouragement</li> <li>2. Groundwater pollution</li> <li>3. Air pollution due to increased vehicle usage and industrial activities</li> </ol>   | <ol style="list-style-type: none"> <li>1. Construction of apartment houses</li> <li>2. Implementing a "zero carbon" project.</li> <li>3. SMEs within the community settlements could be relocated outside of the UC and provided facilities for those industries.</li> </ol>  |
| <b>2. Sustaining the unique features of the social capital and cultural capital</b>                 |  |   |   |
| Culturally and religiously significant city   | <ol style="list-style-type: none"> <li>1. Support of local community and civic organizations towards sustainable development</li> <li>2. Availability of well-educated groups and intellectual persons</li> <li>3. Cultural and religious significant</li> </ol> | <ol style="list-style-type: none"> <li>1. Unemployment issues and drug addiction among young generations</li> <li>2. Disposal of wastes in public places like the seashore and destroying public properties</li> <li>3. Low awareness regarding the environment</li> <li>4. Lack of hospitals and health care facilities</li> <li>5. Lack of protection for people who are mentally challenged</li> <li>6. Lack of sustainable employment for women (home industry or small industry facilities)</li> <li>7. Lack of maintenance of healthy school environment</li> </ol> | <ol style="list-style-type: none"> <li>1. Awareness program to the local community and young population on the impacts of drugs</li> <li>2. Create bylaws and control the unnecessary activity of the people</li> <li>3. Conduct awareness programs to social activists and civil organizations</li> <li>4. A center to solve the problems of individuals, families and society should be created.</li> <li>5. Improvement of sports activities (physical activities).</li> </ol> |
| <b>3. Provision of Safe, Comfortable, and Inclusive Public Realm and Public Spaces</b>              |  |   |   |
| Create open spaces, gardens, children parks, as much as possible and plant trees wherever possible. | <ol style="list-style-type: none"> <li>1. Political Will and commitment of local political authority.</li> <li>2. Availability of sufficient open space in schools and private land.</li> <li>3. Strong social network</li> </ol>                                | <ol style="list-style-type: none"> <li>1. Not having enough public land within the council area.</li> <li>2. Lack of ventilation in houses because of land scarcity</li> <li>3. Health issues due to the location of the dumping site of solid waste located in settlement area</li> </ol>  | <ol style="list-style-type: none"> <li>1. Develop the coastal side area, provide entertainment activities, and promote Facilities to protect children and elders in the recreational area in seashore.</li> <li>2. Established public gym Center</li> <li>3. Contact parallel tree planting programmes with the support of the community</li> </ol>   |
| <b>4. Energy Conservation and Clean Energy usage</b>  |  |   |   |
| Solar energy usage for buildings  | <ol style="list-style-type: none"> <li>1. Availability of coastal resource and weather condition for wind and solar energy</li> <li>2. Private investments</li> </ol>  | <ol style="list-style-type: none"> <li>1. No projects or plan for tap the potential</li> <li>2. Lack of awareness on the usage of clean energy and energy conservation</li> </ol>   | <ol style="list-style-type: none"> <li>1. Encourage people to accommodate renewable energy (solar system) in their household buildings.</li> <li>2. Initiate projects to optimize the resources</li> <li>3. Encourage people to travel by bicycle/walking</li> </ol>  |

| <b>5. Green Buildings that foster Human Health</b>                          |   |   |   |
|---|---|---|---|
| N/A   | <ol style="list-style-type: none"> <li>1. UDA and LA could initiate the approval producer</li> <li>2. Availability of private interest of green building</li> </ol> | <ol style="list-style-type: none"> <li>1. Unplanned city form</li> <li>2. Lack of approval procedures on green buildings</li> <li>3. Constructing dense houses by changing the approved plan of the house</li> </ol>  | <ol style="list-style-type: none"> <li>1. Preparing a distinguished city plan (commercial, industrial and residential).</li> <li>2. Planned housing schemes in areas where population and population density is high.</li> <li>3. Giving awareness or alternatives to stop the usage of non-degradable waste</li> </ol>   |
| <b>6. Sustainable modes of Local Transportation</b>                         |   |   |   |
| Modern transportation system with zero carbon emission                      | <ol style="list-style-type: none"> <li>1. Availability of agency to implement the projects</li> <li>2. Investment and funds availability</li> </ol>                 | <ol style="list-style-type: none"> <li>1. Lack of proper transport facilities (bus stand and bus halts) and vehicle parking</li> <li>2. Lack of road expansion with increased vehicular movement</li> </ol>   | <ol style="list-style-type: none"> <li>1. Arrange some regulations to public transport</li> </ol>   |
| <b>7. Clean, Green and Efficient Public Services in-house &amp; outside</b> |   |   |   |
| Modernization of public services  | <ol style="list-style-type: none"> <li>1. The effective public services from LA</li> <li>2. Availability of technology and fund</li> </ol>                          | <ol style="list-style-type: none"> <li>1. Lack of proper implementation of planned projects</li> <li>2. Lack of proper road system</li> <li>3. Lack of distribution of pipeline water to all households</li> <li>4. Improper maintenance of seashore and beach areas</li> <li>5. Lack of technical expertise and support for implementation</li> <li>6. Lack of integration and understanding between government and non-governmental institutions</li> <li>7. Unplanned and illegal buildings and approvals (developments)</li> <li>8. Issue with UC boundary</li> </ol> | <ol style="list-style-type: none"> <li>1. creating a master plan and organizing all facilities step by step according to the master plan</li> <li>2. Fulfilling the shortage and deficiencies in infrastructure facilities.</li> <li>3. A proper plan should be created to create a green city. The plan should be related to proper technology.</li> <li>4. Implementing plans with the participation of people</li> <li>5. Implementing according to rules and regulations with the cooperation of all institutions.</li> <li>6. Creating separate administrative divisions of administration of Urban Council according to wards and solve problems by identifying problems by wards</li> <li>7. Goals- clarified long term and short term goals</li> <li>8. Demarcation of the UC boundary</li> </ol> |
| <b>8. Resilience towards disaster and pandemic situations</b>               |   |   |   |
| A society with no non-contagious diseases.                                  | <ol style="list-style-type: none"> <li>1. Ongoing programs and projects to reduce the impact level</li> </ol>   | <ol style="list-style-type: none"> <li>1. Natural hazards ( flood, lightning, drought, high winds, coastal surge)</li> <li>2. Increased diseases (communal and non-communal diseases)</li> </ol>  | <ol style="list-style-type: none"> <li>1. Awareness on disaster preparedness and mitigation measures</li> <li>2. Develop a sewerage system for the UC area</li> <li>3. Awareness related to contagious and non-contagious diseases.</li> </ol>  |

| <b>9. Sustainable Solid and Liquid Waste Management</b>                    |   |   |   |
|--|---|---|---|
| Proper solid waste management and efficient dumping site                   | <ol style="list-style-type: none"> <li>1. Ongoing solid waste management project</li> <li>2. Availability of investments and donor</li> </ol>                           | <ol style="list-style-type: none"> <li>1. Constraints with proper solid waste management</li> <li>2. Solid waste dumping site is not properly managed</li> <li>3. Lack of land</li> </ol> | <ol style="list-style-type: none"> <li>1. Formulation of proper policies and regulation to manage the solid waste</li> <li>2. Modernizing solid waste management under the “zero solid waste” project.</li> <li>3. Waste to energy productions</li> <li>4. Educate the community to source segregation</li> </ol> |
| <b>10. Storm and Surface Water Drainage</b>                                |   |   |   |
| Rehabilitated natural thona system and proper sewerage and drainage system | <ol style="list-style-type: none"> <li>1. Proposals for drainage system development</li> <li>2. Availability of resources</li> <li>3. Institutional capacity</li> </ol> | <ol style="list-style-type: none"> <li>1. Discharge polluted water to the road from private and institutions</li> <li>2. Issue with sewerage disposal</li> </ol>                          | <ol style="list-style-type: none"> <li>1. Development of a systematic master plan for drainage system collaboration with technical experts</li> <li>2. Preparation of rainwater management plan.</li> </ol>   |





## **CHAPTER - 06**

# **INDEPENDENT STUDIES ON KATTANKUDY**

**Note: Chapters 1 – 3 are in the Volume I of this Report.**



## 6. INDEPENDENT STUDIES ON KATTANKUDY

### 6.1 Geo-Spatial Analysis:

#### 6.1.1 Overview of the Local Authority Area

Kattankudy Urban Council is located in Batticaloa District in the Eastern Province, bordering the East coast at one end and the Batticaloa lagoon at the other, in the Dry Zone of the country. The area falls within Hydrological Zone 1 and Agro-ecological Zone DL3 with an annual average rainfall of 1,500 – 2,000 mm. The nearest principal gauging station in Batticaloa records an average annual temperature of 27.5 °C (81.6 °F) with an annual average rainfall of 1,349 mm (53.1 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 with 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 250 mm.

The terrain in the area is extremely flat with undulations as it is situated in the Lowermost (First) peneplain (0 – 300 m MSL). The average ground profile elevations range from 6 – 8 m MSL with only some areas rising up to 12 m MSL towards the Southern boundary. In terms of topographic features characteristic of flat terrain with no undulations, the main soil types of the area are Red-yellow latosols and regosols, which are relatively uniform and calcic in nature.



Figure 6-1: An Overview of Kattankudy UC from Google Satellite Image – 2021

#### 6.1.2 Spatial Distribution

Kattankudy is a township located along its eastern coastline, about 330 kilometers away from the capital city, Colombo. This township is surrounded by the Bay of Bengal to the east, the Batticaloa lagoon to the west, and by two large settlements, one in the south, Araiampathy, and the other in the north, Kallady, which lies adjacent to the provincial town of Batticaloa municipality.

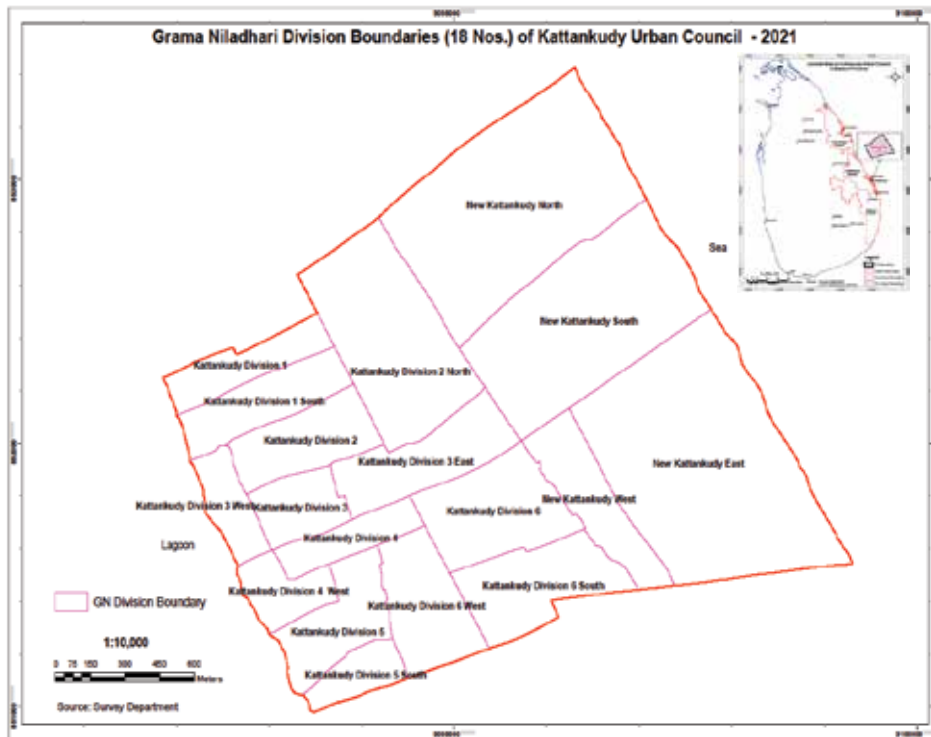


Figure 6-2: Map of Grama Niladhari Division Boundary Overlaid with Google Image 2021 - Kattankudy UC

Kattankudy consists of 18 Grama Niladhari Divisions and District Secretary division which share the same territory as the Urban Council area. Kattankudy is Home to over 50,555 Inhabitants with 6.502 km<sup>2</sup> of land area.

### 6.1.3 Land Use Distribution

The Kattankudy Urban Council area has a highly built-up land area (319.84 hectares) and it covers 83.74% of the total land area. Non-built-up land is limited (62.09 ha) which is just 16.26%.

The built-up land has been categorized under six main categories residential, commercial, institutional, industrial, transport, public space, cultural and under construction. Non-built-up land has been divided into six sub-categories as agriculture, water, forest, wetlands, coastal areas and barren lands.



Figure 6-3: Map of Existing Land Use – Kattankudy UC (Source: Google Images (2021) and Survey Dept.)

Table 6-1: Table of Extents of Existing Land Use – Kattankudy UC

| Land Use Type                                 | Extent (ha)   | % of the Total Extent of Kattankudy UC |
|---|---------------|--|
| Beach   | 10.81         | 2.83                                   |
| Cemetery                                      | 0.94          | 0.25                                   |
| Central Bus Stand                             | 0.39          | 0.10                                   |
| Filled Land                                   | 1.57          | 0.41                                   |
| Green Area                                    | 13.50         | 3.53                                   |
| Hospital                                      | 1.40          | 0.37                                   |
| Open Space                                    | 18.95         | 4.96                                   |
| Park  | 0.58          | 0.15                                   |
| Playground                                    | 2.85          | 0.75                                   |
| Public Playground                             | 2.87          | 0.75                                   |
| Vacant Land                                   | 7.40          | 1.94                                   |
| Water Body                                    | 0.82          | 0.22                                   |
| Other Urban Areas including Residential Areas | 319.84        | 83.74                                  |
| <b>Total Extent of Kattankudy UC</b>          | <b>381.93</b> |  |

(Source: Visual Interpretation of Google Images – 2021)

## 6.2 Environmental System Analysis

Kattankudy has a coastline of 100 km ( Coastal Zone Management Plan, 1997). Of this coastline, Kathankudhi occupies nearly 5 km of coastal land between the coast and the Batticaloa lagoon (Physical Plan of Eastern Province, 2004).

Located within the dry zone of Sri Lanka, the mean annual temperature in Kattankudy is around 30°C (Ranging from 18° C on cooler nights during the rainy seasons, to 38° C during the rare day in the hot summer months). The area receives about 1000-1500 mm of rainfall per annum, primarily from the northeast monsoons (about 60%), from November to January.

The landform is coastal and the highest elevation is less than 5 meters at any given point. The Beach is wide (20-50m) and replenished due to wave actions seasonally. The continental shelf around the area is relatively narrow but can be around 80 meters wide on average and has a depth of more than 60 m thereafter.

Wind regime experience in the region changes over the months due to the monsoon seasons. During the NE monsoon period, winds originate from the Indo-Asian landmass. However, the kachan - a dry wind that blows after shedding rains during the southwest monsoon, July/Aug - is much stronger. Intermonsoonal convectional rains account for most of the balance. As a result of these winds and monsoons, the area experiences a dry spell of about three months. In addition to the seasonal weather and its variations the area is in the cyclone belt of the country and has experienced several cyclone events in the past several decades due to turbulence in the Bay of Bengal.

Although the eastern province and Batticaloa district are rich in diversity of ecosystems ranging from dry evergreen forests to villu type grasslands and wetlands to coastal habitats, Kaththankudi area has no notable natural terrestrial or coastal ecosystems. Only the Batticaloa lagoon which has a larger extent beyond Kaththankudi area is having several noteworthy habitats made up of seaweeds, sea grasses and mangroves.

Past studies have indicated that *Halophila* and *Thalassia* are common in the east. Most of the seagrasses are found in the shallow bays and lagoons viz. Batticaloa lagoon. Jayasinghem earlier has documented that *Halophila beccaria* ( Batticaloa, rare); *H. ovalis* (common, in Batticaloa); *Najas gramineae* (Batticaloa); *Syringodium isetifolium* (common, Batticaloa) are found in Batticaloa lagoon area.<sup>5</sup>



Figure 6-4: *Ficus* trees on the beach area and Clogged Thona/sea link with *Calotropis* shrubs

However, in Kaththankudi, the area has undergone intense urbanization over the past several decades and the area does not support any form of ecosystem except the coastal area. On the lagoon front of the area it is noted, there are some shrubs and mangroves still remaining in the tidal flats. The lagoon front area that had been filled with garbage earlier has been now converted to a play area by the Municipality. This area could be considered for the re-establishment of

<sup>5</sup> [http://lk.chmcbd.net/wpcontent/uploads/2015/04/EasternProvince\\_Biodiversity\\_Profile\\_and\\_Conservation\\_Action\\_Plan.pdf](http://lk.chmcbd.net/wpcontent/uploads/2015/04/EasternProvince_Biodiversity_Profile_and_Conservation_Action_Plan.pdf)

some of this vegetation as part of its land use. The coastal vegetation varies depending on the prevailing conditions and impacts. Most of the east coast beaches have *Spinifex*, and *Ipomoea* as creepers along the coast, but these are not found in the Kattankudy area. These plants usually stabilize the beaches. Shrubs usually include *Vitex negundo*, *Pemphus* and *Clerodendron*.

The dumping that had taken place in the earlier years has further damaged the coastal belt and highly disturbed ecosystems with several species seen in the locations where the internal Thonas are connected to the seashore. include *Syzygium* sp., *Azadirachta* sp., and *Calotropis gigantia* (Vara). The beach also has a few isolated trees such as *Ficus* spp, and *Terminalia* spp with home gardens growing coconut trees. Thona in within the city limits is clogged with *Eichonia crusipae* (Japan Jabara plants) which the Municipality cleans annually in November before the onset of heavy rains to ensure increased carrying capacity of the narrow channels.



Figure 6-5: Thona in the city Clogged up Aquatic weed *Eichonia crusipae* (Japan jabara/water hyacinth)

In general, it is noted that the Kattankudy has a very poor extent of biodiversity and natural ecosystems due to high levels of disturbances. However if the Thona system and the adjacent land use is managed it is possible to let some of the native coastal plants and associated animals to re-establish and thrive. Immediate steps should be taken to make the best use of available land spaces while giving due attention to the re-establishment of vegetation that is common to eastern region into the beaches and neighborhood rather than introduced species.



Figure 6-6: Map of Existing Water Resources – Kattankudy UC  
(Source: Google Images -2021 and Survey Dept. )

### 6.2.1 Coastal water Resources:

The west side of the city is marked by the sea beach and the ocean. The beach is wide (30-50 meters) and long (3.7 km) in the Kattankudy MC area. At three points the Thonas connect to the Sea. The Thonas are the link between the Stormwater Drain Main Canal that runs from north to south across the highly built up area of Kattankudy. The Thonas are blocked near the sea during the dry periods but may be cut open during the rainy periods to facilitate the outflow of storm water along the canal. The water does not flow during the dry period as there is no incoming water sources other than house wastewater connected to the canals in many locations that are polluting the water. The canal is about 3-5m wide in location and 1-2 meters deep. The canal had been narrowed at many locations due to illegal constructions. The water is covered in most places with the overgrown aquatic weed (water hyacinth) which may on one hand reduce the evaporation loss from the water surface during the dry weather but could be a problem as they could lead to greater sedimentation and filling up of the canal capacity. It is important that the water quality of the canal is managed with proper monitoring of the illegal filling, obstructions and waste water connections into the canal since this water body left unchecked could lead to major health problems among the community and become an environmental eye sorer.

### 6.2.2 Lagoon

The Batticaloa lagoon which is the largest (141.2sq km) of the several lagoons in Batticaloa district borders the Kattankudy MC area to its west boundary. Of the 56 km long lagoon only 3.7km front is within the Kattankudy MC. The lagoon is fed by several small streams (oyas) which flow seasonally. These include Andella oya, Namakada aru, Madipattu Aru, Pathanthe Aru and vet Aru). The lagoon is linked to the sea by two narrow channels, one at Batticaloa and the other at Periyakallar. During the dry season with the drying out of the freshwater inflow streams these channels may get blocked. This could result in increased salinity in the lagoon until the next rainy season starts. Mangroves and seaweeds could be found in the Batticaloa lagoons that may attract birds with the potential to promote and provide grounds for fish which are caught by the area fishermen. Few leisure activities take place in the lagoon front of the Kattankudy which include a playground made on an old garbage dump located towards the south end while a delapidated walk path in the north end and boat ride yard is found in the north end of the lagoon. However, the Batticaloa lagoon is a potential resource that can be explored for promoting eco-tourism-related activities.





