SUSTAINABLE CITIES PROGRAMME

ENVIRONMENT PROFILE

DECEMBER 1997

RESOURCES DEVELOPMENT CONSULTANTS LIMITED
55 2/1, GALLE ROAD, COLOMBO 3
SRI LANKA
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<td>Building Materials Corporation</td>
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<tr>
<td>BOISL</td>
<td>Board of Investment of Sri Lanka</td>
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<td>CAB</td>
<td>Common Amenities Board</td>
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<td>CBD</td>
<td>Central Business District</td>
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<td>CBOs</td>
<td>Community Based Organizations</td>
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<td>CDC</td>
<td>Community Development Council</td>
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<td>CEA</td>
<td>Central Environmental Authority</td>
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<td>CEB</td>
<td>Ceylon Electricity Board</td>
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<td>CEIP</td>
<td>Colombo Environment Improvement Project</td>
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<tr>
<td>CISIR</td>
<td>Ceylon Institute of Scientific &amp; Industrial Research</td>
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<tr>
<td>CMC</td>
<td>Colombo Municipal Council</td>
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<tr>
<td>COC</td>
<td>Certificate of Conformity</td>
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<td>CSP</td>
<td>Clean Settlements Project</td>
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<td>DFCC</td>
<td>Development Finance Corporation of Ceylon</td>
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<tr>
<td>DGER</td>
<td>Director General of External Resources</td>
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<tr>
<td>DMMMC</td>
<td>Dehiwela-Mt.Lavinia Municipal Council</td>
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<tr>
<td>EIA</td>
<td>Environment Impact Assessment</td>
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<tr>
<td>FCCISL</td>
<td>Federation of Chambers of Commerce and Industries of Sri Lanka</td>
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<td>GCWSS</td>
<td>Greater Colombo Water Supply Scheme</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HCDC</td>
<td>Housing and Community Development Committee</td>
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<td>ICD</td>
<td>Inland Containers Depot</td>
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<td>ICFC</td>
<td>Inland Container Freight Station</td>
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<td>ICTAD</td>
<td>Institute for Construction Training and Development</td>
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<td>IDB</td>
<td>Industrial Development Board</td>
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<tr>
<td>IDD</td>
<td>International Direct Dialing</td>
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<td>IEE</td>
<td>Initial Environment Examination</td>
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<td>KMC</td>
<td>Kotte Municipal Council</td>
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<td>LA</td>
<td>Local Authority</td>
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<tr>
<td>MC</td>
<td>Municipal Council</td>
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<tr>
<td>MEIIP</td>
<td>Metropolitan Environmental Improvement Project</td>
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<tr>
<td>MFE</td>
<td>Ministry of Forestry &amp; Environment</td>
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<td>MHUD</td>
<td>Ministry of Housing &amp; Urban Development</td>
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<td>MOF</td>
<td>Ministry of Finance</td>
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<td>MPCI</td>
<td>Ministry of Provincial Councils &amp; Local Government</td>
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<tr>
<td>MSL</td>
<td>Mean Sea Level</td>
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<td>MSTRPR</td>
<td>Ministry of Shipping Ports &amp; Rehabilitation</td>
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<td>MTH</td>
<td>Ministry of Transport &amp; Highways</td>
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<td>NBRO</td>
<td>National Building Research Organization</td>
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<td>NDB</td>
<td>National Development Bank</td>
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<td>NGOs</td>
<td>Non-Governmental Organizations</td>
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<td>NHDA</td>
<td>National Housing Development Authority</td>
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<tr>
<td>NIBM</td>
<td>National Institute of Business Management</td>
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<td>NWSDB</td>
<td>National Water Supply &amp; Drainage Board</td>
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<td>PC</td>
<td>Provincial Council</td>
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<tr>
<td>PCLG</td>
<td>Provincial Commissioner of Local Government</td>
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<td>PERC</td>
<td>Public Enterprise Reforms Commission</td>
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<td>PSS</td>
<td>Pradeshiya Sabhas</td>
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<td>RDA</td>
<td>Roads Development Authority</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>SL</td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>SLLRDC</td>
<td>Sri Lanka Land Reclamation &amp; Development Corporation</td>
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<tr>
<td>SLPA</td>
<td>Sri Lanka Ports Authority</td>
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<tr>
<td>SPM</td>
<td>Suspended Particulate Matter</td>
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<tr>
<td>UC</td>
<td>Urban Council</td>
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<tr>
<td>UDA</td>
<td>Urban Development Authority</td>
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<td>UDSP</td>
<td>Urban Development Sector Project</td>
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<td>WPC</td>
<td>Western Provincial Council</td>
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EXECUTIVE SUMMARY

Cities, being development oriented virtually by definition, are places where numerous human activities are taking place. Unfortunately, until recent times, the development of cities was driven by “Humanist” attitudes of people who considered development and material advancement of human beings as the most important achievement, which has resulted in considerable environmental degradation. This damage cannot be rectified by extremist “Environmentalists”, who wish to preserve the environment in its pristine form at any cost, as their solutions may not be acceptable to the development oriented “City Fathers”. The need of the hour is to endeavour to strike a balance between the two extremes. Development and human welfare should not be achieved at the expense of environmental degradation and resource depletion. It is necessary to review the situation in an objective manner, and following analysis of the costs and benefits of our actions, arrive at solutions to achieve reasonable and sustainable development.

As a first step, this Environmental Profile (EP) was prepared for the purpose of assessing the need for resources by the various development activity sectors and the impact of environmental hazards on the sustainable growth and development of such sectors, in the Project Area, comprising Colombo Municipal Council (CMC), Dehiwala - Mount Lavinia Municipal Council (DMMC) and Sri Jayewardenepura – Kotte Municipal Council (KMC). These aspects are described in detail in Chapter 2 of the EP. The resource needs were aggregated to assess likely depletion and degradation of such resources, and similarly, the impact of development activities on environmental hazards was also assessed in Chapter 3 of the EP. As improvement of urban environmental planning and effective management to address this dilemma is of paramount importance, the management strategy for this activity is presented in Chapter 4 of the EP.
The main findings and conclusions of the above synthesis are summarised below:

- Pollution of water bodies, caused mainly by domestic waste in the CMC and KMC areas and by industrial waste in the DMMC area
- Air pollution caused by traffic, industries, solid waste disposal practices, etc
- Mosquito menace due to stagnant and polluted water bodies
- Traffic congestion due to bad road conditions, flooding, driver indiscipline, etc
- Noise from traffic and construction activities
- Beach and marine pollution and coastal erosion due to port related activities, tourist hotels and fishery activities
- Flooding caused by inadequate provision for drainage of rainwater and filling up of wetlands for housing and other construction activities

In order to address these issues, the activities to which attention should be directed urgently, by way of technical inputs, management organization, and/or public participation in decision making are:

- Sewerage and storm water drainage
- Industrial waste water disposal
- Solid waste management
- Transportation
- Construction
- Housing, particularly, in the under-serviced settlements

During the study it was observed that attention is being paid to some of the environmental issues and some special projects are already under way to alleviate those problems. Some examples are:

- The problem of air pollution in the Colombo Metropolitan Area is a concern of the Metropolitan Environmental Improvement Program (MEIP) under the Clean Air 2000 Project funded by the World Bank.
• The canal system, which is a part of the Storm Water Drainage System of the Project Area, is under the purview of the Greater Colombo Canal Rehabilitation and Environmental Improvement Programme implemented by the Sri Lanka Land Reclamation and Development Corporation (SLLRDC), with funding from the Japanese International Cooperation Agency (JICA).

• A certain extent of relocation and upgrading of under-serviced settlements is being undertaken by the Clean Settlements Project (CSP) with the assistance of the Community Based Organisations (CBOs), National Housing Development Authority (NHDA), Non Governmental Organisations (NGOs), etc.

• Management of solid waste in the Colombo city and suburbs is being carried out through the Solid Waste Management Project under the Colombo Environmental Improvement Project (CEIP), which is a sub project of the MEIP.

• The Baseline Highway is being constructed by the Road Development Authority (RDA) to contribute towards alleviating the problem of traffic congestion in the CMC area.

• Although the Beira Lake has been studied and proposals made for desilting, these proposals are awaiting implementation, mainly due to constraints in funding.

• Industrial pollution in the Dehiwala, Mt Lavinia and Ratmalana areas has been studied and recommendations made for the establishment of a common treatment plant for industrial and domestic waste. These recommendations have not been implemented to date due to problems relating to funding.

However, Chapter 4 of the EP clearly identified that the above capital investment oriented interventions, whilst most necessary, are inadequate to solve the existing issues. Moreover, it has been revealed that despite these interventions there is a continuous deterioration of city environmental...
standards. This situation has provoked thoughts on whether existing city management activities are satisfactory and, more importantly, whether these activities are adequate and capable of meeting the challenges of a fast developing urban environment.

The study has identified that environmental management in the Project Area has been weakened due to:

- Incorrect prioritization of activities, projects, areas of operation, etc
- Improper directions for implementation and delaying processes affecting implementation
- Lack of coordination creating lack of cooperation, participation, sharing of information, resources etc
- Non-usage of existing legal authority to function efficiently
- Lack of awareness
- Shortage of resources (manpower, finances, materials, machinery/equipment)
- Shortfall in training

The Project Area covers a total land area of 75 sq km, situated in the Western Province of Sri Lanka. It has a total population of nearly one million, with an additional floating population of more than 400,000, who commute to engage in various occupations in the Project Area, mainly in the CMC, which is the centre for all major economic activities. It is estimated that 42 % of the CMC's population (and lesser percentages in the DMMC and KMC) live in slum and shanty dwellings in this study. The physical and socio economic setting of the Project Area and the urban management scenario are described in Chapter 1 of the EP.

The following were identified as important activity sectors in the Project Area:

- Port related activities
  - Commerce, trade, financial and administration
  - Housing
- Transport and communication
- Construction
- Industry, power and energy
- Tourism and recreation
- Solid waste management
- Water supply, sewerage and storm water drainage
- Health care
- Agriculture and fisheries

Taking into consideration the three Municipal Council (MC) areas of Colombo, Dehiwala-Mt Lavinia and Kotte as separate bodies, the major activities in these MCs could be identified as:

CMC - Port related activities, Commerce, Trade, Financial and Administration
DMMC - Industry, Tourism and Recreation
KMC - Administration and housing

Activity sectors such as Power, Energy, Transport, Communication, Solid waste management, Sewerage, etc are common to all MCs in the Project Area, although the acuteness of problems arising from each or any of these activities obviously differ in size, depending on the demand for such activity sector.

The important characteristics and environmental hazards on the activity, impact of the environmental resources and natural hazards, on-going projects related to the activity and the management organisation in the sector were studied for each activity sector. These are described in Chapter 2 of the EP, with relevant maps. The critical problems and emerging issues as enumerated therein are sufficiently clear for intervening authorities to maintain a stable and sustainable growth of the cities in the Project Area.

The environmental scenario of the Project Area is discussed in Chapter 3 of the EP. The environmental resources in the Project Area are land, fresh surface water, sea, the beach, wetlands, ground water, and the air shed. The
characteristics of these resources, their use by different activities, competitive interests in the use of the resource by the different activity sectors and management arrangements to deal with conflicts over the resources were studied. Here too, it is apparent that better management of resources, if not undertaken, would affect the stable and sustainable growth of cities in the Project Area.

There are no major environmental hazards that affect the activities in the Project Area. The flooding caused by wetlands overflowing (in the KMC area) due to heavy rain, drought and the polluted water bodies in the Project Area are the only major environmental hazards identified. Other hazards such as flooding due to poor drainage of rainwater and unplanned development were not included as "Environmental Hazards" as they are caused by chiefly through management problems.

The most sought after resource in the Project Area is land. Therefore, land use planning is most important in resolving competing interests in land. Although fresh water is used by most activities, there is no evidence of depletion of the water resources. However, the fresh water resource is highly threatened by degradation, due to pollution as well as erosion. The beach is a very valuable and special kind of resource that needs to be protected. Wetlands are being depleted due to filling up and siltation, while degradation of the ground water resource is also evident, particularly in the DMMC area, due to industrial pollution.

The main purpose of this study was to identify and prioritise the environmental issues in the Project Area. This prioritisation was on the basis of:

- Issues connected with several activities
- Those impacts that cause significant depletion or degradation of resources that are already threatened, or are of special value; and
- Those issues affecting other development activities.
When considering issues connected with several activities, it was evident that water pollution, mosquito breeding, traffic congestion and noise, beach and marine pollution and flooding were the high priority issues while pollution of water bodies, beach erosion and air pollution could be identified as the issues causing depletion or degradation of resources that are already threatened. When considering the activities that produce environmental impacts that affect other development activities, solid waste management, sewerage and storm water drainage, transportation, housing and construction could be cited as priority areas.

Looking at the overall picture, it is evident that in the CMC area, the major environmental issues are air pollution, pollution of the Beira Lake, flooding due to poor drainage of storm water, traffic congestion, noise and beach and marine pollution, while in the DMMC area traffic congestion, mosquito menace, pollution of water bodies mainly due to industrial waste discharges, beach erosion and marine pollution are the key issues. In the KMC area, pollution of water bodies due to both domestic and industrial discharges, mosquito breeding, flooding and depletion of wetlands are the key issues. However, solid waste management, sewerage and storm water drainage, transportation, housing and construction are activities that need special attention in the entire Project Area, as they are common areas of concern.

As observed earlier, it is clear that attention should be urgently directed to certain areas of sectoral activities, if sustainability of city growth is to be maintained in the Project Area. However, it is further observed that degradation of environment has been taking place continuously, despite efforts made by organizations engaged in environmental conservation activities. It is important to note that there are many internationally funded programmes implemented with the objectives of environmental upgrading and servicing. Therefore, Chapter 4 of the EP is devoted to examining the challenges faced by the managers of the urban environment.
The key stakeholders who are involved in the urban management process are identified as belonging to the public sector, popular sector, private sector, and private groups. Functionally they can be grouped as follows:

- Ministries and the Presidential Secretariat which have a stake in sustainable city development. Their mandates and responsibilities in the main extend to policy formulation, gathering of information, project/programme development for environment upgrading, reviewing them and, more importantly, negotiating for funds.
- Semi-government organisations being the operational arm used by Ministries to implement many projects and programmes. Their functions are diverse extending to water supply, sewerage, electricity supply, housing development, etc.
- The foreign funded projects which contribute towards sustainable city development e.g. MEIP, CEIP, CSP, etc. They fall under the purview of Ministries, of which the Ministry of Housing and Urban Development (MHUD) is the leading Ministry.
- The Western Provincial Council (WPC) is the Provincial Government involved due to the constitutional strength received by being the supervising authority of the MCs.
- MCs are the local operational organisations involved in sustainable city development efforts. However, it is revealed that there is heavy external influence on their operations directed at them by the Government, WPC, other political authorities, statutory authorities, NGOs/CBOs, media, etc.
- CBOs/NGOs are the organisations which deal with the population at grass root level and established as client groups. It is observed that their performance has been fluctuating while being notable in the CMC area. Their presence is felt at a lesser level in DMMC and KMC areas. Furthermore, some successful NGOs (e.g. SANASA) have not performed among the poorer groups in a similar manner in the Project Area.
- Grouped private sector, although present, is not noticeably active in the Project Area. The contribution of this sector is in limited areas such as pavement hawker and vegetable dealer activities and the contribution to the
planning and implementation processes has not been integrated with that of the MCs.