Figure 6-7: Batticaloa lagoon polluted with garbage dumped and illegal filling



Figure 6-8: Lagoon fishing boats in the northern end of the Kattankudy city limits

### 6.2.3 Surface inland water resources:

The area is devoid of any surface water bodies other than the surface drainage canal mentioned above. The area does not use the aquifers for extracting water but it is possible to find the coastal sand aquifers in some locations. The growth of plants which possibly extracts these sources is an indication of the availability of shallow aquifers underneath.

## 6.3 Hydrology and Drainage

### 6.3.1 Water Resources

The Kattankudy UC is entirely located within the 3.0 km ~ 5.0 km wide land strip of naturally compacted beach dune sand that borders Batticaloa Lagoon. The tidal variation is approximately 0.45 m ~ 0.60 m in this area. The topography of the project area can be described as generally a flat morphology with a mild slope towards the coastal beach sands and the lagoon side on the opposite. Due to the extremely flat terrain and high permeable topsoil conditions in the area, except for the Batticaloa Lagoon and several thonas (dry canals or ara), there are no other natural water bodies within the Kattankudy UC area. The natural drainage after rainfall is presumed to occur as thin sheet flow in flat terrain and mainly runs towards these thonas and shoreline of the ocean.

### 6.3.2 Hydrology and Drainage

The existing dry canal network which also functions as stormwater release means and is termed as thonas or drainage channels (ara) in the Kattankudy UC area is an important landmark in the city landscape. In the absence of a proper drainage network in the city, these thonas convey the accumulated stormwater runoff generated in the city into the sea during rainy periods. However, these thonas 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 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 non-monsoonal periods 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 wet periods 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 northeast monsoon period with strong storm activities and extreme events occurring at an increasing frequency over the recent past.

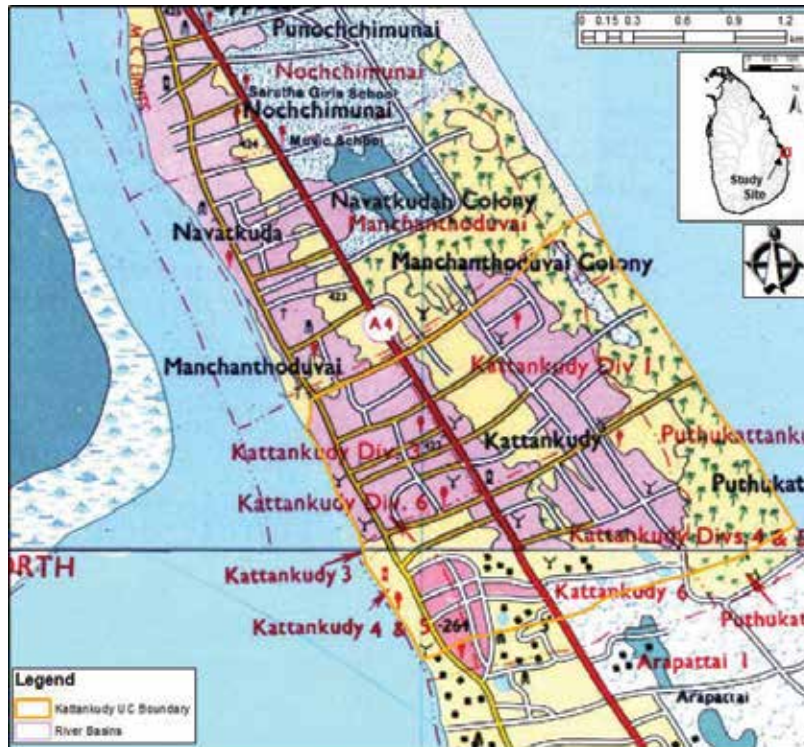


Figure 6-9: Hydrology, Drainage and Water Resources in the Kattankudy Urban Council area

Further, the thonas 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/thonas. At present, only a part of Kattankudy UC or the 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 and dumping, and encroachment of thona reservation are compounding the above inadequacies in surface and sanitary drainage.

### 6.3.3 Current Status of Drainage and Flood Management

Kattankudy township has no drainage management master plan or local regulation on drainage and flood/drought control, although these are urgently needed before 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, the level of compliance with these policies, laws and regulations is briefly discussed in this section.

The UC has policies and by-laws developed by the Council of LAs, the politics of the elected members inevitably influence the realization of such policies and by-laws. For example, some important decisions on development projects, except routine services of LAs, are heavily influenced by the desires and the will of the political authority. On one hand, the lack of comprehensive development programs with firmly decided short, medium and long-term development projects has paved the opportunity for council members to interfere in changes. On the other hand, a 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 expected by the relevant laws, and projects implemented within the UC area, therefore, need the approval 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 the required 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 the 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 LAs is summarized below.

A considerable number of Kattankudy's people are engaged in their own businesses, mainly on small-scale manufacturing, retail and imports. These businesses are made possible through local and regional as well as international networks that have been there for a long time. It could be noted that many had their business holdings extended into other locations in Sri Lanka. These groups are highly influential in the development decisions of the UC as well as the national and provincial government development agencies, through their affiliations with local and national level political authorities.

The township has its own trader's association and many smaller three-wheeler driver societies, which can be potentially engaged in developing the townships. It was recorded that approximately 52 organizations are registered and functioning in the administrative boundary of the UC. Furthermore, each Grama Niladhari division consists of at least 2 of the organizations within the boundary.

Modern institutional development programs have pragmatic interventions for institutional development. These can be regarded as potentials for improving candidate LAs to make them equipped with capacities to plan and implement proposed green city projects.

The potential identified by stakeholders can be regarded as laying the groundwork for the Kattankudy UC to improve its land areas in its jurisdiction. These stakeholders perceived some features that they would prefer to see in the future in Kattankudy after the implementation of green-friendly interventions. They also identified some factors as potential

to enhance Kattankudy as a Green City. These agency-level stakeholders were aware of some of the constraints for the Urban Council to be addressed during the green city implementation project.

The agency stakeholders who participated in the workshop made a few suggestions for the UC to attempt an institutional strengthening process. These suggestions include;

- Conducting community awareness workshops covering the importance of unity and participation in the city development process
- Conducting school children-focused awareness programs and environment-friendly attitudes development activities
- Conducting integrated workshops for the officers in different institutions/organizations
- Giving opportunities, leadership and responsibilities to the youth
- Incorporating 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 capital. The cultural components of the institutions such as respecting the knowledge and experience of stakeholders, willingness to share such knowledge and experience, transparency in decision-making, and respecting principles of inclusion and accountability can be further strengthened in the UC.

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

## 6.5 Built Environment Analysis

The special characteristics of this urban council are, most urban activities and facilities are concentrated on either side of the main road. Examining the urban form of the city reveals unique characteristics in both the lagoon side and the beach side.

The Kattankudy urban council area is known as one of the dense coastal cities in the eastern coast. It has a highly built-up land area and it covers 84% of the total land area. Non-built-up land is limited at just 16% with limitations in the public land within the council area for required facilities, disaster-prone areas, unplanned city form, lack of proper transport facilities (bus stand and bus halts) and vehicle parking. The lack of road expansion given the increased vehicular movement, the impacts of climate change on both coastal areas and the heightened management of green spaces and reserves are some of the pressing concerns highlighted in the build environment analysis. Maximizing access to open space resources across fixed infrastructure lines and major road corridors are some of the key identified issues in the Kattankudy UC area.

According to the Census 2012, the female population is higher than the male population in the country. Out of the total population, 48.4 percent are males and 51.6 percent are females. This situation is somewhat different from the Kattankudy area. Out of the total population within the Kattankudy Urban Council limits, 46.2 percent are male and 53.8 percent are female. This situation will lead to land ownership and allocation of land for development.

Part of Kattankudy was declared as an urban development area by UDA under the one km declaration. Other parts of the area come under the regulations of Housing and Town Improvement (H&TI). A comprehensive integrated local area plan is a prerequisite for ensuring that the urban councils are able to perform their development activities in a sustainable and planned manner.



Figure 6-10: Map of Recreational Places, Open Spaces and Vacant Lands - Kattankudy UC  
(Source: Google Images -2021 and Survey Dept.)

Table 6-2: Extents of Recreational Places, Open Spaces and Vacant Lands - Kattankudy UC

| Land Use Type                 | Extent (ha) | % of the Total Extent of Kattankudy UC |
|-------------------------------|-------------|--|
| Beach                         | 10.81       | 2.83                                   |
| Open Space                    | 18.95       | 4.96                                   |
| Park                          | 0.58        | 0.15                                   |
| Playground                    | 2.85        | 0.75                                   |
| Public Playground             | 2.87        | 0.75                                   |
| Vacant Land                   | 7.40        | 1.94                                   |
| Total Extent                  | 43.47       | 11.38                                  |
| Total Extent of Kattankudy UC | 381.93      |  |

(Source: Visual Interpretation of Google Images - 2021)

Out of the 381.93 ha of the land in Kattankudy UC that Green areas indicated as 13.5 ha (3.5%)



Figure 6-11: Map of Distribution of Green Areas – Kattankudy UC  
(Source: Survey Dept. and Google Images - 2021)

Table 6-3: Extents of Distribution of Green Areas – Kattankudy UC

| Land Use Type                 | Extent (ha) | % of the Total Extent of Kattankudy UC |
|-------------------------------|-------------|--|
| Green Area                    | 13.50       | 3.53                                   |
| Total Extent of Kattankudy UC | 381.93      |  |

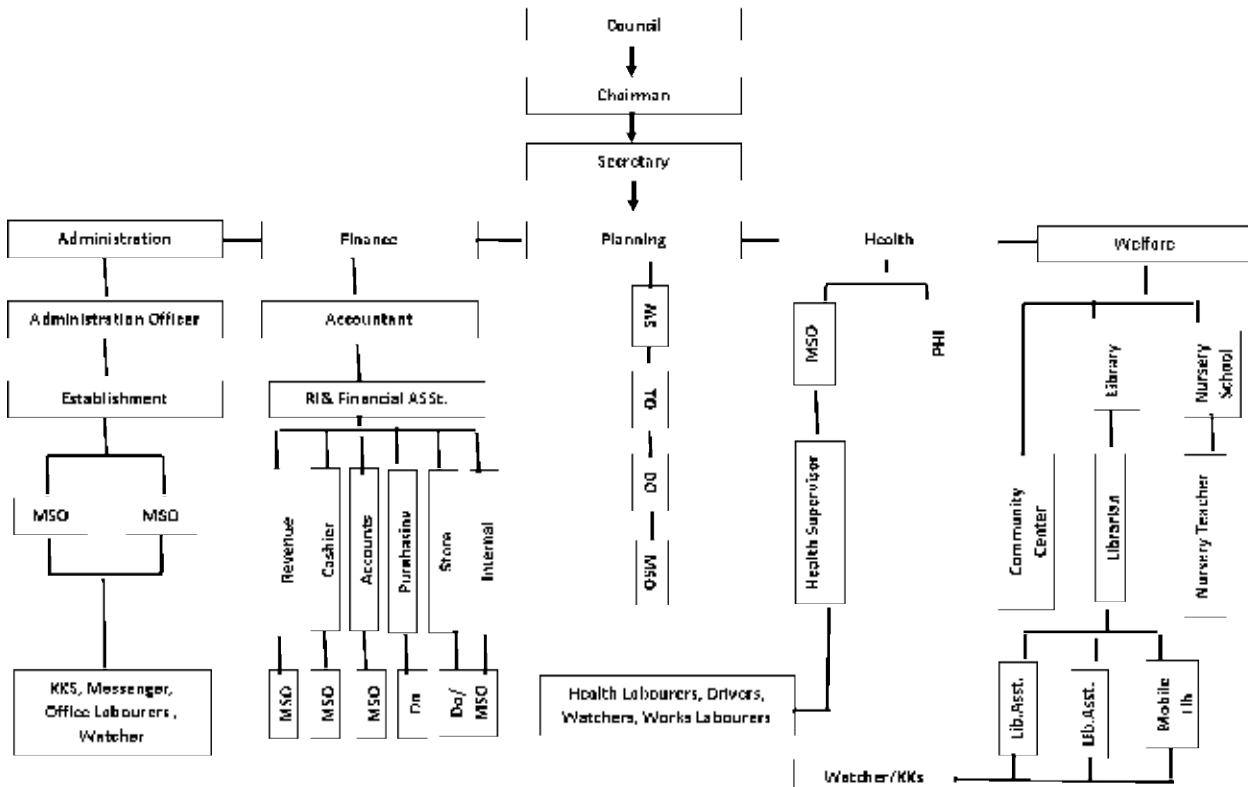
(Source: Visual Interpretation of Google Images – 2021)

## 6.6 Institutional and Legislative Framework Analysis

### 6.6.1 Institutional Framework:

Kattankudy Urban Council consists of 10 Wards with 18 members including the Chairman, the Vice Chairman, and four female members. The extent of the UC area is 4.11 sq. kms. with a population of 50,555 in 2020 having 15,336 families and the population density is 12300.5 per one sq. km. which is the highest in the island in any Local Authority area. The total revenue of the KUC in 2020 is Rs.163 ml. and the present council administration is struggling to address basic problems such as health & sanitation, infrastructure service improvements, and limited welfare services with the existing cadre of 112. (Total approved cadre 2020 is 132 and currently 22 vacancies have been recorded) Among these vacancies, Superintendent of Works (supra grade), Public Health inspector (This is the only Health officer whose services are essential), Revenue Inspector, Librarian, Works Field Supervisor, Health Supervisor, and Nursery School Teacher etc. are included.

Organization Chart-Urban Council, Kattankudy



When analyzing the current Organization Structure of the Council which has been indicated above, certain significant deficiencies could be observed. Usually in every Urban Council the strong cluster of Departments is the main hub of its Institutional Framework of that organization. However, in KUC there are no Departments with Heads of Departments, instead there are five sections sometimes even without senior staff grade officers to run them. (e.g., Planning, Health, Welfare) Kattankudy is a city with immense problems relating to Health & Sanitation, Infrastructure issues, Environmental issues, Social Issues, Welfare & Recreational facility issues, Food Hygienic issues, acute fire risk and so on.

Therefore, a city like Kattankudy, a highly populated, thoroughly compact, full of unplanned cottage industries in residential properties, has polluted groundwater which is not fit for any use. The LA should be equipped with the following type of Departmental Structure to maintain at least a minimum level of services for the residents of the area.

- Administration (General administration, Council & Committee administration, staff training, Organizational Security)
- Health (All health & sanitation aspects, maternity & childcare, food hygiene, public toilets, drinking water quality, epidemics, cemeteries & burials,)
- Engineering & Planning (Roads, buildings, drainage, solid waste management, parking facilities, Pavements & roundabouts, Traffic, unauthorized structures, parks, sewerage, water supply, construction permits, city planning, environment protection)
- Finance & Accounts (Annual budget, annual final accounts, procurement, stores, revenue collection & enhancement, valuation of properties, board of surveys, assets management, expenditure control, rents, Insurance of cash, properties, vehicles & equipment, all payments, and recoveries)
- Veterinary Services (Markets, open markets, slaughterhouses, trading places, fish & meat stalls, stray animals, animal health of the city, Rabies control)
- Fire Prevention & Control (fire safety of the life and properties of the city, fire certification of trades, industries, public gathering buildings or enclosed areas, firefighting, educational programs, regulation of water hydrants and fire gaps in the city, fire certificates for new constructions, periodical maintenance of fire extinguishers of council buildings)

- g. Welfare & community services (Libraries & reading rooms, pre-schools, community centers, youth clubs, vocational training centers, indigenous medical facilities)
- h. Sports and Recreational Services (Playgrounds, indoor sports facilities, open air recreational facilities, beach parks, coordination of sports activities with schools of the city and to organize events and tournaments,

Each of the above department heads should be a senior professional of the relevant field.

### 6.6.2 Legal Framework:

The Legal Framework of the Kattankudy Urban Council primarily comprises the following legal instruments.

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

All these legal instruments are being used by the KUC in its routine city administration and service delivery operations. The Urban Councils Ordinance (UCO) has given comprehensive legal provisions on Powers, Duties, Functions, Responsibilities, and the Role of the Council. Moreover, the duties, functions and powers of the Chairman, and the Secretary are also illustrated in this Ordinance. At the same time as entire concerns cannot be addressed by a particular piece of legislation, in addition to the UCO there are a number of other laws which are directly as well as marginally related to the subject of Local Government and such legislations are widely applied by all LAs. For instance, Town & Country Planning Ordinance, Butchers Ordinance, Entertainment Tax Ordinance, Urban Development Authority Law, and Interpretation Ordinance could be sighted. There are nearly about hundred legislations of that nature and many of them must be referred to when some important decisions are taken by the Council.

The Eastern Provincial Council has so far not made any Local government Statutes and similarly, the Minister of Local Government of the EP also has not formulated any Stranded By-Laws for LAs in the province. This situation has created a huge gap in the KUC as well, because it has no standard by-laws or council by-laws to carry out the regulatory responsibility of the council.

However, at FGD sessions various segments pointed out that the law enforcement aspect is very weak in many instances by KUC authorities. The main reasons behind this unsatisfactory situation are the lack of by-laws available and poor awareness among the elected Councilors as well as appointed staff on existing legal instruments.

### 6.6.3 Service Delivery:

In terms of the information available and the public concerns revealed at FGDs, the KUC is engaged with a very limited number of services such as cleaning of streets and removal of solid waste, maintenance of roads, issuing building permits, providing library and preschool facilities and so on.

In a city of this nature, a considerable amount of social, cultural, recreational, and educational activities should be implemented and maintained by the Urban Council as they are mandated to a greater extent in terms of section 159 (1) (ddd) of the UCO.

Health and Sanitation services, abatement of nuisance, management of public toilets, drainage, markets, water supply, playgrounds, welfare facilities, fire protection, disaster relief, management of road networks, and ensuring authorization of structures and trades are considered prime duties and functions of the urban council. The Chairman highlighted that there is one public market, four children's playgrounds and seven sports clubs in the city. Therefore, it is evident that the majority of essential urban services are lacking in the KUC area.



#### 6.6.4 Administration:

Kattankudy Urban Council was established in 1999 and the administrative setup of the council was very much influenced by the long-standing (from 1947) former Town Council which was abolished in 1987. Pradeshiya Sabha became the successor and continued as the main administrative authority for about 12 years until the Urban Council was created in 1999. Although there is a fairly large population in the city, the KUC is managed with a limited cadre as well as a restricted functional domain. However, city stakeholders who participated in FGD sessions highlighted that they are pressed with serious problems such as an inadequate land area in the city, groundwater contamination, floods, air pollution, unsatisfactory solid waste handling process, mosquito breeding sites and dengue menace, lack of entertainment & leisure facilities etc. The large number of issues that emerged from the FGD session point to the poor capacity of the Council to meet the growing service demand of the people. Stakeholders across all categories hold high positive expectations of the implementation of the green city concept towards addressing many of these pressing concerns.

#### 6.6.5 Governance:

When examining the governance structure of the KUC, it seems that the Council, although considered the hub of all powers, plays a very limited role in managing the affairs of the city. Kattankudy Urban Council has 18 members with four female members from 2017 onwards and their services are confined only to the council meeting which is assembled for a couple of hours once in every month. Instead, KUC has a better opportunity to make use of the staff for the improvement of city services.

In terms of the provisions of the Urban Councils Ordinance Section 29 (1), the council is empowered to “appoint committees consisting either of council members or partly of members of the council and partly of other inhabitants of the town, to advise the council with reference to any of its powers, duties or responsibilities or any matter under the consideration of the council, and it may from time to time subject to such instructions or conditions as it may determine, delegate any of its powers or duties to such committees.” This is one of the very effective provisions to obtain community participation with gender balance for the decision-making process of the council to ensure efficient city administration and participatory governance at the local level.

However, despite this clear legal space, KUC has not taken action to appoint committees for the past 22 years of the urban council. With the appointment of such committees, the council could obtain support on routine administrative and service delivery functions by delegating them to respective committees and instead devote its time and energy on more policy and legislative processors which are significant for setting the visionary and strategic direction of the administration. Moreover, almost all council members will be entrusted with a clear duty to be fulfilled within a given time frame and they are answerable to the council. Thus, the council could obtain the services of members and make use of their skills and talents for the benefit of the citizenry of KUC in a very effective manner.

##### 6.6.5.1 Current Legislative provisions:

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

##### i. Provisions of governing legislation

Urban Councils Ordinance (UCO) No. 61 of 1939 (chapter 255) contains legal provisions related to all service delivery aspects which are connected to greening concepts. Such provisions are indicated under Health & Sanitation services, Infrastructure improvement services, and public utility services.

##### ii. Provisions of other related legislations

There are a considerable number of pieces of legislation 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 Eastern Provincial Council will be taken into consideration. But so far, no statute on this matter has been published by the EP.

### iv. Provisions of subsidiary legislation

Under this category, Kattankudy Urban Council has faced serious consequences as they do not have standard by-laws or the council by-laws available for application in regulating various services. The main reason behind this issue is that the Minister of Local Government of the EPC has not made Local Government by-laws up to now.

#### 6.6.6 Available Systems:

Kattankudy Urban Council's existing city administrative systems and service delivery systems could be considered 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 Local Governments (CLGs) from time to time since inception.

Accordingly, KUC's General Administrative system, Council Administration system, Financial Management system, Procurement & Stores 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 existing technology and tools. With the introduction of green concepts through a dynamic capacity building and in-house training program, existing outdated service delivery systems could be modified, and new green-friendly systems would be incorporated into the KUC administration.

## 6.7 Solid and Liquid Waste Management

Effective and efficient Solid and Liquid Waste has been considered 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 Kattankudy UC.

### 6.7.1 Solid Waste Management

Juristically the Kattankudy UC area covers 4.5 km<sup>2</sup> in extent with a population of 48,751 (2019). The Solid Waste Management (SWM) services of the UC covering entire areas come under the preview of the UC. The Kattankudy UC is in the forefront of the waste collection in comparison to other local authorities in the Eastern province due to the implementation of source segregation.

The composition of waste depends on the home gardens and the land with cultivation or gardens etc. Most of the Kattankudy area is a built-up area and congested with households. Most of the waste generated from the UC area is kitchen waste from households and restaurants. The composition of solid waste generated in the Kattankudy UC area varies from the national data due to the high percentages of kitchen waste in the area with a high population. The composition of the waste is given in Table 6-4.

Table 6-4: The composition of waste collected from the Kattankudy UC

|                | Composition of Waste in %     |       |                       |        |       |        |
|----------------|-------------------------------|-------|-----------------------|--------|-------|--------|
|                | Compostable/<br>Biodegradable | Paper | Polythene/<br>plastic | Wooden | Glass | Others |
| National Level | 62                            | 7     | 6                     | 6      | 2     | 17     |
| Kattankudy UC  | 66                            | 8     | 7                     | 4      | 3     | 12     |

However, a considerable amount of Plastic, hard-board and metal wastes generated for the UC area are collected by the private vendors at the source of generation or household level.

In general, 26-29 tons of solid wastes are generated in the Kattankudy UC area in a day and on wet days it may go up to 30- 32 tons. The average solid waste generated in a day is 27.981 tons. The per capita waste generation of the Kattankudy UC is slightly lesser (0.574Kg/day) than the national level per capita waste generation (0.60Kg/day) for the Urban councils’.

In general, the political head of the UC is headed by all divisions within the UC and the secretary of the UC administers the resources with the assistance of a development officer who heads for the solid waste management unit. The Public Health Inspector (PHI) is also providing the supervision service for the SWM in the UC limits from the Medical Officer of Health (MOH)office.

Table 6-5: Existing Resources for the SWM

| Categories      | Mechanic Assistant | Supervisor | Drivers | Labors | Watchers | Tractors with Trailers | Hand Tractors | Compactors | Gully tanker |
|-----------------|--------------------|------------|---------|--------|----------|------------------------|---------------|------------|--------------|
| Human resources | 01                 | 10         | 22      | 62     | 18       | -                      | -             | -          | -            |
| Vehicles        | -                  | -          | -       | -      | -        | 18                     | 08            | 03         | 01           |

The source segregation is happening at the household level as compostable waste and non-compostable waste. The compostable waste is transported to the compost yard and is temporarily stacked in an area located within the UC area. Most of the compostable wastes of the UC area are processed to the compost in the compost yards and the rest are dumped in the open area within the same place due to the lack of space in the compost yard. The UC follows a weekly time schedule for the collection of waste in the UC.

The National Solid Waste Management Support Center (NSWMSC) of the Ministry of Local Government provided a screw-type mechanical compost plant called the ‘Kawashima’ plant for the Kattankudy UC recently. Due to a fire incident held in the dumpsite last year, the machinery of the Kawashima plant was burned and the UC and Ministry of Local Government jointly rehabilitated the machinery.

On average the present compost plant is producing 850 Kg of compost/day by using manual composting units. In addition to that, the capacity could increase compost production up to 4,500 Kg per day with the demand for compost in the local market. The present storage facility of the compost is not sufficient to cater to the compost produced for the future activities scheduled by operating the Kawashima plant. In the year 2020, the UC earned 1,983,320 rupees by selling compost (1kg 08 Rs).

The non-compostable solid waste of the Kattankudy UC is transported to the Koduvamadu engineering landfill located in the Eravur Pattu Pradeshiya Sabha. The “Koduvamadu ” engineering landfill site is managed and operated by the Ervurpattu Pradeshiya Sabha. The local authorities in the Batticaloa district are clustered to dump their non-compostable waste in the “Koduvamadu” landfill. The operational cost of the “Koduvamadu” landfill is to be shared with the local authorities dumping the non-compostable waste in the landfill for a particular month. The operational cost and the unit

cost for non-compostable waste vary with the amount of non-compostable waste received to the landfill and the local authorities used the landfill for the particular month.

### 6.7.2 Opportunities

a. Operationalize burned Screw type mechanical compost plant ('Kawashima )

In general, the Kawashima plant can be operated for 40-45 tons/day for composting, and in Kattankudy maximum of 20,029 Kg/day (20 tons) of the compostable waste could be treated. The advantage of the plant is that it will reduce the piling time, reduce bad odor in the close community, and control leachates.

b. Improvement to the source segregation

The solid waste collection covers the entire UC area and source segregation is implemented but during the field observation it was clear that the source segregation is not properly implemented by the waste collectors and the community is reluctant to give their waste separately. Therefore, the improvement of the collection system could be done with the political and administrative heads of the UC.

c. Compost Storage and Marketing

There are no marketing issues due to the limited quantity of compost generated by manual compost units but by operating the Kawashima plant the UC will get more compost in a short period. As there is a demand for compost in the area, the UC could establish a compost storage facility and develop a wide marketing network for compost.



Non-compostable waste after centralized segregation and transported to Koduvamadu landfill



Kawashima Plant



Compost piles



Compost and final non-composted waste



A view of good maintenance of the yard

Figure 6-12: Existing Situation of the SWM in Kattankudy

### 6.7.3 Wastewater Disposal

Kattankudy is a highly developed compact city. There are no proper sewerage facilities available in the UC area. Wastewater disposal is one of the major environmental issues in the area. Blackwater is discharged into individual septic tanks/soakage pits in their own premises. The greywater is disposed of into the public drains and the existing water bodies, particularly three Thonas located in the UC area. Due to the discharge of the greywaters, all these three Thonas are highly polluted due to the stagnation of water as the Thona mouths are blocked by the sea sand. At present, the overflow septic tanks are collected by the private gully bowser owners and disposed of in the Kalmunai Septage treatment facility.

The major issue is the pollution of water bodies in the UC area particularly the three Thonas. The Thonas are filled with the water hyacinth. However, the UC has already identified a land for sewer treatment.

### 6.8 Energy Systems Analysis

Given the limited and inconsistent data available for the Kattankudy Local Authority (LA), this study is based on the analysis of available national level data. It is noted that as far as the Green City initiative is concerned this data will be applicable, in most instances. Further, this Report recommends pursuing the collation of additional data as noted below, during the next phase of the Green City project.

Table 6.8.1 below details the share of primary energy supply by source, as of 2017. It is noted that this % mix has not changed drastically since.

Table 6.8.1 - Share of Primary Energy Supply by Source (2017)

| Primary Energy Source | National % |
|-----------------------|------------|
| Petroleum             | 44         |
| Biomass               | 36         |
| Coal                  | 11         |
| Major Hydro           | 6          |
| New Renewable Energy  | 3          |

Source Sri Lanka Sustainable Energy Authority 2019. Sri Lanka Energy balance 2017

Further in reviewing of additional data on the Sri Lanka energy front;

- 1) 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. 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 new renewable energies such as solar, mini hydro and wind.
- 2) Biomass is the second largest energy supply source, satisfying a greater portion of the cooking energy requirements of the domestic sector. Hydropower has already been extensively developed for electricity generation, and studies have indicated that there is a large potential for wind and solar power development. Full exploitation of these resources is delayed, given the severe constraints imposed by the demand profile of the country. Studies are presently underway to establish the availability of offshore petroleum resources. The role of biomass in energy supply continued to decline, with a share of petroleum 44%, followed by biomass with a share of 36%, coal accounts for 11%, while hydropower accounts for 6% and new renewable energy accounts for 3%.
- 3) The term new renewable energy (NRE) refers to Solar, Wind, Tidal, Mini Hydro and similar forms of energy. Major hydropower generation is categorized as renewable energy, in Sri Lanka.
- 4) The total amount of electricity generated during 2017 was 15,004.2 GWh out of which 69% was from thermal plants. The NRE generation increased to 10% in 2017 from 8% in 2016, mainly owing to the decrease in hydropower generation due to low rainfall.

- 5) Similar to previous years, the largest electricity energy consuming sector in 2017 was the household using 36%, Industrial using 32%, commercial 28%, and other establishments using 4% of Sri Lanka’s electricity generation.

The primary energy used applies to the two important aspects of the Green City program: powering of residential, commercial, and industrial facilities and the energy used for residential cooking and heating in industry applications. Section 8 of this Report addresses strategies (projects) to circumvent the negative effects of fossil fuel usage, climate change and respiratory diseases. The projects noted in Section 8 in addition to addressing key aspects of sustainability, addresses climate change mitigation, resource conservation and fostering of green and healthy buildings.

Table 6.8.2 below details the distribution of electricity usage at the national level. Most of this information will be applicable to Kattankudy, noting that the Green City Program can target these electricity user Establishments for the generation and use of New Renewable Energy.

Table 6.8.2- Market Structure for Electricity Usage from CEB

| <b>Establishment</b> | <b>% Usage Nationally</b> |
|----------------------|---------------------------|
| Household            | 36                        |
| Religious            | 2                         |
| Industrial           | 32                        |
| Commercial           | 28                        |
| Streetlight          | 2                         |

Approximated from data developed by the Sri Lanka Sustainable Energy Authority 2019. Sri Lanka Energy balance 2017

Currently, it is noted that most if not all establishments in the LA of Kattankudy operate off the CEB national grid and noting that the % of their contribution to New Renewable Energy is insignificant, however, should be given greater priority moving forward.

**New Renewable Energy Systems Analysis**

**1. Current Status of the Sector**

The use of new renewable energy is not apparent in the LA’s, with little or no data either from public sources or from the LAs as to the use of new renewable energy or its policies and bylaws. Hence this report will be referring to the national scenario for new renewable energy.

Based on the information presented by the Sri Lanka Sustainable Energy Authority;

- 1) Despite numerous setbacks in the power sector, solar energy has broken new ground in commercial progress and in the rooftop sector under the program titled Sooryabala Sangramaya. Social and legal issues continue to hamper the development of new renewable energy projects.
- 2) With the momentum gained from the Sooryabala Sangramaya, the three schemes, net-metering, net plus, and net accounting, cumulatively generated approximately 131.4 GWh by 2017, with cumulative capacity addition of 93.7 MW. This milestone is expected to pass 100 MW in 2018.
- 3) However, the contribution of New Renewable Energy (kWh) by the respective LA(s) to the national grid could be considered as insignificant.

**2. The existing policies, laws, and regulations applicable and the level of compliance.**

The following section outlines the laws and policies in Sri Lanka, with reference to new renewable energy.

- 1) The Sri Lanka Sustainable Energy Authority Act (Act No. 35 of 2007) provides for the establishment of the Sri Lanka Sustainable Energy Authority; to develop new renewable energy resources; to declare energy Development Areas; to implement energy efficiency measures and conservation programmes; to promote energy security, reliability and cost-effectiveness in energy delivery and information management; to repeal the Energy Conservation Fund Act, No. 2 of 1985 and to provide for matters connected therewith or incidental thereto
- 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 the implementation of such a policy nationwide.
- 3) The Government has gazetted that 50% of Sri Lanka’s electric energy is produced by renewable energy. It is expected that this will be increased to 70%, during 2021.

**3. The potential for improvement and constraints to move forward.**

In pursuing the adoption of new renewable energy, a two-step process has been accepted as the international norm. these being:

- 1) Energy conservation – management, making the best use of the energy and eliminating energy wastage
- 2) Use of new renewable energy as the primary energy source.

It has been noted that some basic energy conservation measures such as the use of LED lighting is being practiced along with some expectations of implementing Solar PV energy being spoken of. Thus, for all practical purposes, these LA have little or no energy conservation and renewable and clean energy programs in place. This provides a great opportunity for the implementation of such in the Green City Master Plan. The overall Green City Master Plan would address:

- A) Energy Conservation Measures (ECM) to be adopted in existing buildings and street lighting, owned and/or operated by the LA
- B) Energy Conservation Measures (ECM) to be implemented on all new buildings, street lighting and infrastructure projects, owned and or operated by the LA
- C) The implementation of NRE (mainly Solar PV) on existing buildings owned and or operated by the LA
- D) The Implementation of NRE (mainly Solar PV) on new buildings, owned and or operated by the LA
- E) The above to be extended to all stakeholders within the LA

In the development of NRE Programs for the LA of Kattankudy, the establishment’s preference to use different types of renewable energy is likely. Table 6.8.5 below addresses the most likely type of renewable energy that will be used considering the geographical location and the current state of the Renewable Energy industry in Sri Lanka.

Table 6.8.5 – Preferred New Renewable Energy Type – Kattankudy

| Establishment    | % Usage        |
|------------------|----------------|
| Household        | Solar          |
| Religious        | Solar          |
| Industrial       | Solar and Wind |
| Commercial       | Solar          |
| Large Commercial | Solar and Wind |
| Streetlight      | Solar          |

## 6.9 Economy of the Area and the Financial Capacity of Kattankudy UC

### 6.9.1 Introduction

The characteristics of the four local authorities (LA) under study vary considerably in terms of socioeconomic and environmental conditions, population, ethnicity, and natural, physical and other resources. Kattankudy Urban Council is a coastal city with a high population and is also a town with one of the highest densities of population in the Asian region. The ethnicity of the Kattankudy UC is 100% Muslim. Kattankudy is highly urbanized and has very few natural resources or greenery. However, the city is bordered by lagoons and the seacoast.

### 6.9.2 Resources Analysis

The Kattankudy DS division area almost coincides with that of the Kattankudy UC area. Due to the lack of adequate data from the Kattankudy UC, statistics from the Kattankudy DS division is used in the following analysis and data for the Kattankudy UC, utilized whenever such data was available. Kattankudy is a fully urbanized city with a large number of small businesses and local industries. It is well known for its handloom woven clothing, which is mostly run as a domestic industry. Commercial activities, service sectors and to some extent fishing contribute to the household income of the inhabitants of the area. The UC area is about 4.1 Sq. Km., while the population in 2020 is estimated by the Dept. of Census and Statistics at 50,555 persons (the population in the last census in 2012 was 40,356 persons). Compared to this, the Batticaloa district has a population of 486,447 persons (2012 Census) and an area of 2610 Sq. Km, with a water body area of 244 Sq. Km.

Kattankudy city is bounded by the ocean in the east and by the lagoon in the west and by other DS divisions in the north and south of the city. The densely populated city is characterized by its buzzing commercial small industrial activities which contribute substantially to the economy of the city.

Table 1 WorkForce – Employment in Kattankudy DS Division -2019

| Mannar                  |               |              |
|-------------------------|---------------|--------------|
| Employment              | Number        | Percentage   |
| Govt Sector             | 2,715         | 9.79         |
| Private sector          | 1,993         | 7.19         |
| Businesses Sector       | 3,585         | 12.93        |
| Own Business / Self Emp | 10,062        | 36.28        |
| Small Industries        | 1,158         | 4.18         |
| Farming                 | 4             | 0.01         |
| Livestock               | 168           | 0.61         |
| Fishermen               | 277           | 1.00         |
| Casual Labor            | 5,278         | 19.03        |
| Skilled Workers         | 1,216         | 4.38         |
| Foreign Employment      | 1,279         | 4.61         |
| <b>Total</b>            | <b>27,735</b> | <b>100.0</b> |

Source: Resource Profile, Kattankudy DS Division, 2019, Divisional Secretariat.

The total employed labor force in the Kattankudy DS division was estimated at 28,000 persons in 2019 and about 14,000 persons with GCE O/L or above were unemployed. Thus unemployment appears to be high in this Division. Of those employed (10,000 persons), 36% were persons with own businesses or were self-employed, 5300 persons (19%) were casual workers, 12% were in the business sector, 10% were government employees, 7% were in the private sector, 4% were employed in small industries, 4% were skilled workers and 5% had obtained foreign employment. Only about 450 persons (1.6%) were involved in farming, fishing and livestock keeping. (Source: Resource Profile, Kattankudy DS Division 2019.).



The average household income of the population in the Batticaloa District was estimated at Rs 40,350 per month and ranks at 23rd out of a total of 25 districts. The poverty level was high at a Poverty Headcount Index (PHI) of 11.8% with 61,000 persons below the poverty line in the Batticaloa District in the year 2016. (Source: Household Income and Expenditure Survey, Dept. of Census and Statistics, Sri Lanka, 2016). Thus the population of the UC can also be considered to be earning a similar amount. The district's average household income can be considered to be moderate when compared to the lowest household income of Rs 31,000 estimated for the Kilinochchi District in this survey.

Table 2 Monthly Household Income - Kattankudy DS

| Monthly Income Range | No of Households | %          |
|----------------------|------------------|------------|
| < Rs 1,000           | 683              | 4.7        |
| 1,000- 4,999         | 3,339            | 22.7       |
| 5,000-9,999          | 2,542            | 17.3       |
| 10,000 - 14,999      | 2,827            | 19.2       |
| 15,000 -19,999       | 2,206            | 15.1       |
| 20,000 - 24,999      | 1,539            | 10.5       |
| 25,000 and above     | 1,511            | 10.5       |
| <b>Total</b>         | <b>14,647</b>    | <b>100</b> |

Source: Resource Profile of Kattankudy DS 2019, Divisional Secretariat

The distribution of income in the Kattankudy UC shows that more than 25% of the households earn less than Rs 5000 per month and 17% earn between Rs 5000- Rs 10,000 per month. Thus about 40% of the households would fall below the poverty line, suggesting a high level of poverty within this DS division. About 35% of the households earn between Rs 10,000 – Rs 20,000 and only 21% earn more than Rs 20,000 per month in 2019. Since most households do not wish to disclose their incomes, the above figures may be an underestimate of the actual values. It is likely that incomes may be closer to the average district value of Rs 40,000 per month estimated in the HIES of 2016.

We can consider the economic status of the Kattankudy UC to be reasonably good because of the high level of small business and industrial activity in this UC. The agricultural sector is not developed due to the absence of land, while fishing and livestock make only a minor contribution to the economy of the UC. However, there is scope for increasing the productivity of the population of the DS and UC areas. The scope for agriculture is limited to improving home gardens, some improvement in livestock keeping and improving fisheries by adopting deep sea fishing. There is also scope for technological and productivity improvements in the industrial, commercial and service sectors along with the adoption of ecologically safe and greening practices.

### 6.9.3 Kattankudy UC – Budget Analysis

An examination of the actual budget (latest budget available) of the Kattankudy UC showed that the proportion of own revenue to total revenue was low at only 30%, pointing to inadequacies in the collection of revenue. 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 Local Authorities to pay the salaries, traveling and other payments. Thus the local authorities depend on government grants to pay the staff salaries. Recurrent revenue grants made up to 64% of total grants in Kattankudy. The UC is 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. A low proportion of capital grants (36% of the total grants) was observed in the Kattankudy budget. This grant is usually provided by the government either through state-sponsored projects or from foreign aid funds. NGOs also contribute to such grants, by financing projects or programmes undertaken by the UC sponsored by such an NGO. However, the LA can spend its own funds in financing any capital projects. Nearly 80% of the capital expenditure came from project funds. This suggests that UC is 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. However,

the total amount of capital grants was still low at only Rs 48 million. The UC should make more efforts to increase the quantum of capital grants in order to develop the city.