- The city management activity is important as a source of information and expertise. The micro and macro urban environments have different interactions with MCs and, hence, generate different levels of information supply. The quality, accessibility, timeliness of information has been considered important for city management.

- Policy formulation for city management has been more in the hands of Ministries (mostly MHUD) and other statutory authorities such as the UDA, the NHDA, etc. Although MCs play a major role in execution of policy actions, the Ministry of Provincial Councils plays a low key role in policy formulation for city development due to lack of expertise.

- Policy implementation for city development is a responsibility of several organisations. For example, the UDA, the NHDA etc have their overall policy implementation processes. In the MCs it is apparent that there is greater isolation observed in implementation, with lesser coordination among departments and MCs themselves. The policy implementation instruments used are mainly the Councils, Projects/Programmes, budgeting mechanisms, economic incentives, regulatory mechanisms, Master-Plans for Projects/Programmes etc.

- Policy coordination connected with planning and execution takes place at MC, WPC, MHUD levels and also at the Presidential Secretariat. The National Planning Department and the Director General of External Resources monitor policy/programme/project execution to serve their management purposes. The WPC coordination is weak due to lack of institutional status. The non-availability of ward-based electoral system has negated ward-level coordination of activities. As in implementation, coordination between MCs as well as inter departments within MCs was found to be weak.

It is the accepted view that cities are the engines of growth in developed and developing countries. Therefore, to migrate and live in cities in the exploration of new economic opportunities have been observed as a common phenomenon in Sri Lanka. Provision of services and facilities has not kept with the pace of
such shifts of population, which has been mostly responsible for degraded environmental conditions. The family, local community, and the general population has not received skills upgrading to ensure higher levels of income generation due to social and economic development taking place in the Project Area. Hence, the increasing poverty situation has been a recurring feature in the Project Area, although the Samurdhi recipient numbers give a different picture.

The impact of poverty in the Project Area is well reflected when the population in under serviced settlements (especially in CMC and DMMC areas) is studied. If sustainability of environmental development is to be maintained, it has to be achieved by the commitment of the total population. Hence, the need to economically upgrade the poverty stricken population and the under-serviced population becomes essential. Hence, reacting to the natural resource conditions and its management alone will not bring desired effects on urban environment. Therefore, natural resource management, development of local governance and poverty alleviation has to go hand in glove if sustainability of city environment in the Project Area is to be achieved. Non-achievement of required performance would affect the sustainability of the social fabric of the city, which makes the challenge before the city managers crucial and urgent.
CHAPTER ONE
CITY INTRODUCTION

1.1 PHYSICAL CHARACTERISTICS

1.1.1 LOCATION AND GEOGRAPHICAL SETTING

The Project Area consists of the three contiguous Municipal Councils (MCs) of Colombo (CMC), Dehiwala-Mt. Lavinia (DMMC) and Kotte (KMC) situated in the Western Province of Sri Lanka (SL). These three MCs cover an area of 75 square kilometers encompassing 37.3 square kilometers for CMC, 16.7 square kilometers for KMC and 21.2 square kilometers for DMMC. (Please see Map 1). The administrative units in the Western Province vary from MCs to Urban Councils (UCs) and Pradeshiya Sabhas (PSs), the three types of Local Authorities (LAs) in SL, the MCs being the most development oriented, and the Pradeshiya Sabhas being the most rural in nature. These three contiguous MCs were selected as the Project Area as they are the most likely to face environmental problems due to development if sustainable approaches were not used. As Colombo had commenced development earlier, the impact as well as effects of development are more visible in the CMC area.

The Project Area has a sea front in the Western boundary of CMC and DMMC areas, with the harbour located within the CMC area. The Colombo harbour region becomes an area of important environmental concern. The inland water bodies, rivers, marsh/wetland areas etc. are also important in the geographical setting of a more or less flat land area. It is especially so in the light of flood water retention need on one hand and resulting environmental issues, which create problems to the population living in the Project Area, on the other. Please see Map 2 in which a macro impression of environmental sensitive areas is shown. It is noted that the Project Area has four basic ecological zones, namely, (i) beaches and dunes (ii) wetland conservation areas, (iii) coastal flats and wetlands and (iv) marine environment of the coastal zone.

1.1.2 CLIMATE

A humid climatic condition prevails in the Project Area, and temperature deviations are insignificant. The rainfall is heavier in the monsoon periods, specially during the South West Monsoon (April to July) and North East Monsoon (October to January), but inter-monsoon convectional thunderstorms also bring rain. Although occasional heavy storms have been reported, it is noted that, cyclonic activity can be expected once in about eight years. However, severe cyclonic storms can be expected only once in twenty-five years. Table 1.1 shows the main climatic indicators in the CMC area, which can be considered as the general trends in climatic conditions in the Project Area.
<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Relative Humidity %</th>
<th>Sunshine (Yrs)</th>
<th>Wind Speed 22 Knots</th>
<th>Wind Speed 34 Knots</th>
<th>Rainfall (Average mm)</th>
<th>Days with Strong Winds</th>
<th>Days with Gale 48 Knots</th>
<th>Monthly Ave No. of Days with 0.25 mm or more Rainfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Night</td>
<td>Average</td>
<td>Daily max.</td>
<td>Average</td>
<td>Daily max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JANUARY</td>
<td>30.9</td>
<td>22.3</td>
<td>85</td>
<td>69</td>
<td>69</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FEBRUARY</td>
<td>31.2</td>
<td>22.6</td>
<td>69</td>
<td>87</td>
<td>87</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MARCH</td>
<td>31.7</td>
<td>23.7</td>
<td>71</td>
<td>89</td>
<td>89</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>APRIL</td>
<td>31.8</td>
<td>24.6</td>
<td>75</td>
<td>91</td>
<td>91</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MAY</td>
<td>30.4</td>
<td>25.5</td>
<td>78</td>
<td>88</td>
<td>88</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>JUNE</td>
<td>30.1</td>
<td>25.2</td>
<td>79</td>
<td>87</td>
<td>87</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>JULY</td>
<td>30.0</td>
<td>25.1</td>
<td>77</td>
<td>87</td>
<td>87</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AUGUST</td>
<td>30.0</td>
<td>24.8</td>
<td>78</td>
<td>91</td>
<td>91</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SEPTEMBER</td>
<td>30.2</td>
<td>24.0</td>
<td>78</td>
<td>92</td>
<td>92</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OCTOBER</td>
<td>30.1</td>
<td>23.2</td>
<td>76</td>
<td>92</td>
<td>92</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NOVEMBER</td>
<td>30.3</td>
<td>22.8</td>
<td>73</td>
<td>89</td>
<td>89</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DECEMBER</td>
<td>30.6</td>
<td>24.1</td>
<td>73</td>
<td>89</td>
<td>89</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ANNUAL</td>
<td>30.6</td>
<td>24.1</td>
<td>73</td>
<td>89</td>
<td>89</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Dept of Meteorology
ECOLOGICAL ZONES AND ENVIRONMENTALLY SENSITIVE AREAS