Table 3 Revenue Sources of Kattankudy UC

|                          | Kattankudy   |              |                      |
|--------------------------|--------------|--------------|----------------------|
| Population               | 48,750       |              |                      |
| <b>Own Revenues</b>      | <b>Rs M</b>  | <b>%</b>     | <b>Rs Per Capita</b> |
| Rates & Taxes            | 20.9         | 35.5         | 430                  |
| Rent                     | 8.5          | 14.4         | 174                  |
| Trade Licenses           | 3.56         | 6.0          | 73                   |
| Service Charges          | 8.22         | 13.9         | 169                  |
| Warrants & Fines         | 2.6          | 4.4          | 53                   |
| Other Revenue            | 15.1         | 25.6         | 310                  |
| <b>Total</b>             | <b>58.93</b> | <b>100.0</b> | <b>1209</b>          |
| Grants                   |              |              |                      |
| Recurrent Revenue Grants | 85.3         | 64.1         | 1749                 |
| Capital & Other Grants   | 47.8         | 35.9         | 981                  |
| <b>Total</b>             | <b>133</b>   | <b>100</b>   | <b>2730</b>          |
| Total Revenue            |              |              |                      |
| Own Revenues             | 58.93        | 30.7         | 1209                 |
| Revenue & Capital Grants | 133          | 69.3         | 2730                 |
| <b>Total</b>             | <b>192</b>   | <b>100</b>   | <b>3939</b>          |

In the case of Kattankudy, the total amount of own income was about Rs 60 million. The main income was from rates and taxes (36%), followed by other revenue (26%), rent (14%) and service charges (14%). The revenue from trade licenses was very low at only 6% of total own revenue. Thus its revenue collection was low compared to the high population in Kattankudy. This may suggest that the efficiency of the collection of revenue was poor in this LA. Rates and taxes are collected from all premises within the LA. One reason poor collection may be that not all institutions and households have been brought into the tax net. This is a common failing in many LAs and can be particularly observed in Kattankudy UC as well.

Revenue from trade licenses depends 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 Kattankudy. Revenue from rent depends on the number of premises owned by the LA and rented out. The proportion of own revenue from rent was high in Kattankudy, but the actual quantum was low at only Rs 21 million. This seems to suggest that the resources for renting out by the LA are less or that the LA has not been able to find tenants for their premises. The LAs also needs 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 LA. The proportion of revenue collection from service charges was 14% (Rs 8 million) in Kattankudy. Thus it appears that fewer services are offered by this LA. The UC 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 local authorities.

Another source of revenue for LAs is from warrants and fines. Revenue depends on the level of adherence to the laws and regulations of the local authority. A high proportion of revenue from this source may be also due to the strict enactment of the laws and regulations of the local authority. Kattankudy UC had a low proportion of 4% of own income or Rs 4 million per annum from this source, suggesting that either the citizens were law abiding or that laws were not being enforced properly by the LA. The latter is likely to be the reason. This may be due to inadequate staffing or an inefficient

workforce. Revenue from other sources was 26% of total own revenue (Rs. 15 million). This suggests that Kattankudy UC is making more efforts to obtain revenues from other sources.

Table 4 Details of Expenditure of Kattankudy UC

|  | Kattankudy   |             |                      |
|--|--------------|-------------|----------------------|
| Population                                       | 48,750       |             |                      |
| <b>Recurrent Expenditure</b>                     | <b>Rs M</b>  | <b>%</b>    | <b>Rs Per Capita</b> |
| Salaries   | 99.3         | 77.2        | 2,038                |
| Traveling  | 0.8          | 0.6         | 16                   |
| Supplies   | 8.5          | 6.6         | 173                  |
| Maintenance of Capital Assets                    | 6.3          | 4.9         | 128                  |
| Transport & Communication                        | 13.0         | 10.1        | 267                  |
| Repayment of Loans & Interest                    | 0.1          | 0.1         | 2                    |
| Pension  | 0.0          | 0.0         | 1                    |
| Welfare Grants                                   | 0.8          | 0.6         | 16                   |
| Total Recurrent Exp.                             | 128.8        | 100         | 2,641                |
| Capital Expenditure                              |              |             |                      |
| Projects   | 52.2         | 82.5        | 1,071                |
| Asset purchase                                   | 0.0          | 0.0         | 0                    |
| Other  | 11.1         | 17.5        | 228                  |
| Total Capital Expenditure                        | 63.3         | 100         | 1,299                |
| <b>Total Capital &amp; Recurrent Expenditure</b> | <b>192.1</b> | <b>100</b>  | <b>3,940</b>         |
| <b>Capital</b>                                   | <b>63.3</b>  | <b>33.0</b> | <b>1,299</b>         |
| <b>Recurrent</b>                                 | <b>128.8</b> | <b>67.0</b> | <b>2,641</b>         |

Among the four LAs, the highest expenditure (both capital and recurrent) was in Bandarawela (Rs 610 M), followed by Kattankudy (Rs 192 M). However, the per capita expenditure was low at Rs 4000, compared to Rs 25,000 for Bandarawela MC, suggesting that the level of expenditure is not adequate to fund future development efforts of the Kattankudy UC. The UC needs to increase its income as well as diversify sources of income to improve expenditure levels, particularly the new projects suggested under the greening programme. 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, charge fees for registering three-wheelers and other hiring vehicles for operating in the LA areas, collecting parking fees, imposing fines for improper disposal of solid and liquid waste, constructing facilities for commercial and service activities, such as markets, office complexes, halls for holding weddings and other ceremonies, etc.

The total recurrent expenditure was Rs.129 million in Kattankudy or 77% of the total capital and recurrent expenditure of the UC. Thus most of the expenditure of the UC was for recurrent expenses. The bulk of recurrent expenditure (77%) was spent on the salaries of the staff of the UC. Maintenance of capital assets and supplies made up 12%, transport and communication made up 10% and other expenditures made up 1% of the total recurrent expenditure of the UC. Maintenance of capital assets and supplies is important for the proper functioning of the LA and therefore a greater allocation is needed for these activities. Capital expenditure was very low with only Rs 5 million expended in Talawa. The total capital expenditure reported by Kattankudy was Rs 63 million, which appears to be inadequate for meeting the development needs of the UC. There is a need to substantially increase capital spending on projects and programs of the

local authorities if the Green City objectives are to be achieved. Strategies for enhancing capital expenditure should be drawn up and implemented by the LAs. 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, the active promotion of such projects with financing agencies, increasing the efficiency of operation of the LAs 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 ensuring commercial agencies comply with the licensing requirements, increasing the services provided by the LAs and charging appropriately for these services as well as other innovative measures to improve their financial status.

#### **6.9.4 Recommendations for Improving the Financial Health of Kattankudy UC**

Measures are needed to improve the revenues of the LA from its own resources. In addition, the LA should canvas financial assistance from as many funding sources as possible if they are to execute the greening proposals suggested in 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 LAs 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 their full potential for raising revenues. This may be due to a 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 LAs that 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 UC obtains low revenue from trade licenses. Therefore with some effort, those operating without licenses can be brought to book and revenues can be increased by such means.
- Service charges bring in a small proportion of income to LAs. Kattankudy UC obtains a moderate income from such services. 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 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 local authorities etc.
- An inventory of all assets of the LA 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 LA area. Likewise, several innovative ideas may be forthcoming from residents and officials for raising the revenue of LAs.
- Capital expenditure could be increased through loans and aid from banks and donors. The LA 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**

**KATTANKUDY**

**VOLUME III**





## CHAPTER - 07

# THE MASTER PLAN (GENERAL FRAMEWORK)





## 7. THE MASTER PLAN (GENERAL FRAMEWORK)

### 7.1 The Vision

மாந்தோட்டத்தின் இயற்கை கடற்கரையிலுள்ள கடல் பாரம்பரியத்திற்கு இட்டுச்செல்லும் (பசுமை) நகர் நுழைவாயில்.

### The Model Smart Compact City Enterprise in the Coastal Landscape of the East



Kattankudy is a land strip locked all of its boundaries by the sea, lagoon, and the other local areas, for which the high-density compact development has not been an option, but a necessity, to meet the habitat needs of its fast-growing population. This densely built, tightly packed and fast evolving built environment, mostly regarded as 'undesirable' according to widely accepted standards, is but the uniqueness of its landscape flanked by water from the east and the west is the uniqueness of its landscape.

The tight living space that provides no space for any other type of livelihood that can be seen in a typical urban area in Sri Lanka, must have compelled people in Kattankudy to look for unconventional or innovative approaches to sustain, and enabled them to thrive as entrepreneurs.

These non-escapable features in the land and its people can be identified as the most prominent potentials for Kattankudy to be developed in to a Green City.

The ill-fated, non-regulated, and less guided high density urban district is expected to be transformed into a consciously designed, culturally responsive and effectively managed 'compact city' development that is commonly advocated by the sustainable urban development discourse.

## 7.2 Formulation of Goals

The three fundamental queries concerning the Action Units identified for the four LAs, are as discussed above.

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 concerning 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 LA reach these targets (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 the Kattankudy UC area.

**Goal 1: 'Smart' adaptations in Public Facilities, Municipal Services, Local Built Environment, Individual Buildings, Streets and Public Spaces, etc.**

**Goal 2: High Density, Compact and Regulated, Livable and Comfort Facilitated (less Congested), Healthy and Safe, Built Environment**

**Goal 3. An inherited industriousness of the community, facilitated with the necessary economic and social, infrastructure and business attractiveness**

**Goal 4. Conserved Coastal and Thona-based Ecosystems, and Lagoon and riverine Environmental systems**

These Goals are designed within three time periods:

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 (to 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

| Goals   | Strengths   | Weaknesses  | Opportunities  | Threats  |
|---|---|---|--|--|
| <p>Goal 1:<br/>The norms associated with 'Smart' to be available in the Facilities, Services, Environment, Buildings, Streets and Public Spaces, etc.</p> | <ul style="list-style-type: none"> <li>Highly adaptive community and the Local Leadership willing to adopt SMART technology and practices:                             <ol style="list-style-type: none"> <li>Willingness and Preparedness to adopt: 100%</li> <li>Council Members: 100%</li> <li>Technical Staff: 100%</li> <li>Admin Staff: 100%</li> <li>Others: 100%</li> </ol> </li> <li>Already available initiatives for SMART facilities in the Urban Council:</li> </ul>   | <ul style="list-style-type: none"> <li>Low usage of SMART facilities for businesses:</li> <li>Less interest and initiatives to encourage the use of renewable energy</li> </ul>   | <ul style="list-style-type: none"> <li>Government project for the development of Digital Infrastructure among Local authorities and other organizations</li> <li>Government Policy to meet 100% Renewable Energy by 2050.</li> </ul>   |  |
| <p>Goal 2:<br/>High Density, but Regulated, Livable and Comfort Facilitated (less Congested), Healthy and Safe, Built Environment</p>                     | <ul style="list-style-type: none"> <li>Available Building Density and Population Density in the area:</li> <li>Compact development of the urban center and location of all services within walking distance:                             <ol style="list-style-type: none"> <li>Density/Proximity index</li> </ol> </li> <li>Well-equipped Solid Waste Management (collection and transportation) system                             <ol style="list-style-type: none"> <li>Amount generated: 26 T</li> <li>Amount collected: 4.5T</li> </ol> </li> <li>Existing Road Network coverage and accessibility</li> <li>Existing electricity network that covers and serves the entire area of human settlements well.</li> <li>Pipe-borne uninterrupted (24x7) water supply available</li> </ul> | <ul style="list-style-type: none"> <li>A highly unregulated, unsafe, and unhealthy development pattern in the Urban form                             <ol style="list-style-type: none"> <li>Total Building Stock:</li> <li>Number of buildings not in compliance with existing building regulations:</li> </ol> </li> <li>Nonavailability of sewage disposal system</li> <li>Nonfunctioning composting facility</li> <li>Frequent floods due to poorly maintained and badly managed surface and stormwater drainage</li> <li>Exposure to natural disasters</li> </ul> | <ul style="list-style-type: none"> <li>Government policy and priority projects for city infrastructure development (Details to be provided)</li> <li>Existing government policies, powerful Laws, and sound institutional arrangements to regulate and regenerate the built environment:<br/>Laws:                             <ol style="list-style-type: none"> <li>Urban Development Authority and the Law</li> <li>Urban Councils Ordinance</li> <li>Coast Conservation Act</li> </ol> </li> </ul> | <ul style="list-style-type: none"> <li>Vulnerability of the area and its resources to Climate Change impacts and other disasters.</li> </ul> |

|   |  |  |  |   |
|---|--|--|--|---|
| <p>Goal 3:<br/>An inherited industriousness of the Community to be facilitated with the needy economic and social, infrastructure and business attractiveness</p> | <ul style="list-style-type: none"> <li>• High level of entrepreneurship:</li> <li>• Widely known name earned (branding) for handloom, footwear and snacks.</li> <li>• Community level organizations those can be mobilized to promote Smart and Green Enterprises</li> </ul> | <ul style="list-style-type: none"> <li>• High level of non-communicative diseases</li> <li>• High level of epidemics:             <ul style="list-style-type: none"> <li>a. Dengue</li> <li>b. Covid-19:</li> </ul> </li> </ul>  | <ul style="list-style-type: none"> <li>• Availability of NGOs and CBOs initiated and strengthened during the post-civil war period.</li> </ul>   | <ul style="list-style-type: none"> <li>• Possible market failures and loss of demand</li> <li>• Possible competitors in the market</li> </ul> |
| <p>Goal 4:<br/>Conserved Coastal and Thona based EcoSystems and Lagoon and riverine Environmental systems</p>   | <ul style="list-style-type: none"> <li>• Existing Beach and Lagoon front</li> <li>• Thona and Canal fronts</li> </ul>  | <ul style="list-style-type: none"> <li>• Encroached water bodies, drainage canals and reservations.</li> <li>• Highly polluted groundwater table, water bodies and beach</li> <li>• Less Green cover in the area:</li> <li>• Low accessibility to beach fronts, lagoon fronts and other public spaces</li> </ul> | <ul style="list-style-type: none"> <li>• Existing government policies, Powerful Laws, and sound Institutional arrangements to conserve beaches, canals and reservations:</li> </ul> <p>Laws:</p> <ul style="list-style-type: none"> <li>a. Urban Development Authority and the Law</li> <li>b. Coast Conservation Act</li> </ul> |   |

## 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:

| S.N | Baseline Indicators  | Units of Measurement   | Current State  | Medium Term Targets (2-3 years)  | Mid Term Targets (10-15 years)   | Long term targets (20 -30 years) |
|-----|--|--|--|--|--|----------------------------------|
| 1   | Thomas (Creeks) and Canals maintained free of encroachments  | Percentage water bodies along with their reservations affected by encroachment   | Most of the creeks and their reservations are being encroached. The main canal is covered in several locations with buildings built over it. The water bodies are poorly maintained. | Clear minimum of 20% annually cleaned and desilted   | Total of creeks and their reservations free from encroachments<br><br>And<br>Annually cleaned and desilted                 | To be maintained                 |
| 2   | Availability of safe drinking water with no shortage throughout the year for all households in the Kattankudy UC   | Percentage of households that has to safe drinking water supply unaffected due to floods and droughts                        | 11,570 Numbers of connection   | Fulfill total requirement for all households   | To be maintained   | To be maintained                 |
| 3   | Extent of non-contagious and contagious diseases in the area   | Number of patients annually treated for vector and water-borne diseases  | Health Ministry data   | Reduce reporting of cases by 20%   | Zero reporting of cases.   | Zero reporting of cases.         |
| 4   | Ambient Air Quality in public areas of the LA:<br>CO2 Level,<br>SO2 Level,<br>Dust Particles   | Standard Units   | No information available   | Adequate initiatives   | Standards achieved   | Standards maintained             |
| 5   | Community level organizations for cleaning of public areas, Thomas (Creeks) and canals, cleaning of the Beach and Lagoon front and other Green practices | Number of CBOs actively involved in cleaning activities  | Only a few initiatives can be seen at the locality level.  | Establishment of CBOs in all GNDs to support the Kattankudy UC in cleaning and other environmental improvements.   | To be maintained   | To be maintained                 |
| 6   | Well established Social and Community networks that operate in the area with SMART technology and Green practices  | Number of formal and informal social networks that operate at the local level for the social and economic benefit of the LA. | Local Traders Associations at the town.<br><br>Number of Informal networks such as three-wheeler riders, retail traders operate at local level                                       | Interest developed in modern methods, SMART technological apparatus, and Green practices among the members of a minimum of 03 strategically important formal and informal societies and networks in the LA.              | All formal and semi-formal social networks make use of SMART systems and Green practices.                                  | To be maintained                 |
| 7   | Built environment that complies with health and safety standards   | Percentage buildings complied with UDA planning and building regulations   | Highly incompatible and Not healthy and safe<br><br>No enacted Urban Development Plan for LA.  | Development of Minimum Compliance Requirement (Zone Factor based Floor Area, light and ventilation and sanitary standards) for all new developments.<br><br>Initiative for retrofitting existing buildings to standards. | Full compliance of all developments to the UDA Planning and Development regulations as prescribed by the Development Plan. | To be maintained                 |

|    |   |   |   |  |   |  |
|----|---|---|---|--|---|--|
| 8  | Availability of 1.4- hectare Public Open Recreation Space for every 1000 persons.<br>Availability of Public Open Spaces within a reach of 500m from every neighborhood (Proximity). | Per-capita public space area (ha per person)<br>Coverage by distance range from the public space          | Available, but not organized and well-maintained<br>Spaces available, but not organized with necessary public amenities and facilities. | Minimum 50% of available public open spaces planned and equipped with necessary facilities   | 100% of the requirement served  | To be maintained   |
| 9  | Availability streets in the UC area are shaded with tree canopies.  | Percentage length of Main (A, B and C) and UC Roads shaded with local species of trees                    | Not properly organized  | Full 03 km length in main roads in the Main Street (A4) and<br>Minimum 03 kms of local roads planted with shady trees.             | All main roads to be planted with shady trees   | To be maintained   |
| 10 | Availability of paved intersections- safe for pedestrians, disabled and children along main roads in the town area  | As a percentage length of main roads with paved pedestrian areas, provided with shade                     | Limited areas with paved pedestrian areas in the main roads and drains are being constructed  | Minimum of 01 km length along the Main Street (A4) in the town facilitated with paved pedestrian areas and side drains             | Minimum 50% of the major road lengths with pedestrian areas in the town, served with necessary facilities                                   | All major road lengths with pedestrian areas in the town, served with necessary facilities |
| 11 | Availability Pedestrian Crossings with signal lighting in major roads   | Number of critical (pre-determined) locations in the UC area  | Pedestrian Crossings with signal lights in two junctions  | Pedestrian crossings in the town at critical locations, equipped with signal lights in needy ones.                                 | To be maintained  | To be maintained   |
| 12 | Use of non-motorized bicycles for trips within the LA   | Percentage households that use push- bicycles for local trips   | Relatively higher, and need to be surveyed  | 30% of the households in the UC area to use bicycles for minimum 60% of local trips  | All households in the UC area to use bicycles for minimum 60% of local trips  | To be maintained   |
| 13 | LG and other institutions geared for Green practices  | Percentage of employees actively engaged in Green projects and practices                                  | Only about a few employees are aware and satisfied on Green practices   | Employee satisfaction level on Green practices is increased up to 25%  | Employee satisfaction level is increased up to 75%  | Employee satisfaction level is increased up to 100%  |
| 14 | Comfortable Noise Level maintained in the public areas in the UC area.  | Decibels at Public Spaces   | No information available  | Adequate initiatives   | Standards achieved  | Standards Maintained   |
| 15 | Amount of renewable energy produced in the LA   | Percentage (in kWh being exported by consumer to the CEB network), of Renewable Energy consumed in the LA | Insignificant percentage of kWh contribution to the CEB network   | 20% of the total consumption in government institutional buildings.  | 60% of the total consumption in government institutional buildings.<br>50% of the total consumption of residential and non-residential uses | 100% (Meeting the Government target)   |
| 16 | Streets and public spaces illuminated with solar powered lamps  | Percentage lamp fittings within the town area powered with solar energy                                   | Zero  | Minimum of 20% of the streetlamps powered with solar energy  | Minimum of 50% of the streetlamps in the public areas to be powered with solar energy   | All streetlamps in the UC area powered with solar energy                                   |
| 17 | Number of Green Certified buildings.  | The UDA Rating System   | Green Platinum – 0<br>Green Gold – 0<br>Green Silver – 0<br>Green Certified – 0   | All New Buildings to be Green Certified (compliance with the UDA regulation)<br>Minimum of 20% existing buildings: Green Certified | To be maintained<br>Minimum 50% of existing buildings: Green Certified  | To be maintained<br>All existing Buildings: Green Certified.                               |