The Marine Env. of the Coastal Zone

Beaches and dunes

Coastal Estuaries and Wetlands

So far identified Wetland Conservation Areas / Project Areas / Flood Prone Areas / Flood Detention Areas

Project Area

DEHIWELA,

COLOMBO,

MORATUWA

PILIYANDALA

Project Area
1.1.3 HISTORICAL DEVELOPMENT

The Project Area has been urbanizing rapidly during the last few decades, specially after independence. Development of LA administration in the Project Area dates back to 1865, the year CMC was established. With the increase of population, sectoral activities, national and international interventions on the Project Area etc., the urban environment also has undergone vast changes. History of city development dates back to a few centuries, where the port of Colombo has played a key role. Many historians have referred to Colombo (of course, in different names) in their writings. The Port of Colombo had been the main attraction in all those historical references. One may even say that the city has developed around the harbour, which enabled the activation of other sectoral activities. The international and national influences on the economy and the country as a whole saw the increasing diversification of activities in CMC area. The changes easily observable in architecture, technology, business etc. reflect the diversification which has taken place.

Although the city of Kotte (Jayewardenepur) has a place in Sri Lankan historical tradition, DMMC area is not comparably important historically. There had been eleven villages which were grouped into one township in 1920 and named as "Dehiwala-Mount Lavinia." It was administered under a Sanitary Board. Within the borders of the MC area, there are the zoological garden, aerodrome, a teaching hospital, several leading schools, a well developed tourist industry etc. The industrial activities in the DMMC area, is well marked. Further, the spill over of housing from Colombo spread towards DMMC area long before it expanded towards KMC. The first few housing estates in Sri Lanka were started in DMMC area, along the Colombo-Galle road and a little distance interior. As much as housing venues were shifted to KMC, the industrial establishments and the aerodrome were later located in the area north of the CMC area, taking away the potential adverse environmental pressure from the DMMC area.

KMC area was under the jurisdiction of the Mudiyar of Salpiti Korale up to 1892. Then it was transferred to the area of authority of the Mudiyar of Colombo and remained so until 1916. In 1916 it was made a Sanitary Board area and later in 1946 was made an Urban Council. The MC was established only in 1997. Till recently KMC was more or less a village area. The urban features were mostly observed along the main trunk roads. The historical importance of KMC area was enlarged with the decision taken by the government to make Kotte the capital of SL. With that decision, action was taken by the government to decentralize government activities to KMC area, since it was logical to do so and there was vacant land space in KMC area, to undertake infrastructure development to serve the emerging needs.
The recent economic history of the Project Area has had a great influence on the changes taken place in the environment, for which the Port has contributed immensely. Since 1978, with the economy being liberalized, many development activities have created a situation where the spill-over effects in the existing core urban area had threatened the environment. The ready answer to such spill-over has been to move into the nearby/adjoining areas and commence similar activities. This spill-over is observed in shifting political institutions (E.g. Parliament Complex), administrative institutions, (Ministries, Departments) etc. which have been standing in the CMC area for a long period.

However, commercial and most business trading activities remained in the CMC area, due to the location of the Port, historical roots and the reluctance to move out the servicing organizations such as banks, insurance companies etc. Here too, the difficulty in relocating Port related activities due to physical constraints have to be considered as important. However, some ill effects of urbanization due to economic development are observable, resulting specially from industrial activity (in DMMC area) and solid waste, air pollution, drainage problems in CMC, DMMC & KMC areas. Special city environmental concern is laid on urban underserved settlements in CMC area. Concurrently, one has to look at other developments such as the Katunayake International Airport, establishment of industries in the Free Trade Zone north of CMC, large Housing Schemes etc. which were located outside the Project Area, which create spatial congestion. In a way, those can be considered as blessings in disguise, as all those activities remaining in the Project Area would have obviously increased the levels of deterioration of environment.

1.2 SOCIAL CHARACTERISTICS
1.2.1 POPULATION

The population in the Project Area is given in Table 1.2.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CMC</td>
<td>666,797</td>
<td>754,814</td>
</tr>
<tr>
<td>DMMC</td>
<td>217,551</td>
<td>246,268</td>
</tr>
<tr>
<td>KMC</td>
<td>112,828</td>
<td>127,721</td>
</tr>
</tbody>
</table>


In addition there is a floating population of more than 400,000, which commutes to engage in various occupations in the Project Area. This is mostly to CMC area since Colombo is the center for all major economic activities. However, a substantial number comes into DMMC area also, due to the presence of many
Some industries have been located in the peripheral areas. Concurrently, some important enterprises have been located not far away from the capital city due to logistical conveniences (e.g. Oil storage at Kolonnawa.) Therefore, urbanization in and migration to such areas are also observed. Transport, living accommodation, food supply, other services such as medical/health, transport etc. for such mobile population have become problems. Failure to supply services did not restrain movement to the Project Area. Instead it added to making the environment more vulnerable.

This situation must be considered in the light of supply of amenities such as water, sewerage etc. for a substantial number of people. On the other hand, the migrant population has enjoyed whatever benefits, in a way, at the expense of a large population living in the urban under-served settlements, for whom city managers could not provide those services. However, the importance of the migratory and the under-served population to maintain the city economy, especially in CMC area, also cannot be overlooked. If the migratory population is also added to the total population of CMC and DMMC, it would mean nothing but devastation in the current context. Some have proposed fostering a more efficient spatial reorganization of the Greater Colombo Metropolitan Region, for example, by investing on infrastructure (i.e.: link roads, railway loops) to sub-urban workplace locations to reduce the infrastructure deficits.

Although it is not a common feature, with the same volume or impact on the urban physical/social environment in the entire Project Area, the under-served settlements are quite an important settlement type in the Project Area. Special mention should be made of the CMC area, where on an extent of 210 hectares 54,511 slum and shanty "houses" stand. It is estimated that 42% of the population in CMC live in these congested "homes". DMMC also has settlements having similar characteristics as in the CMC area, while KMC is the least affected in this sense. As the informal sector in the cities are serviced by the population living in such settlements, it has become difficult to relocate them, without having extremely adverse repercussions on their economic sustainability and city service provision.

1.2.2 ECONOMIC STRUCTURE & ACTIVITIES

The economy of the Project Area is based on the port of Colombo and the administrative and service activities concentrated in the Project Area. Major exporting and importing, wholesaling and distributing network (imported and local goods) is centered in Colombo. In the midst of such activities in the Project Area, small-scale production units are located, especially in DMMC area, where a heavy concentration of them is observed. Agricultural pursuits in the Project Area is very limited, although the KMC area has a few agriculture activities. The
food supply to the city area is mainly through supplies from the agricultural areas of the country. Shortfall or scarcity has been managed mostly through imports. All successive governments have been very considerate regarding the food security situation in the Project Area, due to the fact that food production is very limited in the Project Area. They have been also concerned with the problems which may arise due to displeasure caused to the Working class if scarcities are created.

The government's poverty alleviation programme- Samurdhi, which aims at promotion of self employment among the poor is considered a good indicator to understand the poverty situation in the Project Area. The percentage of Samurdhi assistance recipients is 16.6%, 15.75% and 17.4% for CMC, DMMC & KMC areas respectively. This shows that the poverty situation in the Project Area is not acute in comparison with the stated national average (52%), although on other indicators the status differs. Some doubt the national average as a wrong calculation influenced much by political interventions and declare that the poverty situation in the Project Area as acute, than seen through the indicator of Samurdhi assistance recipients.

The family income levels (in monetary terms) of the Project Area is not low when compared to rural areas, as reflected in the percentage of Samurdhi Assistance recipients. However, in comparison to the rural areas, other costs of living are more in the Project Area. The Colombo Consumer Price Index (1952 = 100) (although is not an exact indicator) has been showing an annual increase. Further, the Project Area shows a greater income disparity between the rich and poor, quite naturally resulting from concentration of wealth in the hands of the entrepreneur class. Therefore, as an overall evaluation, one may conclude that the Project Area is a mixture of economically rich & poor, dependent on the port, administration and servicing industries and environmentally affected due to poverty, congestion and negative effects of sectoral activities.
1.2.3 Employment

The following Table 1.3 shows the employment status in the Project Area.

<table>
<thead>
<tr>
<th>LOCAL AUTHORITY</th>
<th>CMC</th>
<th>DMMC</th>
<th>KMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>666,797</td>
<td>217,551</td>
<td>112,826</td>
</tr>
<tr>
<td>Labour Force</td>
<td>239,151</td>
<td>84,249</td>
<td>46,503</td>
</tr>
<tr>
<td>Unemployed</td>
<td>41,851</td>
<td>8,509</td>
<td>3,767</td>
</tr>
<tr>
<td>Economically active population</td>
<td>45.0%</td>
<td>48.1%</td>
<td>47.2%</td>
</tr>
<tr>
<td>Economically inactive population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household</td>
<td>30.5%</td>
<td>25.4%</td>
<td>23.6%</td>
</tr>
<tr>
<td>Students</td>
<td>15.6%</td>
<td>18.3%</td>
<td>19.5%</td>
</tr>
<tr>
<td>Others</td>
<td>7.6%</td>
<td>9.2%</td>
<td>9.7%</td>
</tr>
</tbody>
</table>

Source: Department of Census and Statistics (1997)

A fairly large slice of those engaged in economic/service activities in the Project Area is the daily migrating population. The underserved settlements house about 75% of the informal sector labour force in CMC area. The percentage of the economically active population in the Project Area is higher than the rural areas, which shows the availability of economic opportunities in the urban areas of the Project Area. Employment of women in activities are similar to the national trends, while employment opportunities in the Middle East Countries for women from the Project Area have contributed to enhancement of family incomes. This has created an important value for women's labour in the Project Area. According to the Department of Probation and Child Care Services, young children are employed in the informal sector e.g., markets, sales outlets; but most children are employed as household labour. This is in spite of the legal stipulation that children under fourteen years should not be employed.

The export-import economy has been responsible for capital city's dynamism. Even the other sectoral developments were based on that economic scenario, which was established in the background of the best equipped and organized port. The concentration of population, Colombo being the hub of transport network, development of services industry, proximity to International Air Port, political nucleus, location of government ministries, departments, economic
development infrastructures, foreign business interest groups etc., decided the economic importance of the Project Area. Due to all those attractions, migration to the city of Colombo also increased. The spill-over mentioned earlier was a consequence of the inability to cope with the needs and aspirations of the increasing urban population who looked at the Project Area - especially Colombo, as the haven for economic advancement. The increase in number of under-served settlements is a reflection of the inability of facing the challenges of a portion of this population group. Since the activity sectors were initially located due to the importance of the Port of Colombo, one may conclude that the role of the Port of Colombo is crucial for city development. The proposed land use pattern for the first decade of the 21st century highlighting Port related activities gives an indication of what is in the minds of city planners on the economic development aspects of Colombo city.

1.3 URBAN MANAGEMENT

Urban Management in SL comes under the purview of several organizations managed under various laws and statutes passed by the Parliament and by the PCs respectively. The Project Area being MC areas are administered by the MC Ordinance. The Western Provincial Council (WPC) has not passed a statute similar to the MC Ordinance, to administer the MCs in the manner required by them and hence the MC Ordinance becomes the currently applicable law. However, after the establishment of the Urban Development Authority (UDA), urban planning, regulation, development etc. have been influenced by the UDA law and its rules/regulations. The three MCs in the Project Area belong to the "declared areas" under the UDA law. Hence, there is a close connection between the MCs and the UDA, which is the government's arm for urban management.

In addition there are many other government agencies who are engaged in the supply of services to the Project Area. National Water Supply and Drainage Board (NWSDB), Ceylon Electricity Board (CEB) National Housing Development Authority (NHDA), Common Amenities Board (CAB), and Roads Development Authority (RDA) are some of the more important. These agencies have been in receipt of foreign assistance also to develop their spheres of activities. Many special projects are undertaken by these agencies and some other ministries, to ensure that the urban environment is served properly. The Metropolitan Environment Improvement Project (MEIP), Colombo Environment Improvement Project (CEIP), Clean Settlements Project (CSP) are a few such important projects. Since most of these important agencies and the projects are administered under the Ministry of Housing and Urban Development (MHUD), the importance of the MHUD in urban management is established.
Since almost all these organizations are totally owned and managed by the government, the authority for MCs or WPC to direct them to suit their own needs becomes very remote. In actual practice this has led to a situation where the central authorities have to strengthen the WPC and MCs with government support and through foreign funded projects. The local authorities (LAs) who have direct access to the people, cannot raise the required money to develop the urban environment. CMC appears to be strong to take up some challenges, but it is not so with regards to DMMC and KMC. Hence, their dependence on the government and foreign donors shows a weak situation. Even the laws governing the PCs (PC Act) does not permit PCs or LAs to negotiate for foreign assistance. They have to rely on the government for such assistance. This dependency on finances has been orchestrated not only in finding finances for projects, but even for increasing manpower requirements, machinery, equipment etc. also.

Since there is an inherent possibility of having conflict of interest due to high level of politicization of LA election processes, the roles played by service agencies cannot benefit the municipalities, since they are doing a business to earn profits or at least to break-even, which is contradictory to the service oriented thinking of the LAs. CMC has tried to surmount this problem by way of creation of coordinating mechanisms. The Housing and Community Development Committee (HCDC) happens to be one of them. However, the strength of the HCDC depended on the political strength of the Mayor who chaired the Committee. The value of such a Committee in planning, organizing, prioritizing people’s needs, creating participatory approaches to development, reviewing performance which would help planning and budgeting has not been understood by the administration of the DMMC and KMC. Even the CMC has had no continuous fortune of using the HCDC for these managerial functions. Therefore, in a nut-shell one can state that the managerial functions have appeared to be less effective. Further, the resource base also, whether it is manpower, finances, machinery, equipment etc., has been weak, not permitting better managerial practices to fight against the proliferating environmental problems in the Project Area. Attempts to create the environment for peoples’ participation in planning, execution, reviewing etc., through their own non-governmental organizations (NGOs) and community based organizations (CBOs) have had a checkered history and experiences. Hence, solutions not only meant to face the challenges of development on the natural environmental, but to face the managerial weaknesses also have to be found out, if sustainable city development is to be positively addressed in the Project Area.
CHAPTER TWO
THE PROJECT AREA ACTIVITY SECTORS

2.1 PORT RELATED ACTIVITIES

(a) Characteristics and Importance of the Port Related Activities

Development of Colombo harbour began in the mid-1870s to serve the import-export trade activities of the colonial economy, and has remained central to Colombo's development. The Port is strategically located close to the international main shipping route between Europe, East Asia, and Australia, as can be seen in Map 3. With the introduction of the open economic system to SL in 1977, boosted by the economic boom in the Indian subcontinent and containerization of cargo, Colombo became an attractive port in the region, for trans-shipment of goods (particularly container shipments), as well as for import of goods to the country and export of locally produced and value added products. In addition to loading and unloading of goods, servicing and maintenance of ships are also activities at the Port.