|    |   |   |  |   |   |  |
|----|---|---|--|---|---|--|
| 18 | Electric (Solar powered) three wheelers used in LA  | Percentage of vehicles that use electricity/non-polluting energy sources  | None   | 10 percent of the total three-wheelers to be hybrid with renewable energy   | 50 percent of the total three-wheelers and other public vehicles to be hybrid   | All hired passenger transporting vehicles to be hybrid   |
| 19 | Fully Automated Office Environment in LG. and Fully web-based public services and relations | Reduced number of persons involved in office activities and Reduced use of paper in transactions for financial, permits and approvals in a clean, pleasant office environment. 100% Web-based public services (Tax and payments, approvals, licenses, etc.) | None   | All admin matters (internal) of the LG to be automated All Payments and Approvals to be available on-line   | 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 | All internal and Public Relation matters (Tax payments, licenses, approvals, etc.) of the LA and the related other agencies to be web-based To be maintained |
| 20 | All uses connected to proper sewerage and waste water disposal systems.                     | Residential and other units with proper sewage disposal systems.  | To be surveyed   | All commercial, industrial, and institutional uses to have properly designed systems  | All buildings to have properly designed systems   | To be maintained   |
| 21 | Solid Waste collection system that covers all needy areas of the LA                         | Percentage area covered   | Satisfactorily covered   | To be maintained  | To be maintained  | To be maintained   |
| 22 | Zero Waste exported from the LA   | Percentage solid waste reused, recycled, and value added within the LA<br>Reduced of waste generation at sources  | To be studied<br>Composting plant available, but not in full operation<br>Excess waste dumped open at Sewer Treatment plant site | Minimum 30% solid waste recycled/reused<br>Composting plant to be in full operation<br>Reduction of currently generated quantity by 20%               | 100% solid waste recycled/reused<br>Reduction of currently generated quantity by 50%  | To be maintained<br>To be maintained.  |
| 23 | Safety from disaster situations (natural and epidemics)                                     | Number of deaths due to disasters and epidemics   | Guidelines developed by DMC and Health Ministry  | To be maintained in compliance with guidelines  |   |  |
| 24 | Occurrence of flood incidents concerning heavy rainfall situations                          | % Number of people affected by Floods and related situations<br>The extent of roads inundated and damaged due to floods in a year<br>Expenditure incurred for the payment of flood damages and to repair flood-affected infrastructure facilities           | % number....(from the DMC)   | Reduce the numbers by 30%   | Zero families affected by floods during rainy seasons   | No casualties due to natural disasters   |
| 25 | Proper Drainage Network in the LA   | Number of Kms. of roadside drains completed.  | Total Length of roads:<br>Total Length of existing Drains:   | 10 km. of surface drains available in four townships.   | length of surface Drainage coverage as determined by the Council in essential roads.  | length of surface Drainage coverage as determined by the Council in essential roads.   |
| 26 | Green Enterprises in the LA   | Several Individuals/firms and organizations adopted Green technology and Green practices into their businesses  | No recorded businesses   | All new businesses to adhere to Triple P (People, Planet and Profit) principles<br>Initiative to transform existing businesses into Green businesses. | Minimum 50% of all businesses to be transformed into Green businesses.  | All businesses are to be transformed into Green businesses.  |

## 7.5 The Objectives

### **Objective 1: A model high-density compact urban development design within the framework of the Urban Development Plan prepared by the UDA**

- Implementation of Zone Factor (Permissible Floor Area/Available Land Area) based development zonal scheme, to support high-intensity developments along the main road and selected nodal locations.
- A ten-year (2030) retrofitting/regeneration scheme for existing buildings, built with extreme non-compliance with safety standards, sanitary conditions, and other regulations, designed and implemented through the collective engagement of the resident community and incentivizing/promotional means.
- Working towards accelerating the proposed underground sewerage disposal scheme, approved by the Government SL.
- Introduction of Street canopies/shades extended from the existing buildings (without disturbing street space) and the regulation of street facades of the existing shade and buildings, standardized sign boards, etc., in the town center on either side of the A2 (01 km) through a collaborative arrangement with the property owners and in a continuous transformation over 03-05 years.
- Development of paved sidewalks and 'Shading Public Spaces' with planting medium size, wider canopy local tree species along selected major local roads (approx. 03 km)
- Strict enforcement of laws and regulations through community engagement and institutional capacity building.
- Establishment of a firefighting service/unit within the Urban Council
- Active Engagement of the local business community to implement and maintain the landscape of the town centers.
- Development of a comprehensive stakeholder engagement program to make the stakeholders including the community aware of the benefits of improving the Kattankudy township as a compact city with other essential infrastructure facilities to convert it into a green city. The stakeholders will be provided with continuous information on the types of projects to be planned and implemented, their benefits to the town and its people and also the roles and responsibilities of the local stakeholders in planning, implementing and sustaining the development interventions in the long run.

### **Objective 2: Clearance and sustainable conservation of the existing waterways and creeks and beach and lagoon front.**

- Demarcation of 01m reservation on all canals and 3m clearance on all waterways and creeks (Thonas) on both sides and declared as a 'no building' zone.
- Clearance of all unauthorized structures built over waterways and on the said reservations, through strict enforcement of laws and with the owner/community engagement.
- Improvement of the existing leisure and socializing means, recreational facilities and accessibility to the existing beach park and lagoon front.
- Provisions of pocket parks wherever possible along the waterways for public recreation activities and maintenance in collaboration with the community.
- UC area-wide Tree Planting program implemented by the UC in collaboration with the Divisional Secretariat, UDA, RDA, CCD, CEA, and the residents.
- The program was developed to convince local community members and other relevant stakeholders of the need of protecting reservations of sensitive land and water resources without encroachment for social and economic use. Motivate the community leaders to act as informal monitors to prevent reservations' encroachment by others. Also, motivate the local stakeholders to willingly engage in the public infrastructure projects implemented in the township.



**Objective 3: Facilitate the local business enterprises with needy space and infrastructure.**

- Development of an incubator facility within the town area for young businesses with relevant training and consultation services
- Appropriate adjustments to existing planning and development regulations to accommodate non-polluting, non-hazardous and non-disturbing domestic industries, without compromising the livability, physical quality and social harmony of the neighborhoods.
- A comprehensive study on need assessment on the identification of feasible enterprises and other business activities with the participation of community members, other stakeholders and especially with the business community.
- Development of institutional arrangements for capacity building of entrepreneurs in the town to perform socially, environmentally and economically sustainable entrepreneurship activities in the town improved with green features.

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

- Minimum mandatory requirement to match the current total energy demand of all state and local government buildings with solar power by 2025.
- Minimum mandatory requirement to match 30% of the current energy demand of all privately owned non-residential buildings by 2030.
- Engagement of private sector solar providers on a competitive basis with the involvement of the Urban Council.
- Strict enforcement of UDA Green Building Certification in the area from 2022, and retrofitting existing buildings to minimum Green Certificate level by 2030.
- Introduction of solar-powered/hybrid three-wheeler/taxi service within the town.
- Develop and implement a monitoring program to learn the process of promoting Solar energy in the township.

**Objective 5: Introduction of SMART and Green Practices in Kattankudy Urban Council activities by 2030.**

- 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 Complaints handling, etc.) by 2022 and mandatory by 2025.
- Training for UC staff and wider public awareness program on SMART practices and Green Service Delivery implemented in 2022.
- Development and application of monitoring programs to observe the outcomes and impact of implementing activities related to SMART and Green practices in the area. The capacity of LA will be developed to plan and implement this monitoring program in the long run.

**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 2025 at their present capacities
- Enhance the solid waste collection and transportation fleet by 2030
- Introduction of mandatory per capita reduction and sorting for domestic and commercial waste
- Development of institutional arrangements to promote participatory approaches to motivate stakeholders to work jointly to plan and implement solid waste management program

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

- Establish well developed monitoring program to monitor the process and outcomes of the capacity building program and redirect its methods if needed to address its drawbacks



## **CHAPTER - 08**

# **STRATEGIC ACTION PROJECTS FOR KATTANKUDY GREEN CITY**



## 8. THE STRATEGIC ACTION PROJECTS FOR KATTANKUDY GREEN CITY

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# Pre-Requisite Projects

These projects are important prerequisites for the successful implementation of the projects mentioned in the 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 (Kattankudy UC) with the involvement of the other stakeholders and monitored by the Council of the UC.

| Prerequisite Project No 01: Kattankudy UC                     |   | Forming and operationalizing Standing Committee on 'Leadership for Green City development' at the Local Authority  |
|---|---|--|
| Justification   | <p>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.</p> <p>Generally, changes in any UC are not smooth and resisted. To manage the changes effectively, good leadership and teamwork are essential. Changes are smooth and sustainable when stakeholders actively and effectively take part in the process of change.</p> <p>The formation of the leadership committee under the Chairmanship of the Chairman of the UC is a prerequisite to accomplishing the goals of Green City.</p>   |  |
| Relevant Prerequisites for formulation and the implementation | <p>A formal agreement between the UC and the other agencies to work in the Standing Committee and well-drafted terms of reference for a thorough understanding of the purpose and the functions of the committee towards Green City objectives.</p> <p>Acceptance and continuous support to provide regulatory backing from the Provincial Government Ministry and the Provincial Department of Local Government.</p>   |  |
| The current status of the coordination mechanisms             | <p>LA is made up of many different agencies operating in different sectors to serve the community. The community too is diverse and has many expectations. However, all wish to see a Green City environment where the communities live a healthy lifestyle.</p> <p>There is no institutional mechanism inbuilt into 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, are mostly driven by national-level development agenda.</p> <p>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 sustainably.</p> |  |
| Resources Available/ Potentials                               | <p>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 is usually never accounted for or appreciated as the information on them is 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.</p> <p>The community in the area possesses many potentials which need to be harnessed and given opportunities to perform for the betterment of the LA and its surroundings.</p> <p>All needy government agencies were available in the area even though they are not being used for coordinated efforts to develop and sustain natural capital.</p>           |  |
| Project Details   | The Project Components  | <p>Setting up of the Standing Committee to undertake and lead the implementation of the Green City Master Plan proposals.</p> <p>Preparing ToR for the Standing committee and defining the scope</p> <p>Workshop for the membership and stakeholders involved</p> <p>Commencement of the work and monitoring reports being produced and published in print and on the web.</p> |
|   | 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   | <p>Immediate actions</p> <p>Mid. Term actions</p> <p>Long Term action</p>   | <p><b>Design and planning (Immediate): Setting up of the Standing Committee</b></p> <p><b>Training and Guidance (Medium): Training workshop for the membership.</b></p> <p><b>Operational (Long term): Conduct of the sessions and preparation of the progress monitoring reports</b></p>  |
| The Method of Formulation                                     | Planning & designing  | 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, and Provincial local Government Department, and the likely resistance from National and Provincial political authorities   |  |
| Maintenance   | <p>A regular mechanism to be established to monitor the process and the functions of the standing committee. Systematic recording of events and decisions to learn lessons.</p> <p>Regular auditing of the matters and actions of the Committee by the Council.</p>   |  |

| Prerequisite Project No 02: Kattankudy UC                     |   | Preparation of Strategic Environmental Assessment and extended cost benefit on the Master Plan to be prepared  |
|---|---|--|
| Justification   | <p>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 conducting awareness programs.</p> <p>Although Strategic Environmental Assessments (SEA) are not yet mandatory by law, this is a tool that can provide decision-makers with a holistic approach to developmental activities. As there is no regulatory mechanism in place to guide SEAs unlike EIAs, it also allows defining its scope covering the intended changes in the LA and to guide other development projects that are to be launched in the future.</p> <p>Such proactive actions will enable the UC to ensure that proposed development projects are compatible with one another.</p>                         |  |
| Relevant Prerequisites for formulation and the implementation | <p>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.</p> <p>Continuous policy and macro-level institutional support for the institutions working on integrated planning and implementation programs in LAs</p>  |  |
| The Location and the surroundings                             | <p>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)</p>  |  |
| The current status of the coordination mechanisms             | <p>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 a healthy and vibrant lifestyle for the residents and visitors to LA.</p> <p>Integrated efforts of all relevant sectors are advocated by many for sustainable development, but there is no mechanism for integrated planning and implementation addressing environmental issues.</p>  |  |
| Resources Available/ Potentials                               | <p>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 is usually never accounted for or appreciated as the information on them is 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.</p> <p>The preparation of the SEA at the beginning and thereafter in the future to update it will help the Local Authorities in enhancing the quality of the development to be compatible with the sustainable development goals</p> <p>The availability of institutions including policies in LA areas is a resource to be identified and analyzed in SEA proposed.</p> |  |
| Project Details   | The Project Components  | <p>The SEA can be done in consultation with the Central Environmental Authority (CEA) which is assigned with the legal provisions for such study. The drawing of the TOR based on the expected scope of the SEA and its relevance for future projects needs to be clearly defined.</p> <p>Once the TOR is ready, requests for proposals from professional agencies capable of handling SEA could be called or the Council may obtain services of the University faculty located in the vicinity/region.</p> <p>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</p> <p>The production of the SEA is to be presented to all stakeholders in the city and endorsed for its recommendations to be carried out</p> <p>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 scenarios such as increased population growth, increase in solid waste management challenges, depleting physical space, stress on natural resources, etc.</p> <p>To make the study more oriented towards decision-making, it is also recommended that an extended cost-benefit (economic) study be carried out to estimate and quantify the potential benefits and impacts to the community.</p> <p>It is recommended that this document be published on the internet so that every person interested in the city's development can access and follow the guidelines[H2].</p> |
|   | Tentative Budget  | <p>The SEA is to cost around Rs. 5-8 million</p>   |

|                      |                   |   |
|----------------------|-------------------|---|
| The Expected Outcome | Greening the City | 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  |
|                      | Benefit to LA     | A holistic study will provide the decision-makers with an idea and guidance to make sure the proposed projects and approvals are granted for projects which are within the purview of the SEA.<br><br>Cost-effective but result-oriented projects can be identified by the local authority using the information in SEA and extended cost-benefit analysis. |

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|---|---|---|
| <b>Prerequisite Project No 03:<br/>Kattankudy UC</b>          |   | <b>A community-based Green City monitoring program with educational and training opportunities involving future generations</b>   |
| Justification   | <p>Kattankudy UC area has several schools that are attended by more than 5,000 students. Their active engagement can have a sizable impact on the success of any development initiative similar to the Green City transformation. On one hand, the teachers and students in the area represent 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.</p> <p>On the other hand, the benefits of the proposed Green City are mainly for the younger and future generations to come. Therefore, 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.</p> <p>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.</p> |   |
| Relevant Prerequisites for formulation and the implementation | <p>Schools and their staff including the principals are to be made fully aware of the project, its benefits and its relevance to the curriculum and education of students and their performances.</p> <p>UC Staff shall be willing to support the program with a clear focus on nurturing and developing responsible citizens who will help conserve the environment and green city status in the future.</p> <p>Relevant authorities under whose jurisdiction the natural resources are maintained or managed shall agree to work with the school program and promote the activities.</p>  |   |
| The current status of the structure                           | <p>The area has several important and sensitive ecosystems that contain water bodies, heritage sites, etc., and the schools are located within or associated with them.</p> <p>The school curriculum provides opportunities for various engagements in projects of this nature.</p>   |   |
| Resources Available/ Potentials                               | <p>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 is usually never accounted for or appreciated as the information on them is 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.</p> <p>UC and the DS office have Environmental Management units and graduate Environmental Officers, who are resourceful for the project.</p>  |   |
| Project Details   | The Project Components  | <p>Setting up a school program to involve students from Grade 6-10 in 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 benefit from the opportunities and resources available.</p> <p>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 a seminar attended by the Mayor, and other heads of departments in charge of the natural resources under the program and parents of the students.</p> <p>At these sessions, the UC may organize competitions or appreciation annual awards to be granted to those schools that have carried out remarkable work to protect the environment and green status.</p> |
|   | Facilities  | <p>Those schools may need to be provided with the training facilities such as projectors and other similar training facilities for conducting training sessions</p> <p>Monitoring programs will need to be done using simple testing equipment such as water testing and a few laboratory equipments that can be used by the students to test basic parameters</p> <p>Repair and upgrading of the training facilities and laboratories in the schools where such facilities are needed for the training</p>   |
|   | Tentative Budget  | To be estimated   |
|   | The Main Stakeholders   | All citizens in Kattankudy UC area through younger generation in Schools  |



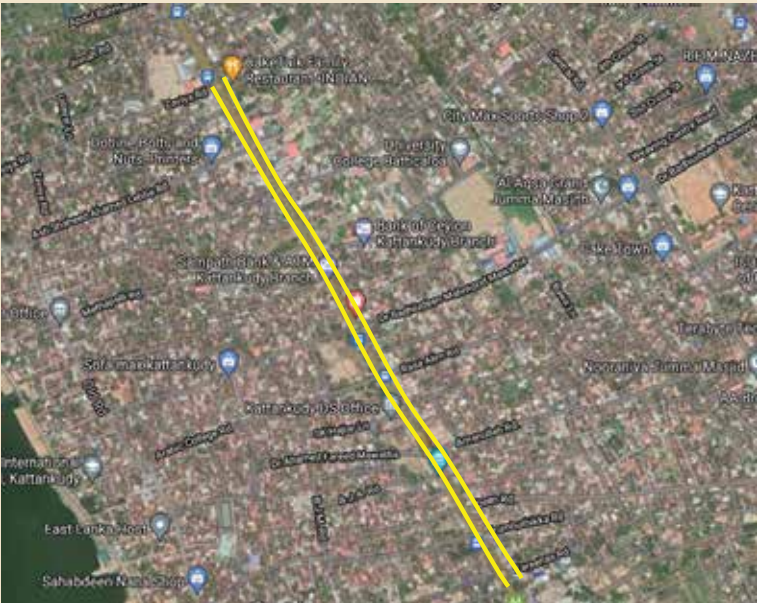
|  |   |  |
|--|---|--|
| The Expected Outcome   | Greening the City                       | A future generation that is aware and educated on the environment and ecosystem services would take the responsibility to protect and conserve the environment more effectively.   |
|  | Benefit to LA                           | The monitoring of the key ecosystems and their services by a group of the young and energetic population will provide reports<br>Overall benefits accrued through political and economic due to the creation of a healthy and safe environment in the area   |
| Project Duration with phasing                                    | Immediate actions                       | <b>Design and planning (Immediate)</b><br>Agree with schools (Principals) on the natural resources that their respective schools will take up under the project<br>Prepare an agreement with the respective agencies allowing the schools to use the area as a training and research project site for the students<br>Develop a profile of the resources identified  |
|  | Medium Term Actions                     | <b>Training and Guidance (Medium)</b><br>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                        | <b>Operational (Long term)</b><br>Program for grades 6-10 on understanding and taking responsibility for ecosystems in the environment.<br>Grade 6: Educate them on the usefulness of urban tree cover and plant cover for people and their responsibilities. Start a school plant nursery or home nursery and record plant germination and survival, nutrient requirement etc.<br>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 for and nurtured. Teach them on how to maintain the records and pass them to the next class next year for continuity.<br>Grade 8: Take students to see Botanical gardens and other plant conservation areas including the 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.<br>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. Their role as future adults in the process of conservation efforts should also be covered.<br>Grade 10: Making measurements and recording the environmental and ecosystem status and impacts for reporting. How to prepare simple monitoring reports that give an indication of the status of the environment.<br>Also the setting up of the annual reporting event on the state of the environment with the participation of a larger segment of society and other stakeholders and giving awards to schools who have performed 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               | Kattankudy UC  |
|  | Operations                              | Parent Teachers Associations in each school<br>And the Environmental Officers in the UC  |
|  | Maintenance                             | Supervised by Kattankudy UC  |