In 1995 it handled one million TEU's (Twenty-foot Equivalent Units) of cargo. Since early 1970's investments in Port development have been on the increasing trend, specially to modernize the Port in order to be competitive with the other ports in the region. A new Oil Handling Facility costing Rs. 2.215 million was installed in 1997, in order to service ships of size up to 60,000 DWT. A barge-mounted thermal power generator is proposed to be installed within the Port, for which an Environmental Impact Assessment (EIA) is currently being carried out.
Imports and Exports sector contributes 10% to the country's (GDP) Gross Domestic Product and 95% of such activities are handled in Colombo Port. The composition of imports and exports in terms of total value of goods is given in Tables 2.1 and 2.2. Other Port related activities such as insurance and finance facilities are located in the vicinity of the Port, influencing land use pattern of the city of Colombo, as seen in Map 4. At the beginning of the century, Colombo North attracted middle and upper middle income housing. With the development of Port related activities, specially warehouses and industries, Colombo North lost its middle and upper middle income residential character and then, low income housing, industries and warehousing became the predominant land use character. After recognizing the significant role of the Port in the national economic development, the whole Colombo North Area has been zoned for Port related activities by the UDA, in its recent Colombo Structure Plan.

Table 2.1: Composition of Imports (in Rs. Millions)

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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Beverages</td>
<td>23,000</td>
<td>25,128</td>
<td>25,071</td>
<td>36,053</td>
</tr>
<tr>
<td>Mineral Products</td>
<td>16,004</td>
<td>16,015</td>
<td>17,931</td>
<td>17,618</td>
</tr>
<tr>
<td>Chemical and Resins</td>
<td>13,587</td>
<td>16,075</td>
<td>19,636</td>
<td>22,855</td>
</tr>
<tr>
<td>Leather, Wood, Paper</td>
<td>5,367</td>
<td>6,090</td>
<td>7,700</td>
<td>9,001</td>
</tr>
<tr>
<td>Textiles</td>
<td>27,490</td>
<td>34,848</td>
<td>44,498</td>
<td>54,849</td>
</tr>
<tr>
<td>Precious Stones</td>
<td>3,317</td>
<td>3,906</td>
<td>7,599</td>
<td>8,203</td>
</tr>
<tr>
<td>Base Metals</td>
<td>7,434</td>
<td>8,620</td>
<td>9,531</td>
<td>12,333</td>
</tr>
<tr>
<td>Machinery &amp; Equipment</td>
<td>14,698</td>
<td>23,069</td>
<td>22,963</td>
<td>33,741</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>10,625</td>
<td>10,799</td>
<td>14,710</td>
<td>17,868</td>
</tr>
<tr>
<td>Other</td>
<td>6,341</td>
<td>7,455</td>
<td>7,342</td>
<td>9,716</td>
</tr>
<tr>
<td>Total</td>
<td>127,843</td>
<td>149,837</td>
<td>181,381</td>
<td>221,527</td>
</tr>
<tr>
<td>----------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Garments</td>
<td>31,627</td>
<td>49,175</td>
<td>62,348</td>
<td>71,156</td>
</tr>
<tr>
<td>Tea</td>
<td>17,867</td>
<td>14,883</td>
<td>19,911</td>
<td>20,964</td>
</tr>
<tr>
<td>Rubber</td>
<td>2,490</td>
<td>2,660</td>
<td>3,086</td>
<td>3,582</td>
</tr>
<tr>
<td>Major Coconut Products</td>
<td>1,912</td>
<td>2,881</td>
<td>2,672</td>
<td>20,696</td>
</tr>
<tr>
<td>Precious Stones</td>
<td>5,496</td>
<td>7,676</td>
<td>11,017</td>
<td>12,519</td>
</tr>
<tr>
<td>Other</td>
<td>21,984</td>
<td>29,788</td>
<td>38,852</td>
<td>46,873</td>
</tr>
<tr>
<td><strong>Total Domestic Exports</strong></td>
<td>81,376</td>
<td>107,374</td>
<td>137,286</td>
<td>157,790</td>
</tr>
<tr>
<td>Re-Exports</td>
<td>849</td>
<td>135</td>
<td>706</td>
<td>870</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>82,225</td>
<td>107,509</td>
<td>137,992</td>
<td>158,660</td>
</tr>
</tbody>
</table>

Source: Dept. of Statistics, 1995
MAP 4
LAND USE PATTERN OF THE CITY OF COLOMBO
(b) Resource Use by Port Services

Land and sea water are the main resources used by Port and Port related activities. Sri Lanka Ports Authority (SLPA) uses a large extent of land in and around the port, for their activities, while other related public agencies such as Sri Lanka Shipping Corporation, Customs Department and a large number of private sector companies who are in the business related to port activities (warehouses, container yards, trans-shipments etc.) make use of land in the Project Area. Map 5 shows the plan of the existing harbour, including the fishery harbour to the north of the Port. A large scale Port Expansion Project is being proposed, which includes reclamation of some sea areas within the existing harbour, to facilitate the proposed constructions. Since the Colombo North Area has been zoned for Port related activities, all planned land development in this area is expected to be carried out accordingly, and since the SLPA owns a large extent of land in this area, land ownership conflicts are not likely. However, stresses on land outside the immediate activity zone, such as container yards and the road network will be high. With respect to container transportation, there are five Inland Container Freight Stations (ICFSs) located within the CMC. Please see Map 6. It has been proposed to remove all domestic containers directly to an Inland Containers Depot (ICD) for processing, in order to increase the capacity to handle trans-shipment containers in the port and to avoid traffic congestion within the Colombo Urban Area.

The sea water is being used as the receiving body of waste water from human activities in the harbour area. The water quality in the harbour is threatened by this activity, which needs urgent action to prevent any further deterioration.

(c) Impact of Environmental Hazards on Port Related Activities

The environmental hazard that has significant impact on the Port related activities is cyclonic storms that can be expected once in eight years (a severe storm can be expected once in 25 years). The wind speed in Colombo is generally between 5 and 15 km/h, with average speeds of 8-10 km/h. The most recent cyclonic winds off the western coast was experienced on 13 June 1993, where the wind velocity was as high as 86 km/h. During this cyclone, some container ships within the Colombo Port had experienced collision with each other and one container vessel had got drifted onto the Uswetekeliyawa beach on the southern coast. Navigational difficulties too were reported by the Navy on this occasion.
MAP 5  COLOMBO HARBOUR

Projection Transverse Mercator
Dredged Depths
Depths have been reported up to 3 m shallower

Photographer of the Navy

Depths in meters
(d) **Impact of Port Related Activities on Resources and Hazards**

The harbour water is at present heavily polluted, reported to be by the non point source domestic waste discharges from land. Ship wastes also may be discharged into the harbour waters, as no proper monitoring scheme is in place at present. Water pollution is significant due to spillage and leakage of oil into the ocean too. This has an adverse impact on existence of the marine eco-system, which is a valuable natural resource in the coastal areas to the north and south of Colombo. Container vehicles and other vehicles to and from the port is a major cause of traffic congestion on most of the city roads.

(e) **Management Organization in the Sector**

The SLPA which comes under the Ministry of Shipping Ports and Rehabilitation (MSPR) is responsible for the management of the port activities, such as storage, marine engineering, navigation, operations etc. Direct contacts with transporters/hauliers, Customs Department, and other client groups are managed by the SLPA, which earns substantial amounts of foreign exchange by servicing foreign agencies. Private sector agencies involved in the port related activities include the shipping agents, insurance companies, Colombo Dockyard and other ship repair agencies, ship chandlers etc. A large work force is engaged by the SLPA and it is considered a very sensitive spot for labour relations.

2.2 **COMMERCE, TRADE AND FINANCIAL ACTIVITIES AND ADMINISTRATION**

(a) **Characteristics and Importance of the Sector**

The Colombo Fort area consists of Commercial, Trade and Financial activities, while the administration has been partly moved at to the Sri Jayewardenepura Kotte and Battaramulla areas recently. The large number of government and private sector buildings is a distinctive characteristic of the Colombo Fort area. (Please see Map 7)
The Central Business District (CBD) of Colombo, covering an area of 36.55 ha, which is 0.98% of the total area of the CMC, is the hub of commercial activities in the Project Area. The total floor space in Colombo’s CBD in 1996 has been 1.32 million m². It is located in only one MC ward, the Colombo Fort. In DMMC and KMC, the sector activities are much less, and scattered within the MC areas, so that a CBD could be hardly identified. As such, in DMMC, Dehiwala may be considered as the CBD, and the administrative centre also, while in KMC, the township of Nugegoda is the most prominent in commercial activities while the administration is located in Rajagiriya-Sri Jayewardanepura areas.

In outlying business centres, Pettah has prominent wholesale activities, mainly in vegetables and fish, while in the other areas, major activities are of retail trading such as groceries, textiles, hardware, gift items etc. Several shopping Plazas or Malls have been opened in the high value areas such as Bambalapitiya and Kollupitiya, and they have gained popularity due to availability of parking and other facilities, unlike in the Colombo Fort area. Chain supermarkets (e.g. Food City, Keels, Sathosa and Arpico) which are large self service stores are also quite prominent in the Project Area, and are scattered in the business centres of the CMC, DMMC and KMC, such as Bambalapitiya, Kollupitiya, Borella, Nugegoda, Dehiwala and Mount Lavinia. Informal sector activities such as those conducted by petty traders, pavement hawkers and also the “poor man’s market” operators play a vital role in daily commercial activities. (Please see Map 6) These are mostly located by the road sides, in the busy streets, and cause numerous problems to the city environment, as discussed in section (c) below.

Importance of commerce arises as it plays a major role in economic activities in the Project Area. This sector contributed 32.1% of the GDP in 1996, with an increasing trend in the past 20 years. It provides employment directly by dealing with the ultimate user and indirectly in production (agriculture, poultry etc.), value addition processes and handling of goods.

All local and foreign commercial banks doing business in the country have their head offices in the CBD, with several branches in other parts of the Project Area, closely linked to the commercial activity centres. The Central Bank of Sri Lanka was also located in the Colombo Fort until, in 1996, a bomb destroyed a major part of the building, in which it was located. Since then most of the activities of the Central Bank have been
MAP B
MAP OF COMMERCIAL ACTIVITIES IN THE PROJECT AREA

LEGEND
- Pavement Hawkers
- MC boundaries
- Main trunk roads
- Water Bodies and Waterways
- KMC
- CMC
- DMMC
- Playgrounds
- Marshy Lands
- Paddy
- Railway Lines
shifted to Kotte and Battaramulla area. Government administration which used to be concentrated in the Colombo Fort area, has been slowly moving out to new locations in Kotte and Battaramulla area, with the shifting of the Parliament in 1982.

(b) **Environmental Resources Used by the Sector**

The major resource used by this sector is land, for building complex constructions, parking, transport, loading and unloading of goods etc. Comparatively low utilization of land for construction of buildings for commercial use is seen in the Project Area, because city center commercial lands are mainly occupied by high density tall buildings, where the land requirement is low. However, demand for parking areas, traffic congestion due to loading /unloading, traffic generated due to sector activities, and informal sector trading activities, which often take place on the roadsides are causing stresses on the land resource. More efficient use of land by encouraging planned vertical construction (including multi-storey parking) within the CBD and moving the commercial activities to the less congested sections in the Project area would make the sector activities more sustainable.

Water is being used by the sector activities for consumption purposes, and development of sector activities would increase the demand on the water supply. This has to be accounted for, by the Water Supply authorities in their future plans for the project area. Services available are not sufficient to cater to the demand in the Project Area, particularly the CBD. Many facilities like eating houses, snack bars and groceries are in structurally unsound condition and are often congested.

(c) **Impact of Environmental Hazards on Commerce, Trade and Financial Activities and Administration**

Flooding, which occurs frequently in the city after heavy rainfalls, mainly due to inadequacy and poor maintenance of drainages, affects commercial activities, mainly of the informal sector, as they trade by the road sides and open areas in the city, by damaging the goods and hindering public access. Pollution would indirectly affect these activities by contamination of food and drinks in the markets and restaurants, by use of polluted water as well as by flies and other sectors.
(d) Impact of the Activities of the Sector on Resources and Hazards

An increase in commercial activities and influx of population creates a great pressure on land, which leads to the unauthorized conversion of residential buildings into commercial use. Premises are not spacious enough to cater to the needs of the activities. Hence the existing infrastructure is overused, leading to the deterioration of the land resource in relation to depletion of land as well as degradation of the available land. Public inconvenience, pollution of water bodies, blockage of drains, traffic congestion and accidents are caused by the encroachment of the roadsides by the petty traders. Especially near vegetable markets and meat stalls the garbage piles up, causing a health hazard. The government administrative offices tend to produce large amounts of waste paper.

This sector is attracting a large work force to the Project Area from the suburbs as well as from far, causing indirect impacts such as traffic congestion, slum and shanty development, begging, prostitution and street children etc.

(e) Management Organization in the Sector

Commerce and Trade activities in the Project Area are mostly in the hands of the private sector. A few government organizations such as the Safetosa, Salusola and SLSTC (Sri Lanka State Trading Corporation) engage in trade of goods. The private sector bondsmen system has been introduced about a decade ago, which released the pressure on administering trade by the government. The regulation and registering of companies, co-operatives etc. is done by the Registrar of Companies and the Provincial Co-operative Department. The Federation of Chambers of Commerce and Industry of Sri Lanka (FCCI SL) is the Apex body of 36 Chambers of Commerce and Industries and Associations of Traders in the country. Financial activities are done by the local and foreign banks which are either state or privately owned. Administrative activities are carried out by the various ministries, departments, Authorities, Western Provincial Council, and the three MCs in the Project Area.

2.3 HOUSING

(a) Characteristics and Importance of Housing

The housing types in the Project Area may be categorized as:

- Ordinary housing (luxury houses and flats, suburban houses, middle class houses and flats)
- Tenement housing (lower class flats, row-cottages)
• Under-serviced settlements (Slums, shanties, unserviced neighborhoods, labour quarters, relocated settlements, squatter settlements)

Ownership of dwellings contributed 2.3% of GDP in 1996, with a decreasing trend in the past few years. Since the Project Area is a compact urban location, housing distribution also reflects compact characteristics. According to UDA (1996), out of a total land area of 3729 Ha, residential use has decreased from 1503 Ha in 1981 to 1402 Ha in 1996. Considering the increase in population, it is apparent that housing has become more compact within the last fifteen years. Concentration of persons in the urban areas have resulted in the creation of illegal squatter settlements with overcrowded and underserved dwellings. In the absence of public or private sector housing programmes to meet the demand for housing, these settlements have become common. According to the current statistics, approximately 35% of the urban population (42% in CMC and less in KMC and DMMC) live in these settlements. Majority of these people are settled down on state land in and around the City of Colombo. Some of these under served settlements are located on very valuable urban lands which can be used, much more economically. The most prominent settlements in the area are the Beira Lake surroundings, low lying areas in Orugodawatte, North of Colombo, and the slum areas in DMMC, specially the ones occupied by the fisherfolk.