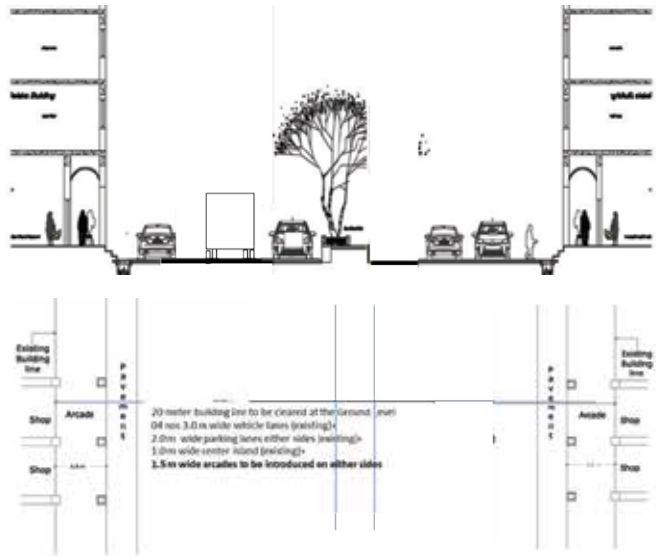

| <b>Prerequisite Project No: 04 Kattankudy UC</b>              |   | <b>Declaration of the total area of kattankudy urban council under the Urban Development Authority law no 41 of 1978</b>  |
|---|---|---|
| Justification   | <p>Kattankudy is a growing city with the status of the Urban Council. Though it is an urban council area so far only the one km area is declared under the Urban development Authority Law. Development of other parts of the UC has been managed under the powers of the Housing and Town improvement ordinance (H&amp;T). If the total area comes under UDA purview, it is very easy to prepare a comprehensive development plan and integrate the green city concept into the development Plan.</p> <p>As per section 8(j) of Urban Development Authority Amendment Act No. 04 of 1982 any development activity within a declared urban development area, as per the provisions given under Development Authority Act No. 41 of 1978, is required to obtain an approval from the Urban Development Authority (UDA).</p> <p>If the area is coming under one act/ or one jurisdiction it is very easy to prepare, enforce and implement the development activities , guidelines and rules and regulations.</p> |   |
| Relevant Prerequisites for formulation and the implementation | Council has to pass a resolution assuring the willingness to declare the total council area under UDA law no 41 of 1978.  |   |
| The current status of the coordination mechanisms             | A part of the Kattankudy area (1 Km coastal area) has been declared as an Urban Development area by the gazette notification No.223/16 dated 17th December 1982 by the Minister in charge of the subject of urban development and hence forth the physical developments in that portion has been regulated by the UDA. The importance of the declaration of this area has been discussed at different forums and the majority of the council members agreed to the proposal and submitted the proposal to the council. This is a long-standing issue at the Kattankudy Urban council.   |   |
| Resources Available/ Potentials                               | Kaththankudi is an area very rich with skilled human resources as well as other resources such as fisheries, trade, and different kinds of materials. The Council area is full of different types of natural and man-made resources. The UC area has many strengths and opportunities which need to be harnessed and given opportunities to support the betterment of the community of the UC .   |   |
| Project Details   | The Project Components  | <p>Pass a resolution at the council.</p> <p>Request Urban Development Authority to declare the total area under the UDA act and request concerned parties to prepare the necessary documentation.</p>   |
|   | Tentative Budget  | Not Applicable  |
|   | The Main Stakeholders   | LA and the Urban Development Authority  |
| The Expected Outcome  | Greening the City   | UDA is the prime planning agency, having legal provisions to prepare a development plan, implement and enforce its planning and building regulations in a declared area if there is a development plan. It is very easy to integrate a green city development proposal into a development plan and to form a practical mechanism to implement them. |
| Duration with phasing   | Immediate actions   | Pass the council resolution   |
|   | Mid. Term actions   | Send the request to the UDA with the resolution   |
|   | Long Term action  | <p>Submission to the main Planning committee,</p> <p>Submission to the boards of directors</p> <p>Send to the Secretary to the Ministry</p> <p>Declaration and gazette notification</p>   |
| The Method of Formulation                                     | Planning & designing  | Kattankudy UC and UD head office  |
|   | Funding   | N/A   |
|   | Legal clearances and Approvals required   | Not necessary   |
| Likely Risks and uncertainties                                | <p>Total agreement of the councilors</p> <p>Changing priorities of the council.</p>   |   |
| Maintenance   | N/A   |   |

## Specific Projects

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

All of these projects shall be initiated with the leadership of the UC (Kattankudy UC) with the involvement of the other stakeholders and monitored by the Council of the UC.

| Specific Project No. 01: Kattankudy UC  | Improvements to Public Realm of the Kattankudy Main Street  |
|---|---|
| The main Objective of the Master to be served by the Development/ Project                       | A model high density compact urban development design of the Urban Development Plan in consultation with the UDA  |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | Clearance from the RDA<br>Consensus of the business organizations in the town   |
| The Location and the surroundings   | <p>Batticaloa- Colombo Road (A4)</p>   |
| The current status of the land and its vicinity   | <p>Main Street (A4): Approx. 1.6 km: Building line cleared up to 18 - 20 meters width the road space with 04 carriageways and narrow side shoulder space.</p> <p>All commercial buildings are developed up to the edge of the street.</p> <p>Poorly defined pedestrian area, a concrete drain at the street edge</p> <p>Vehicles parked on the street (in the shoulder of the road) in the absence of proper parking facilities</p> <p>The center island is planted with palm trees</p> |
| The Land Ownership  | Road Development Authority and the Private owners, but within the building line, interface between the Road and the Private Property.   |
| Resources Available/ Potentials   | A4 highway has been assigned with a 30 m building line, the whole or part thereof can be cleared for public purposes.   |

|                               |   |   |
|-------------------------------|---|---|
| Project Details               | The Physical Developments                 | Introduction of street canopies/shades extended from the existing buildings (without disturbing street space) and the regulation of street facades of the existing shops and buildings, standardized sign boards, etc., in the town center on either side of the A4 (1.6 km)  |
|                               | The Project Components                    | <p>Clearance of 20-meter-wide street space throughout, clearing all temporary and permanent constructions at the ground level.</p> <p>Clearance of the 1.5-meter-wide arcade at the ground level into the existing buildings continuing on either side of the main street.</p>   |
|                               | Tentative Budget                          | To be estimated   |
|                               | The Main Stakeholders                     | <p>Kattankudy UC</p> <p>Owners of the shops/properties along the street</p> <p>General Public</p>   |
| The Expected Outcome          | Greening the City                         | An 'green' element that provides pedestrian-friendly, safe and pleasant urban environments to the community.  |
|                               | Physical Improvements                     | <p>An urban area conducive for pedestrians for walking, shopping, and trading.</p> <p>A pleasant environment for the users of the towns, avoiding the harsh sun and glary atmosphere.</p>   |
|                               | Quality of Life and other Social Benefits | An organized public space safe and healthy for residents in the area, and daily visitors to the towns.  |
|                               | The benefit to Local Authority            | <p>Delivery of public space requirement and the sense of pride to the citizens of Kattankudy UC.</p> <p>Value appreciation of the adjacent properties</p> <p>The pleasant environment throughout the town area.</p>   |
| Project Duration with phasing | To be decided                             |   |
| The Method of Formulation     | Planning & Designing                      | UDA to support Kattankudy UC to develop the design in a collaborative arrangement with the property owners and for a continuous transformation over 03-05 years.  |
|                               | Funding                                   | Funded by Business holdings/shop owners as a possible alternative to the amounts payable as assessment taxes for a given period (based on the cost estimates)   |
|                               | Legal clearances and Approvals required   | <p>RDA clearance</p> <p>A formal agreement between the UC and the Property Owners</p>   |

| Likely Risks and uncertainties                                   | To be studied             |  |
|--|---------------------------|--|
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction | Private business holdings along the Main Street  |
|  | Operation and Maintenance | By Business Holders and individual property owners along the roads.<br>Supervised by Kattankudy UC |

Examples of situations similar to the proposed:



Existing view of the Main Street





|  |  |  |
|--|--|--|
| The current status of the land and its vicinity                      | <p>The beach is approx. 2.7 kms long and 10-20 meters wide,<br/>Partly used by three fishermen's boat anchoring points, and<br/>Accessible through the Marine drive running along the full length.<br/>Heavily used by people for leisure, picnics, and recreation in the evenings.<br/>Fewer trees and largely exposed to harsh sun and rain. Users mostly gather under the shade of the few trees available.<br/>Little or poor facilities for public use.</p> |  |
| The Land Ownership   | State land, under the declaration of the Coast Conservation Department and the Urban Development Authority.  |  |
| Resources Available/<br>Potentials                                   | <p>The wide and sandy sea beach is mostly free from unauthorized constructions<br/>Highly accessible because of the Marine Drive connected to the town with many roads.<br/>The fishing Community and the residents of the beachfront district are willing to take care of the place<br/>UC is involved in cleaning and providing facilities</p>   |  |
| Project Details  | The Physical Developments  | An organized beach park with shady trees planted along the beach with necessary improvements to recreation facilities.   |
|  | The Project Components   | <p>Organization of the caretaker society with the involvement of neighboring residential communities.</p> <p>Reorganization and improvement of facilities in the existing fishermen's Vadiya (anchoring points)</p> <p>Planting of suitable fast-growing, wide canopy tree species along the marine drive-beach interface at 10.0-meter intervals with necessary ground preparation.</p> <p>Paving of eco-paving material to form a 3.0-meter-wide pedestrian path along the interface.</p> <p>Improvements to existing children's play areas and introduction of recreation facilities for youth and adults.</p> <p>Provision of public toilets and restroom facilities as appropriate.</p> |
|  | Tentative Budget   | To be estimated  |
|  | The Main Stakeholders  | <p>Kattankudy UC</p> <p>General Public</p> <p>Neighboring communities</p>  |
| The Expected Outcome   | Greening the City  | A necessary 'green' recreation facility and open space for the local community.  |
|  | Physical Improvements  | Improved beachfront and green spaces.  |
|  | Quality of Life and other Social Benefits  | <p>An organized public space with recreation facilities for residents in the area.</p> <p>Improved health conditions of the residents and social interactions among different groups.</p>  |
|  | Benefits to Local Authority  | <p>Delivery of public space requirement and the sense of pride to the citizens of Kattankudy UC.</p> <p>Value appreciation of the adjacent properties</p> <p>Pleasant environment on the beachfront.</p>   |
| Project Duration with phasing  | To be decided  |  |
| The Method of Formulation  | Planning & designing   | UDA to support Kattankudy UC to develop the design in a collaborative arrangement with the property owners and for a continuous transformation over 03-05 years.   |
|  | Funding  | Funded jointly through the Kattankudy UC capital budget and private sector business holdings as a possible alternative to the amounts payable as assessment taxes for a given period (based on the cost estimates)   |
|  | Legal clearances and Approvals required  | <p>Coastal Conservation Department clearance</p> <p>Formal agreement between the UC and the Property Owners</p>  |
| Likely Risks and uncertainties                                       | To be studied  |  |
| The Method and the Lead Agency for Implementation and Sustainability | Procurement/<br>Construction   | Kattankudy UC  |
|  | Operations and Maintenance   | Kattankudy UC in collaboration with neighboring property owners.   |



Examples of situations similar to the proposed Beach Front Development:

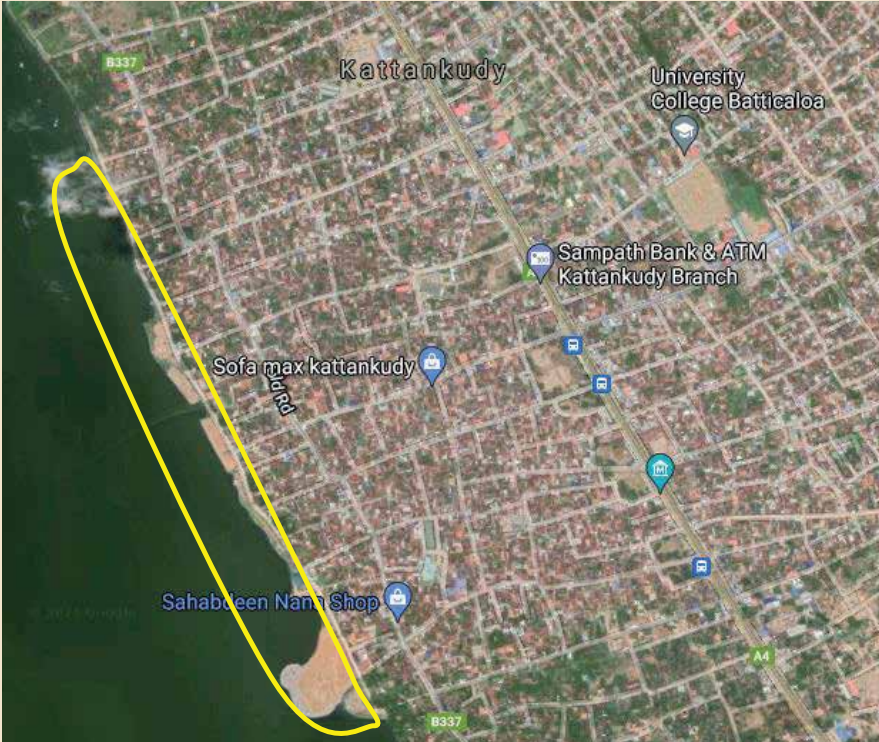


Source: [https:// www.tripadvisor.com](https://www.tripadvisor.com)

Examples of situations similar to the proposed Fishermen's Facilities (*Wadiya*)



Source: [HTTps://www.dreamstime.com](https://www.dreamstime.com)

| Specific Project No. 03: Kattankudy UC  | Development of Kattankudy Lagoon Park   |
|---|---|
| The main objective of the Master Plan to be served by the Development/ Project                  | Clearance and sustainable conservation of the existing waterways and creeks and beach and lagoon front.   |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | Clearance from the Coast Conservation Department and the Urban Development Authority<br>Organization of the property owners and residents in the lagoon front into a local society  |
| The Location and the surroundings   | <p>The lagoon front (approx. 1.5) km within the jurisdictions of the Kattankudy UC.</p>    |
| The current status of the land and its vicinity   | <p>The lagoon front is approx. 1.5 km,<br/>Partly reclaimed and formed open ground at the Southern end. Parts in between are being reclaimed with construction debris and solid waste.<br/>Accessible through the old road running along the full length.<br/>A few outdoor leisure facilities were established by the UC, but are not popularly used like the beachfront.<br/>Fewer trees and largely exposed to harsh sun and rain.</p> |
| The Land Ownership  | State land, under the declaration of the Coast Conservation Department and the Urban Development Authority.   |
| Resources Available/ Potentials   | Waterfront and the old road that extends throughout the full-length   |

|  |   |  |
|--|---|--|
| Project Details  | The Physical Developments                 | An organized waterfront park with shady trees planted along the lagoon front with necessary improvements to existing recreation facilities.  |
|  | The Project Components                    | <p>Organization of the caretaker society with the involvement of neighboring residential communities.</p> <p>Consolidation of the lagoon edge with suitable gabion/retaining structure with minor earth filling for ground leveling.</p> <p>Planting of suitable fast-growing, wide canopy tree species along the old road-lagoon interface at 10.0-meter intervals with necessary ground preparation.</p> <p>Paving of eco-paving material to form a 3.0-meter-wide pedestrian path along the interface.</p> <p>Improvements to existing children's play areas and introduction of recreation facilities for youth and adults.</p> <p>Provision of public toilets and restroom facilities as appropriate.</p> |
|  | Tentative Budget                          | To be estimated  |
|  | The Main Stakeholders                     | <p>Kattankudy UC</p> <p>General Public</p> <p>Neighboring communities</p>  |
| The Expected Outcome   | Greening the City                         | Development of a much-needed 'green' recreation facility and open space for the local community.   |
|  | Physical Improvements                     | <p>Improved lagoon front and green spaces.</p> <p>Prevention of solid waste collection in the area and pollution of the lagoon.</p>  |
|  | Quality of Life and other Social Benefits | <p>An organized public space with recreation facilities for residents in the area.</p> <p>Improved health conditions of the residents and social interactions among different groups.</p>  |
|  | Benefits to Local Authority               | <p>Delivery of public space requirements and providing a sense of pride to the citizens of Kattankudy UC.</p> <p>Value appreciation of the adjacent properties and the possibility to impose a 'development charge'.</p> <p>The pleasant environment on the beachfront.</p>  |
| Project Duration with phasing                                    | To be decided                             |  |
| The Method of Formulation  | Planning & designing                      | UDA to support Kattankudy UC to develop the design in a collaborative arrangement with the property owners and for a continuous transformation over 03-05 years.   |
|  | Funding                                   | Funded jointly through the Kattankudy UC capital budget and private sector business holdings as a possible alternative to the amounts payable as assessment taxes for a given period (based on the cost estimates)   |
|  | Legal clearances and Approvals required   | <p>Coastal Conservation Department clearance</p> <p>Formal agreement between the UC and the Property Owners</p>  |
|  | Likely Risks and uncertainties            | To be studied  |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction                 | Kattankudy UC  |
|  | Operations and Maintenance                | Kattankudy UC in collaboration with neighboring property owners.   |

Examples of situations similar to the proposed Beach Front Development:



Source: <https://www.flickr.com>



Source: <https://www.slidesandsunshine.com>

| Specific Project No. 04: Kattankudy UC  |   | Enrichment and incorporation of Thonas into city landscape and managing it with public participation |
|---|---|--|
| The main objective of the Master Plan to be served by the Development/ Project                  | Capitalize on Natural resources   |  |
| Justifications  | <p>Thonas or drainage channels in the Kattankudy city are an important landmark in the city landscape. It takes the stormwater falling in the city into the sea during rainy periods.</p> <p>These Thonas, however, overflow due to a slow gradient which results in a slow pace of water movement, causing immense hardships to the communities living around the areas. The channels during the dry weather periods do not flow as there is not enough water in the channel. Many unauthorized constructions have blocked or reduced the channel flow and its carrying capacity has added to the problem.</p> <p>Considering the climate change projections which predict the intensified but shorter duration of rainfall due to northeast monsoons, it may be expected to have greater inundations/flood situations as well as long dry periods where water may get stuck.</p> <p>The channels are polluted by the public who throw garbage and waste indiscriminately into the channel aggravating the situation. It's simply an eye sore and ecological disaster as the system is not well managed to give its full potential.</p> <p>Similar work had been performed under the Metro Colombo Urban Development Project (2016) and was published in <a href="https://www.ramsar.org/sites/default/files/Colombo%20Wetland%20Management%20Strategy.pdf">https://www.ramsar.org/sites/default/files/Colombo%20Wetland%20Management%20Strategy.pdf</a></p> |  |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | <p>Mapping of the Thonas and the connections into the system.</p> <p>A hydrological model is to be developed on the functioning and flow of the water along the canals during different rainfall/storm scenarios.</p>   |  |
| The Location and the surroundings   | Across the city along channels  |  |

**The current status**


The current Thoanas are stuck and have no active flow of water with many illegal connections that bring in wastewater into the channels.

The overgrowth of weeds and aquatic plants along the channel will eventually reduce the capacity due to trapped particles settling in the channel.

Many people throw their solid waste into the channels openly.

**The Land Ownership**

Not applicable



**Resources Available/ Potentials**

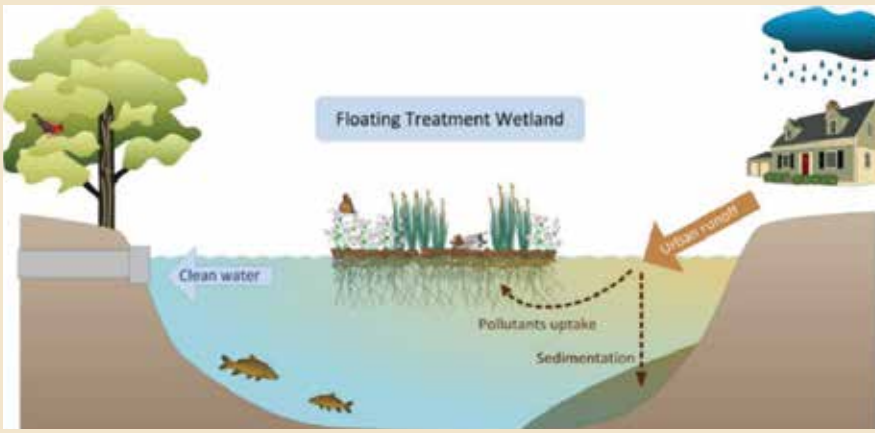
The channel is a resource that can be made use of to improve the city landscape. Also, sections of the canal may be used to allow the growth of weeds in a carefully managed wetland system which can add greenery and clean the water which flows through the system.

The canals are connected to the sea which is usually stuck with sand built up during the dry period of the year. Although water flows into the sea during the wet weather season through these openings, they flow very slowly due to the low gradient of the terrain thus resulting in floods in the city.

A pump station may be useful to pump the channels during rainy seasons to reduce flood damage. No well water sources in the area are in use for domestic purposes and potable water is supplied through pipes by the National Water Supply and Drainage Board from an outside source.

Preliminary observation of the canals for its biodiversity showed that there is hardly any endangered or rare biodiversity associated with the canals which are highly polluted and if this can be further confirmed, the canals may be flushed from time to time using the seawater during the dry period where pumps can be reversed for this purpose.

The public who reside along the canals needs to be made aware that they are the ones who will be most affected and suffer if the canal system is allowed to further degrade. Hence it is necessary to bring them into the maintenance and monitoring of the canal.



|  |   |   |
|--|---|---|
| Project Details  | The Physical Developments   | <p>The canal banks need to be reconstructed where it is damaged and illegal constructions obstructing the flow need to be cleared.</p> <p>The canal's sides where space is available can be landscaped with salt-tolerant plants and leisure facilities such as pedestrian furniture along the pathway and canal way.</p> <p>Pump stations are to be located/constructed in the sea front connecting places so that the water during the high rainfall situations can be pumped into the sea or prior to wet seasons.</p>   |
|  | The Project Components  | <p>Map the gradient and model the water flow in the city using suitable hydrological models under different climatic and weather scenarios.</p> <p>Seek advice from a qualified agency such as SLRDC or an individual to provide a solution for disaster prevention due to heavy storm weather which may result in flood situations.</p> <p>Design the engineering solutions for the area to improve the flow of water.</p> <p>Set up channel and landscape management committees where the public living along the canal are expected to participate in the upkeep of the canal ecosystem and its infrastructure to allow its full operations.</p> <p>These committees can be organized/structured by the LA in line with the fisheries or farmer organizations or the citizen neighborhood watch committees which are entrusted with the responsibilities of monitoring the areas</p> |
|  | Tentative Budget  | To be estimated   |
|  | The Main Stakeholders   | <p>Local Authorities</p> <p>Locals living in the affected areas</p>   |
| The Expected Outcome   | Greening the City   | Develop a clean and green Thona system with reduced flooding potential to safeguard the community. A thona that will add to the green lungs of the city that will support greater biodiversity  |
|  | Physical Improvements   | <p>The microclimatic conditions around the city will improve.</p> <p>The land value of the areas will also increase</p>   |
|  | Quality of Life and other Social Benefits   | The health of the people living in the areas affected will improve through reduced flooding and a better physical environment.  |
|  | The benefit to Local Authority  | The local authorities will be able to charge higher rates from the increased land values  |
| Project Duration with phasing                                    | <p>Model on hydrological aspects to be carried out on the thonas</p> <p>Prepare to remove and re-establish the thona's flow of water. If necessary establish the Pump stations to support unimpeded water flow.</p> <p>Maintain and monitor the thonas and water flow while managing the pump stations.</p> |   |
| The Method of Formulation  | Planning & Designing  | Run the Model for water flow under different scenarios of stormy and dry conditions   |
|  | Funding   | To be funded through the UC budget and Central Government support   |
|  | Legal clearances and Approvals required   | Coordinate with the National water supply and irrigation departments to agree on the common management program for the thonas .   |
|  | Likely Risks and uncertainties  | The extreme weather conditions including sea level rise may impact the success of this intervention.  |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction   | By Kattankudy UC in Consultation with Coast Conservation Department   |
|  | Maintenance   | By Kattankudy UC  |

| Specific Project No. 04: Kattankudy UC  |   | Sustainable Municipal Solid Waste Management System for Kattankudy  |
|---|---|---|
| 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 safeguards of the local community by end of 2022    |   |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | The project is in operation and an expansion to the existing compost yard is also observed. No need for additional approval.                              |   |
| The Location and the surroundings   | Existing land of the Solid waste sorting and composting plant   |   |
| The current status of the land and its vicinity   | Currently there is a waste processing center that includes composting.  |   |
| The Land Ownership  | The land is owned by the Kattankudy UC and the area is a dedicated site for the Kattankudy solid waste management purpose.                                |   |
| Resources Available/ Potentials   | The land and the laborers for solid waste management and equipment are already available with the UC.   |   |
| Project Details   | The Physical Developments   | Establishment of Solar panel  |
|   | The Project Components  | Conduct an awareness program for the community on source segregation.<br>Improve waste collection system with smart technology including a GIS tracking system<br>Install solar panels for the compensation of electricity used for the machinery operation |
|   | Tentative Budget  | To be estimated   |
|   | The Main Stakeholders   | Kattankudy UC<br>General Public   |
| The Expected Outcome  | Greening the City   | The project aims to help keep the city clean; promote recovery of resources from waste (including compost, and recyclable materials); reduce carbon emissions by recycling waste and contributing green energy to the national grid.                        |
|   | Physical Improvements   | Easy access for the public to dispose of their municipal solid waste, and introduce measures for the proper disposal of solid waste.  |
|   | Quality of Life and other Social Benefits   | Ensure the environmental health and social safeguards of the community in the area by reducing disease spread.  |
|   | A benefit to Local Authority  | Provides an opportunity for the LA to stand with a good e-governance system for solid waste management.<br>Additional income through selling compost and generated solar energy.  |
| Project Duration with phasing   | Immediate action on the improvement of the composting facility and the sanitary landfill site.<br>Medium-term action for the installation of solar panels |   |
| The Method of Formulation   | Planning & Designing  | Private sector assistance could be obtained for the purchase of solar panels.   |
|   | Funding   | Funding assistance could be obtained from outside sources<br>The UC budget could be used for the awareness program and e-system development for solid waste.  |
|   | Legal clearances and Approvals required   | No need for any approval, but CEB consent is needed for the Solar energy connection.  |
| Likely Risks and uncertainties  | No major risk is expected   |   |
| The Method and the Lead Agency for Implementation and Sustaining                                | Procurement/ Construction   | Kattankudy UC   |
|   | Maintenance   | Kattankudy UC   |

| Specific Project No. 04: Kattankudy UC  |  | Sustainable Liquid Waste Management System for Kattankudy US   |
|---|--|--|
| The main objective of the Master Plan to be served by the Development/ Project                  | Implementation of a sustainable wastewater management system to ensure satisfactory environmental and social safeguards for the local community by end of 2022 |  |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | CEA, RDA, PRDA, CC&C RMD, Irrigation Department  |  |
| The Location and the surroundings   | To be decided by the National Water Supply & Drainage Board  |  |
| The current status of the land and its vicinity   | The land available near the waste processing center could be used for these purposes. The site was used earlier for solid waste dumping.                       |  |
| The Land Ownership  | To be sorted   |  |
| Resources Available/ Potentials   | At present only the land is available for the project.   |  |
| Project Details   | The Physical Developments  | Construction of sewage treatment system  |
|   | The Project Components   | Construction of sewage collection pipeline system for the entire UC area.<br>Construction of sewage treatment and disposal system<br>Provision of training for the operation and maintenance |
|   | Tentative Budget   | To be estimated  |
|   | The Main Stakeholders  | Kattankudy UC<br>Public<br>National Water Supply and Drainage Board<br>RDA<br>CC&CCRMD<br>PRDA   |
| The Expected Outcome  | Greening the City  | Keeping the city clean   |
|   | Physical Improvements  | Easy access for the public to dispose of their wastewater  |
|   | Quality of Life and other Social Benefits  | Ensures the environmental health and social safeguards of the community are in place in the area by reducing disease spread  |
|   | The benefit to Local Authority   | The LA takes greater ownership of maintaining a clean and green City   |
| Project Duration with phasing   | Medium to long term  |  |
| The Method of Formulation   | Planning & designing   | National water supply and Drainage Board   |
|   | Funding  | Fund assistance could be obtained from development banks such as the World Bank/ ADB/ EXIM Banks, etc, either as loans or grants.  |
|   | Legal clearances and Approvals required  | CEA /RDA/PRDA/NWS&DB/CC&CRMD   |
| Likely Risks and uncertainties  | No major risk is expected  |  |
| The Method and the Lead Agency for Implementation and Sustaining                                | Procurement/ Construction  | Kattankudy UC/NWS&DB   |
|   | Operations   | Kattankudy UC  |
|   | Maintenance  | Kattankudy UC/NWS&DB   |



# 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 applicable in all LAs, but with necessary adaptations required according to the local context.

| Common Project No: 01   |  | Change introduction and knowledge generation/enhancement of stakeholders on the green city Master Plan  |
|---|--|---|
| General Objectives of the Master Plan served by the Project   | <p>Implementation of wider training, educational and awareness development programs in schools, community centers and youth societies on the greening project and Practices (objective 7).</p> <p>This project will also partially facilitate all the other objectives in the 4 LAs that are focused on specific development interventions in 10 different sectors concentrated in the Master Plan.</p> <p>The proposed project will address the initial element of the change management project. A total change management project should cover the 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.</p> <p>The process of change management projects has 3 interrelated elements from other analytical perspectives including knowledge generation, skill development and thereby influencing the 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 itself in the long run.</p> |   |
| Relevant Pre-requisites for the implementation of the project | <p>The following prerequisites are identified for the planning and implementation of the proposed project:</p> <ul style="list-style-type: none"> <li>• The top level decision makers of all relevant stakeholders including the Local Government Department as the project executing agency and LA as the project implementing agency should be convinced of the need for introducing desired changes and their related knowledge to plan and implement all other possible interventions suggested under the Green City Master Plan</li> <li>• Further, they also should be convinced of the need for knowledge generation/sharing projects for the initial preparation of institutions including formal and informal organizations and also Government and Nongovernment organizations and CBOs for meaningful and effective involvement for project planning, implementation and sustainability to maintain role model green cities.</li> </ul>   |   |
| The Location and the surroundings                             | <p>The proposed project on initial interventions will prepare stakeholders with accurate information to empower them with the knowledge that is not confined to any particular geographical location within LA areas. The interventions are on all the relevant institutions including government, non-government, formal, informal etc. located in various locations ( Villages, LA areas, DS areas, Township, UC, District, Province and even National etc.)</p>   |   |
| The current status of the land and its vicinity               | <p>Not applicable.</p>   |   |
| The Land Ownership  | <p>Not applicable.</p>   |   |
| Resources Available/Potentials                                | <p>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's ongoing CDLG project may be willing to fund the proposed interventions.</p>   |   |
| Project Details   | The Physical Developments  | <p>The project does not involve hardware development but it will directly facilitate the successful planning and implementation of hardware development-related interventions under the Master Plan and also influence the sustainability of the hardware development interventions intended to carry out under the Master Plan.</p>  |
|   | The Project Components   | <p>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.</p> <p>The specific aspects of training will include:</p> <ul style="list-style-type: none"> <li>• Needs for greening the cities in the country due to ongoing sustainability-related issues</li> <li>• Concepts of Green cities</li> <li>• Concepts of Green cities</li> <li>• Need for knowledge, skills and attitudinal changes of the stakeholders to plan, implement and sustain the interventions for greening the cities</li> <li>• Existing Strengths and weaknesses</li> <li>• Opportunities and threats to be used for planning and implementing of green city-related projects under the master plan</li> <li>• The roles, responsibilities and accountability-related behavior expected from the stakeholders.</li> </ul> |
|   | Tentative Budget   | <p>The activities such as training modules/manuals development, mobilization of trainees, preparation of venues with a learning environment, mobilization of resource persons with knowledge on multi-disciplines etc. will require funds.</p>  |

|  |  |   |
|--|--|---|
|  | The Main Stakeholders  | <p>The institutions and in most cases individuals with different stakes in developing and managing a city will be included in the list of stakeholders in the proposed project. The project proposed is a fundamental need to be addressed before the commencement of planning and implementation of specific physical interventions. Therefore a comprehensive list of stakeholders will be included and their main categories may include:</p> <ul style="list-style-type: none"> <li>• Institutions directly involved in development activities and management /maintenance activities of the city infrastructure (e.g. LA, UDA, RDA etc.)</li> <li>• Institutions indirectly involved in the development and management functions of the city (e.g. Forest Department, Archeology Department, Wildlife Department etc.)</li> <li>• Institutions involved in development as well as benefiting from such development (e.g. Business institutions)</li> <li>• Beneficiaries of the township ( e.g. visitors)</li> <li>• Interested parties</li> <li>• Other to be identified</li> </ul> |
| The Expected Outcome   | Greening the City  | <p>The main outcome of the proposed project is to prepare all the project's relevant stakeholders with the required knowledge and types of changes required. It is realistically assumed that this outcome will generate cumulative impacts such as the effective contribution of knowledgeable stakeholders for planning, implementation and maintenance of the infrastructure facilities. Therefore, this project will directly contribute to knowledge generation and indirectly contribute to all the elements of a green city such as the 4 outcomes mentioned here.</p>   |
|  | Physical Improvements  |   |
|  | Quality of Life and other Social Benefits  |   |
|  | Benefit to Local Authority   |   |
| Project Duration with phasing                                    | <p>The proposed project actions will be confined to immediate actions and medium-term actions. The project will contribute for the long term in different modes of planning and implementation but not under this caption of the proposed project. The proposed project will have 3 different phases within its implementation: 1) mobilization for training 2) implementation of training and 3) outcome mapping as comprehensive activity (not the usual assessment of the training sessions) after the training to identify methodologies to use to train stakeholders in the follow-up of infrastructure related projects under the Master Plan.</p> |   |
| The Method of Formulation  | Planning & Designing   | <p>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.</p>   |
|  | Funding  | <p>Either from the Local Government or from the UNDP's ongoing project</p>  |
|  | Clearances and Approvals required  | <p>The concurrence from the Council of UC and heads of other stakeholder agencies</p>   |
|  | Likely Risks and uncertainties   | <p>The risk would be the likelihood of misconception of the proposed training as another conventional activity but, it is not conventional instead a conventional tool is designed as a new innovative approach</p>   |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction  | <p>Procurement will include the identification and hiring of suitable resource persons and other training-related logistics</p>   |
|  | Operations   | <p>Operations of the program will be facilitated by capable persons on behalf of LA but all the operations will be highly participatory.</p>  |
|  | Maintenance  | <p>The proposed project will contribute indirectly but positively to suitable programs on suitable O&amp;M to be worked on all the infrastructure projects to be implemented under the Master Plan.</p>   |

| Common Project No: 02   |   | Environmental reporting and communication with the public   |
|---|---|---|
| The General Objective of the Master Plan to be served by the Development/ Project | Monitoring of environmental parameters and increasing public awareness of the changes happening to their city   |   |
| Justification   | <p>The Green city Master Plan expects to improve the city outlook as well as its functions to become more environmentally friendly. These changes will be experienced by the people and the 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 their lives change. It is necessary to identify expected parameters to demonstrate the impact of changes. These may also be the indicators that would be used to report the progress and performance.</p> <p>It is noteworthy that the public is the main stakeholder of this program whose tax money will be used to make the changes and therefore the public will be interested to know the impact of actions taken. However, they may not be privileged or have access to assess the progress and impact levels of the projects. It is for these reasons that it is useful to communicate the progress and impacts in an easy-to-understand manner to the general public.</p>   |   |
| Prerequisites for the implementation of the project                               | Agreement by other agencies to work with the LA staff in the Standing Committee and with the understanding that this is formed for coordination and integration purposes to make the best use of the opportunity to make their respective subject areas environmentally friendly  |   |
| The Location and the surroundings   | At the LA   |   |
| The current status of the coordination mechanisms                                 | <p>The City council is the place where decisions are taken and actions are initiated. However, the public at large may only become aware and feel project impacts only after they are completed on the ground. Also, many projects are expected to have long-term impacts which may never be felt by potential beneficiaries as the changes may be slow and unnoticeable due to many factors.</p> <p>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 on the public except for the plaques that are constructed and opened at the time of laying foundation stones or opening of a facility or service centers.</p>   |   |
| Resources Available/Potentials  | <p>Most LAs in the country have no websites or digital format for communicating with the public. The younger segment of the public uses digital media profusely and can be the conduit to reach other older populations with information. Hence it is recommended that the LA s take immediate steps 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</p> <p>Electronic display boards are to be established to report on selected environmental parameters and other social aspects. The board can also take the current situation as the reference point and start displaying the ongoing progress achieved in terms of environmental quality parameters.</p> <p>It may be necessary to set up an effective monitoring mechanism for reporting on selected parameters/indicators and warning levels</p> <p><b>Environmental aspects, weather and disaster warnings, messages</b></p> <ul style="list-style-type: none"> <li>● Air quality: Particle size PM 10 levels</li> <li>● Water quality</li> <li>● Solid waste collection as a percentage of production on each day</li> <li>● Biodiversity and ecosystem services</li> <li>● Green cover in the city</li> <li>● Also use such mediums to share short messages targeting public and other interest groups</li> <li>● Rainfall and flood threats if any</li> <li>● Landslide warnings (for Bandarawela)</li> <li>● Lightning strikes and storm warnings</li> </ul> <p><b>Social and Health information for the area (disease outbreaks and actions)</b></p> <p><b>Financial and economic impacts (budget and expenditure made etc)</b></p> |   |
| Project Details   | The Project Components  | <ul style="list-style-type: none"> <li>● Setting up of the a unit at the LA to be in charge of data collection and reporting to the public</li> <li>● Provide training to the staff on carrying out these tasks</li> <li>● Information on project commencement and monitoring reports to be produced and publish in the internet</li> </ul>   |
|   | Physical development  | <ul style="list-style-type: none"> <li>● Set up the Web and APUC services needed for communication and the computers for data entry</li> <li>● 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</li> <li>● 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 .</li> </ul> |
|   | 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   |
|   | To the UC   | Many benefits are expected including the establishment of meeting facilities at the LA  |

|  |                                   |  |
|--|-----------------------------------|--|
| Project Duration with phasing                                    | Immediate actions                 | <b>Design and planning (Immediate)</b><br>Setting up of the unit and development of needed software                            |
|  | Medium Term Actions               | <b>Training and Guidance (Medium)</b><br>Training workshop for the staff on developing programs                                |
|  | Long Term action                  | <b>Operational (Long term)</b><br>Carry out the messaging to the public and receiving their feedback through electronic medium |
|  |                                   |  |
| The Method of Formulation  | Planning & designing              | LA   |
|  | Funding                           | UC and the School funding mechanisms including donations   |
|  | Clearances and Approvals required | Council approval for the Standing Committee  |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction         |  |
|  | Operations                        |  |
|  | Maintenance                       | LA   |

| Common Project No: 03   |   | Development of the Administrative and Legal Framework for Clean Energy Usage                                  |
|---|---|---|
| The Objective of the Master Plan to be served by the Development/ Project                       | <ol style="list-style-type: none"> <li>1. The elimination of using firewood and kerosine, as a cooking fuel, especially when cooking indoors, Note - addressed further under the Green Building section.</li> <li>2. The elimination of burning of organic and non-organic materials, unless in instance of waste to energy programs.</li> <li>3. Mandatory and legal enforcement.</li> </ol> |   |
|   |   |   |
| Relevant Prerequisites (If there are any) for the development and implementation of the project | <p>The Administrative and Legal framework to mandate the banning of greenhouse gas generation by the burning of organic and non-organic materials.</p> <p>Roll out a series of pilot programs mainly as awareness initiatives.</p>  |   |
| The Location and the surroundings   | <p>In general, this would be at the homes where cooking takes place</p> <p>All locations involved in the burning organic and non-organic waste.</p>   |   |
| Resources Available/ Potentials   | <p>There are limited resources of LPG gas distribution for this LA.</p> <p>The enhancement of the logistics associated with LPG distribution will be necessary.</p>   |   |
| Project Details   | The Physical Developments   | To be surveyed  |
|   | The Project Components  |   |
|   | Tentative Budget  |   |
|   | The Main Stakeholders   | Ministry of Health<br>Ministry of Environment<br>Producers and distributors of LPG<br>The LA<br>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 and recycling of waste   |
| Project Duration with phasing                                    | Immediate actions                         | <b>Immediate actions</b><br>1. Development of bylaws to enact such federal mandates.  |
|  | Medium Term Actions                       | 2. Awareness programs<br>3. Capacity building   |
|  | Long Term action                          | <b>Long term</b><br>1. Elimination of the use of firewood and kerosene for cooking.<br>Elimination of the burning of organic and inorganic waste streams for energy and or recycling use.   |
| The Method of Formulation  | Planning & designing                      | To be surveyed  |
|  | 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 as offices, signage, marketing data, computers and similar.<br>2. It is best that such procurement be handled by the regional office of the LAA<br>3. As a long-term project, construction of a waste to energy project could be carried out.                               |
|  | Operations                                | The operation of this project would be in 3 sectors.<br>1. The implementation of the clean energy program – By the LA<br>2. Awareness generation and marketing activities – By the LA<br>3. The operation of the clean energy systems.  |
|  | Maintenance                               | The expected maintenance of this program, will be to ensure<br>1. The implemented programs are kept current and updated at no later than 6-month intervals<br>2. Retaining of implementation staff to ensure continuity<br>3. Implementing a rewards and appreciation program.<br>4. Technical maintenance programs set in place by the manufacturers – suppliers-contractors of these clean energy programs. |

Common Project No: 04

Development of the Administrative and Legal Framework for Energy Conservation and Clean Energy Generation



Photo Courtesy – Green Technologies FZCO

|  |   |
|--|---|
| <p>The General Objective of the Master Plan to be served by the Development/ Project</p> | <ol style="list-style-type: none"> <li>Promote the generation of the LA's electricity energy requirements through Renewable Energy. LA to generate all its electricity energy needs by the end of 2050 as the target.</li> <li>Implementing energy conservation programs, reducing the drawing of energy from the CEB electricity grid.</li> <li>Implementing a continuous improvement program for the conservation and generation of energy.</li> <li>Mandatory and legal enforcement of minimum thresholds and incentivization of surprising minimums.</li> </ol>   |
| <p>Prerequisites for the development and implementation of the project</p>               | <ol style="list-style-type: none"> <li>The Administrative and Legal framework mandates the generation of clean energy based on a national policy.</li> <li>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 nationwide.</li> <li>Currently 70% use of renewable energy is being gazetted</li> <li>Roll out a series of pilot programs, implementing energy conservation and renewable energy programs in residential, commercial and industrial facilities.</li> <li>Ensuring that all government and semi-government buildings and infrastructure programs are completely powered by renewable energy.</li> </ol>  |
| <p>The Location and the surroundings</p>   | <p>The public can participate in the programmes as a consumer as well as government sponsored programmes in the locality.</p> <p>Consumer - The most economical location is the rooftop of the consumers' buildings for the installation of solar panels. Such locations would most likely be predominant.</p> <p>Government – In addition, government buildings and areas of wasteland used as retention or detention ponds for stormwater, and in lakes and water bodies can adopt floating solar technology</p>  |
| <p>The status of the land and its vicinity</p>   | <ol style="list-style-type: none"> <li>There is no widespread application of renewable energy currently within this LA</li> <li>This applies to both the consumer as well as government sponsored programs.</li> </ol>  |
| <p>The Land Ownership</p>  | <ol style="list-style-type: none"> <li>The land ownership will be based on the applicability of the respective consumer owning the subject land – building.</li> <li>Regarding government projects, the owner of the “Crown Land” will bear the title.</li> </ol>   |
| <p>Resources Available/ Potentials</p>   | <ol style="list-style-type: none"> <li>The primary resource available at present is the Government. As the Government has pledged to use only Renewable Energy for electricity generation by 2050, it paves the way for the implementation of such programs nationwide.</li> <li>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.</li> <li>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.</li> <li>The LA should work with the CEB, to be the CEB's primary vehicle to implement these renewable energy programs.</li> <li>The availability of public, and private partnerships should be pursued and used.</li> </ol> |

|  |   |  |
|--|---|--|
| Project Details  | The Physical Developments                 | To be surveyed   |
|  | The Project Components                    |  |
|  | Tentative Budget                          |  |
|  | The Main Stakeholders                     | <ol style="list-style-type: none"> <li>1) Ministry of Energy</li> <li>2) The Utility Commission</li> <li>3) The CEB</li> <li>4) The LA</li> <li>5) The Consumer</li> </ol>   |
| 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 of technical strategies, this decentralized energy generation will be a source of backup electricity during the CEB national grid power failure and power outages.   |
|  | 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.<br>Revenue generation can be expected 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.  |
|  | Medium Term Actions                       | Development of bylaws to enact such federal mandates.<br>Working with CEB to simplify and assist in the adoption of renewable energy.  |
|  | Long Term action                          | The following targets have been proposed, noting that % indicated pertains to the extent of the energy consumed by the LA consumers;<br>Short Term Targets (02–03-year horizon) 30%<br>Medium Term Targets (10-year horizon) 60%<br>Long Term Targets (20–30-year horizon) 100%  |
| The Method of Formulation  | Planning & designing                      | To be surveyed   |
|  | Funding                                   |  |
|  | Legal clearances and Approvals required   |  |
| The Method and the Lead Agency for Implementation and Sustaining | Procurement/ Construction                 | <ul style="list-style-type: none"> <li>● As the first stage of the project addresses only the administrative and legal framework, construction is not envisaged, except for soft services such as offices, signage, marketing data, computers and similar.</li> <li>● It is best that such be handled by the regional office of the CEB and the LA</li> <li>● Post the setting up of the administrative and legal framework, the LA and other consumers will rely on Govt funding or Public-Private Partnerships to have these renewable energy programs implemented.</li> </ul> |
|  | Operations                                | The operation of this project would be in 3 sectors<br>The implementation of the renewable and clean energy program – By the CEB and LA<br>The awareness generation and marketing campaigns – By the CEB and LA<br>The operation of renewable and clean energy systems.  |
|  | Maintenance                               | <ul style="list-style-type: none"> <li>● The expected maintenance of this program, will be to ensure that the implemented programs are kept current and updated not later than at 6-month intervals</li> <li>● Retaining of implementation staff to ensure continuity</li> <li>● Implementing a rewards and appreciation program.</li> <li>● Technical maintenance programs are set in place by the manufacturers – suppliers- contractors of these renewable energy programs.</li> </ul>  |



| 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 |
|--|---|---|
| General Objectives of the Master Plan to be served by the Development/ Project | <ol style="list-style-type: none"> <li>1. Promote the development of green buildings within LA adopting a staged development program.</li> <li>2. Development of new and existing buildings, buildings which are energy, water and resource-efficient buildings which foster human health.</li> <li>3. Implementing a continuous improvement program for the development of a greener built environment</li> <li>4. Mandatory and legal enforcement of minimum thresholds and incentivize surpassing minimums</li> <li>5. Address the following Green Building Components                             <ol style="list-style-type: none"> <li>A. Energy Efficiency, including conservation and renewable energy generation</li> <li>B. Sustainable site planning and management</li> <li>C. Building materials and resources</li> <li>D. Quality of the interior environment of the building</li> <li>E. Water efficiency</li> <li>F. Green innovation</li> <li>G. Socio-cultural compatibility</li> </ol> </li> </ol> <p>Note: Emphasizing more on strategies that address climate change and human health.</p> |   |
| Relevant Pre-requisites for the implementation of the project                  | <ol style="list-style-type: none"> <li>1. The key prerequisite is that the UDA Green Building regulation is in place.</li> <li>2. This needs to be enforced as a bylaw, through a similar enforcement mechanism, an incentive program or a combination of both</li> <li>3. The administrative and legal framework needs to be in place</li> <li>4. Capacity building of Green Building Services, Technologies Materials need to be in place.</li> </ol>   |   |
| The Location and the surroundings  | <ol style="list-style-type: none"> <li>1. All new buildings commencing with government and institutional buildings</li> <li>2) All new green building partner buildings</li> <li>3) All new residential building developments</li> <li>4) All new single home residential buildings</li> <li>5) All new commercial buildings</li> <li>6) All existing buildings</li> </ol>  |   |
| The current status of the land and its vicinity                                | NOT applicable, as buildings will be on land on which there is a title by the owner and new land is not envisaged.  |   |
| The Land Ownership   | Not applicable to this project  |   |
| Resources Available/ Potentials  | The UDA Green Building regulations<br>Limited green technology support services available and will need to be developed to be mainstream.<br>Limited green materials to be developed as mainstream materials  |   |
| Project Details  | The Physical Developments   |   |
|  | The Project Components  |   |
|  | Tentative Budget  |   |
|  | The Main Stakeholders   | Ministry of Energy<br>Ministry of Environment<br>The Utility Commission<br>The CEB, Drainage and Water Board<br>The LA<br>The Consumer  |
| The Expected Outcome   | Greening the City   | Healthy, beautiful buildings have been built using environmentally friendly materials, resulting in a sustainable community   |
|  | Physical Improvements   | Physical improvements of the built environment  |
|  | Quality of Life and other Social Benefits   | Improved buildings, which foster human health   |
|  | Benefit to Local Authority  | A community that is sustainable, with reduced maintenance   |

|  |   |  |
|--|---|--|
| Project Duration with phasing                                    | <p>Immediate actions</p> <p>Medium Term Actions</p> <p>Long Term action</p>   | <p>4. Following through with the current UDA regulations mandating that all government and institutional building be developed as green buildings</p> <p>5. Development of a pilot program to develop a handful of new and existing buildings as “green”</p> <p>6. Development of bylaws to enact such federal mandates.</p> <p>7. Working with LA to simplify and assist in the adoption of green buildings</p> <p>8. The following targets have been proposed</p> <p><b>Short Term Targets (02–03-year horizon)</b></p> <p>20% of the New Buildings to be Green Certified.</p> <p>Green Certified 20%</p> <p>Of the Above</p> <p>Green Platinum –5%</p> <p>Green Gold –20%</p> <p>Green Silver – 75 %</p> <p><b>Medium Term Targets (10-year horizon)</b></p> <p>60 % of the New Buildings and 20% of the existing Buildings to be Green Certified.</p> <p>Green Certified 60 %</p> <p>Of the Above</p> <p>Green Platinum –7%</p> <p>Green Gold –30 %</p> <p>Green Silver – 63%</p> <p><b>Long Term Targets (20–30-year horizon) 100%</b></p> <p>100 % of the New Buildings and 100% of the existing Buildings to be Green Certified.</p> <p>Green Certified 100%</p> <p>Of the Above</p> <p>Green Platinum –10%</p> <p>Green Gold – 50 %</p> <p>Green Silver – 40 %</p> |
| The Method of Formulation  | <p>Planning &amp; designing</p> <p>Funding</p> <p>Legal clearances and Approvals required</p> <p>Likely Risks and uncertainties</p> | To be surveyed   |
| The Method and the Lead Agency for Implementation and Sustaining | <p>Procurement/ Construction</p> <p>Operations</p> <p>Maintenance</p>   | <p>The LA<br/>Community and Social Groups</p> <p>The Owner and user of the buildings</p> <p>The Owner and user of the buildings</p>  |

# Strategies for Kattankudy Green City

### Strategy No.1: 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 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 emphasis 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 the 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 not be allowed to start a factory or grow certain 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 at 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 that has been empowered with legal provisions to ensure a quality environment is maintained for the benefit of its residents 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 be 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 engaged in providing services to the communities. Together with the profile data, it's useful to prepare an inventory of the laws and regulations in place that guide these areas to see the gaps in management.

Such a detailed 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 alternative lands for those who may become "trapped" and would not be able to develop the lands as they wish due to the declaration of the areas as protected or environmentally sensitive.

### Strategy No.2: 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 Kattankudy 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 areas, 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.

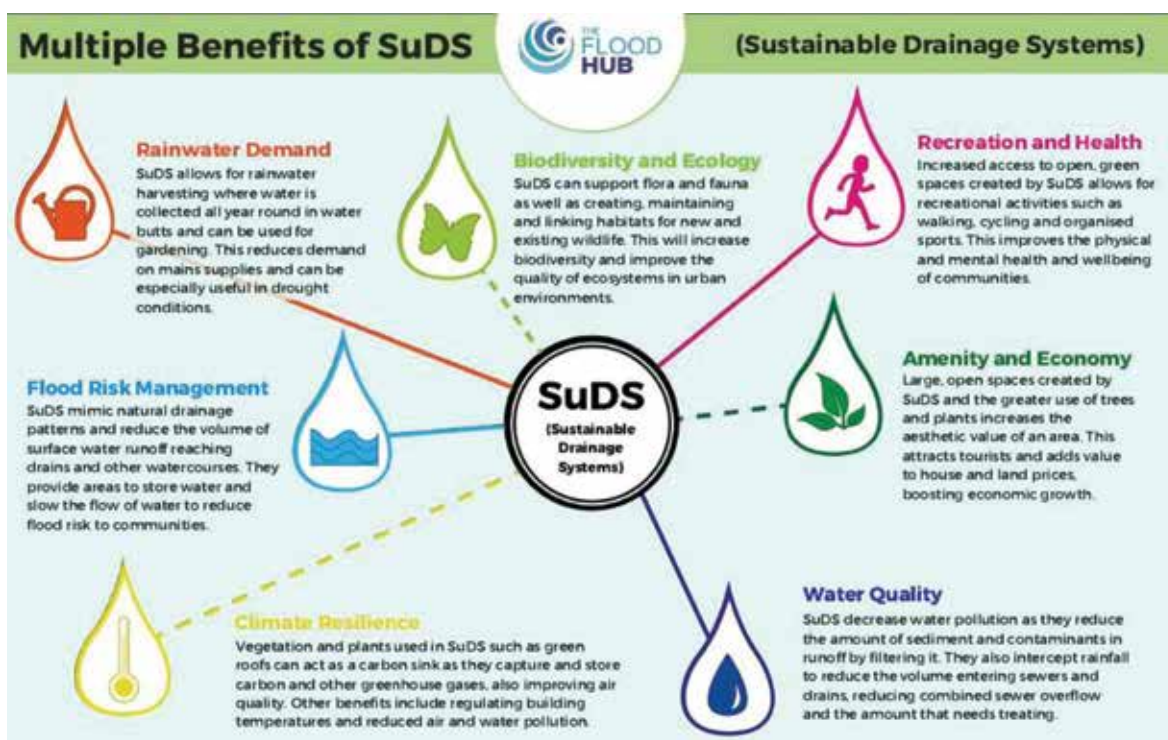
The concept of 'Green Water' should be introduced to incorporate Sustainable Urban Drainage Systems (SuDS) and flood control by means of environmentally friendly, non-structural measures which in turn enhances groundwater recharge, reduce peak discharge, pollutant loading to flow channels and downstream 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, and 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 Kattankudy 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, soak away 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 Kattankudy 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 are recommended to be implemented parallel to the projects mentioned in this Green City Master Plan.

### **1. Development of a Form-Based Code**

The existing built environment of the UC area is relatively congested and a great majority of the residential and commercial units do not comply with the currently accepted planning and building regulations in Sri Lanka. The land plots are too small to be subdivided for future developments and the vertical developments have already taken place in many areas exceeding the carrying capacities of the lands and infrastructure. This situation has already resulted in several issues related to public health, environmental quality, pollution, fire risks, etc. Amidst such conditions growth, extended living spaces and new constructions are progressing at an alarming rate.

These developments demand the urgent attention of the Kattankudy UC to address the future of its built environment in an unconventional approach. The Form Based Code to plan can be the most appropriate solution to guide its physical developments to achieve the optimum floor area densities, while assuring healthy living conditions and pleasant habitable environments throughout the area. With this tool, the upcoming developments can be regulated while the existing built up areas can be gradually retrofitted over 10-20 years toward the expected sustainable built form. The necessary support for this can be obtained from the UDA.

### **2. Establishment of s Business Incubator**

Entrepreneurship is a core value of the communities of Kattankudy. To sustain this inherited socio-cultural value and to descend it into the upcoming generations, necessary support can be provided through the establishment of business incubators by the UC. The incubators shall be the place to share tacit knowledge, informal organizational learning and untold business skills of the current generations as well as to bring in green business concepts, modern business solutions, and technological advances with the youth who are interested in startup and the beginners of conventional businesses.

The necessary support for such interventions shall be sorted from the local business societies and the Chamber of Commerce, while the needy academic involvement can be requested from the Eastern University of Sri Lanka.

### **3. Clearance of all Buildings of the Primary School built on the canal**

One of the most burning issues of Kattankudy is occasional floods caused by poor storm drainage flows. The situation is worsened by the constrictions taking place in water retention areas and canals. These constructions not only block the water flow, but also retain lots of polluting materials underneath. An immediate requirement is the clearance of the school building constructed on the water body and re-establish it in the land that has been provided by the UC.

### **4. SMART Office environment in Kattankudy UC**

The internal transactions among different Departments and the external service delivery of the Kattankudy 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

# THE ROAD MAP



## 9. THE ROAD MAP

### 9.1 Introduction

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

The first was the virtual 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, the Deputy Commissioner of LG-North Central Province, UNDP representatives and a few other participants. A summary of the outcome of the meeting and the other details are given in Annexure 6.3

The Second Stakeholder workshop was organized with the support of the UNDP on 30th November 2021 at Beach way 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 Kattankudy UC in advance to be brought to 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 facilitate the 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 the timely organization of resources and the development of capacities of the relevant executors of the actions/projects.

### 9.2 The Process

#### 9.2.1 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 detailed information related to the projects, that could not be obtained during the preparation stage, due to on-going pandemic situation, need to be incorporated into the Plan. At the same time, the EML strongly suggested detailed planning and design, along with a comprehensive evaluation of each project proposed herein and an in-depth public consultation before their implementation.

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

### 9.2.2 Prioritization and Sequencing of Projects

Having received the consensus of the stakeholders for the content of the Master Plan, consultation for the preparation of the Implementation Roadmap began.

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 the 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 most supports the achievement of 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 simple evaluation process. The pairwise comparison adopted in the other LAs was not introduced in this workshop due to time limitations and the more obvious list of priorities could be identified at the very outset.

In this exercise, all projects were evaluated in a comparative manner given a ranking for their readiness and suitability under each of the criteria. All criteria have been assigned with the same importance and therefore no weights have been attributed to them. The inverse value of the ranking received by each project under each participant's evaluation is considered as the initial score and the average scores received by each project under each criterion were multiplied to assign them the final score.

The projects that got the highest RIS (>0.6) have been selected for immediate implementation / or commencement within a short term horizon. The ones with a middle range ( 0.3-0.59) have been earmarked for a second implementation / mid-term horizon, while the others (< 0.29) 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 02     | Development of Visitor Facilities at Kattankudy Beach Park       | 0.72 |
| Project 05     | Sustainable Solid Waste Management System for Kattankudy UC Area | 0.65 |
| Other Projects | Automation of the Kattankudy UC Office                           | 0.61 |

Mid-term horizon (2022-2035)

| Project No: | Description of the Project   | RIS  |
|-------------|--|------|
| Project 01  | Improvement of the Public Realm of the Kattankudy Main Street and the Town Center. | 0.5  |
| Project 03  | Development of Kattankudy Lagoon Park  | 0.5  |
| Project 06  | Sustainable Liquid waste Management system for Kattankudy UC                       | 0.45 |

Long-term horizon (2022-2050)

| Project No:    | Description of the Project  | RIS  |
|----------------|---|------|
| Project 04     | Enrichment and incorporation of Thonas the city landscape and managing it with public participation | 0.28 |
| Other Projects | Enforcement of a Zone Factor based on a Development Guide Plan for Kattankudy UC area               | 0.25 |

#### 9.4 The Tentative Implementation Road Map

Even though the Project Team envisioned the development of a rigorous project implementation roadmap outlining the above sequencing of the projects, it is now evident that the dearth of most of the required information will affect the reliability of predictions of the future state of affairs. 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 priority, is presented here. It is highly recommended a thorough information survey and a detailed economic and financial feasibility studies to be carried out before the implementation of recommended projects.

#### 9.5 Conclusion

The report largely accepts that the smooth and successful implementation of the recommended interventions is very much dependent on the outcomes of the implementation of a set of prerequisite projects. The prerequisite projects are expected to create the necessary enabling environment and facilitate more progressive mindsets in the political authority, officers, and residents involved in 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 in favor of the greening process and ultimately contribute towards transforming the Kattankudy UC into a 'Green Area' in its style as expected by the organic approach adopted by this project.





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