(b) Resources Demand by Housing Sector
Land is the natural resource that is in highest demand in this sector. As the urban population increases, the demand for buildable land within the city is increasing steadily, and being a limited resource, the stress on this resource is increasing. Another resource that is being used for housing is wetlands, as very often wetlands are being filled by developers and unscrupulous persons for house construction. Other resources required by the housing sector are building materials (described under section 2.5), physical infrastructure such as water supply, roads, electricity and telecommunication, and social infrastructure such as schools, hospitals and markets.

(c) Impact of Environmental Hazards on Housing
Flooding causes threats to life and property of the inhabitants of houses constructed in flood prone areas, as shown in Maps 9 & 10. It also causes economic loss due to damage to houses as well as furniture and other belongings. Flooding also has an impact on housing by limiting the extent of buildable land, and thus causing congestion of housing in high lands.
Pollution of water ways creating nuisance of smell and visual effects reduces the value of property in such areas and increases the demand on the limited housing in more pleasant environmental settings within the city.
MAP 9

FREQUENTLY FLOODED AREAS IN THE PROJECT AREA PRESENT SYSTEM

LEGEND

- Frequently flooded areas
- - Road
- - - Railway line
- --- Project Boundary

SOURCE: SRI LANKA LAND RECLAMATION CORPORATION
(d) Impact of Housing on the Resources and Hazards

Reclamation of low lands for housing reduces the extent of wetlands available as retention areas, increasing the frequency of flooding, and also may cause loss of biodiversity. Since reclamation is commonly done by filling with garbage or industrial waste, it causes ground water pollution as well as surface water pollution. Compacting of the reclaimed ground may cause lowering of the ground water level in the vicinity, and thus affect the well water supplies in the neighborhood. While the planned housing within the Project Area are either connected to the sewerage system or have individual waste disposal systems, underserviced settlements often cause pollution of the environment due to lack of availability of sanitary and solid waste collection services.

(e) Management Organization in the Sector

As housing can be an incentive for development some action has been taken to upgrade housing considering it a basic necessity. Government sponsored housing schemes such as the Clean Settlement Project have helped low income families in the main, while investments have been made for middle and upper middle class housing also through the NHDA. Schemes to provide assistance for self help housing programs have been in vogue (i.e. Community Action Planning) in the recent past. Most middle income housing is constructed by individuals, while housing developers are also involved with housing construction for the middle and upper income groups. One unsatisfactory situation in the Project Area is the lack of private sector participation in housing for the poor. Other stake holders in this activity sector include lending organizations such as State Mortgage and Investment Bank and other Commercial Banks which provide housing loans, building material suppliers and contractors.

2.4 TRANSPORT & COMMUNICATION

(a) Characteristics & Importance of the Activity Sector

At present this sector contributes 11.6% of the GDP, which is about 50% of the public sector share of the GDP and also it plays a major role in employment generation where it provides about 6% of direct employment and 4% of indirect employment.

Considering public transport in the Project Area, rail transport is not much used as an urban or commuter service, and contributes insignificantly to the national transport needs, whereas bus transport is heavily used for urban transport. Goods are transported from and to the city by rail as well as by road.
The demand for bus transport has been increasing at the rate of 4-6% per year. The present bus fleet, consisting of private as well as poeplised transport services, is inadequate to provide a satisfactory service to the city population. This fact has resulted in a high growth in the smaller private vehicles such as cars, vans and two stroke engine vehicles on the roads, leading to congestion and related problems such as accidents, delays etc. Transport of school children in vans is a recently established practice due to unreliability of public transport and this causes heavy traffic congestion in the city at school opening and closing times.

Road traffic growth rates in Sri Lanka averaged over 12% per annum in the last decade. Traffic congestion has become a crucial issue with regard to transport sector. Poor road conditions, inadequate highway capacity for the increasing traffic volumes, driver indiscipline and inadequate enforcement and control measures may be cited as some of the reasons for traffic congestion in the Project Area. It has been observed that projected cost of congestion is Rs. 240 million in 1992 to Rs. 778 million in 2002. Therefore it is of paramount importance that action is taken to reduce traffic congestion.

The main telecommunication network in SL at present is owned by SL Telecom, which is a semi government organization. In addition, there are several privately owned telecommunication companies, stations, cellular networks and agency post offices. In the recent past, Internet, International Direct Dialing (IDD) & Fax facilities have been introduced to the SL communication network. Further, private and government television and radio media too play a major role in this sector.

(b) Resources Used by the Sector

Land can be considered as the major resource demand by this sector. Construction of roads and provision of parking facilities for vehicles and containers are the main activities that demand land, while fuel is used as a source of energy in the transport sector. Land is also required for laying telecommunication networks, either underground or overhead, while the airshed is used to emit the emissions of the vehicles, as well as the medium for the cellular communication network.

Land being a limited resource in the cities, the road transport activity suffers from the scarcity of the resource, leading to insufficient road widths, poor road geometry and inadequate parking facilities, particularly in the CMC area. The situation is worsening with the rapid
increase in traffic volumes and travel demand of the increasing population in the city. Management strategies such as improvement of traffic discipline and engineering solutions such as multistory vehicle parks, traffic signals instead of roundabouts etc. are needed to optimize the use of limited land available for the activity. The competition for land use among transport activity and other activities such as housing, trade etc. is evident in the study area.

The air quality in the city is also threatened due to the emissions from vehicles. The suspended particulate matter (SPM) and lead concentration are the critical parameters reported in recent studies.

(c) Impact of Environmental Hazards on Transport
Flooding of the roads in certain poorly drained sections of the city during the rainy season affects the traffic movement, as well as contributing to the damage of road surfaces and drainage facilities. This is a severe problem and one of the major causes of the poor condition of road transport in the Project Area. Heavy winds which occur during the monsoon periods often uproot trees by the roadside, which obstruct traffic movement and cause damage to the roads as well as telecommunication networks. While lightning occasionally damage telecommunication equipment, hampering communication by telephone and electronic mail. Sea erosion also affects rail transport in the coastal line.

(d) Contribution of the Activity to the Degradation of Environmental Resources and to the Environmental Hazards.
The environmental degradation due to transportation and communication activities is mainly caused by the air pollution caused by vehicle emissions and traffic noise. The pollutants in vehicle emissions, such as carbon monoxide, lead, suspended particulate matter, oxides of nitrogen and toxic hydrocarbons cause a variety of adverse effects on human health and the environment. Recent unpublished data of the National Building Research Organisation (NBRO) studies show that the suspended particulate matter and lead levels in the ambient air near the highways are reaching maximum permissible levels in Colombo city. Proper vehicle maintenance and enforcement of emission standards are needed to control the degradation of air quality, while use of unleaded petrol is the solution for control of lead in emissions. A limited supply of unleaded petrol is available in Colombo city, but enforcement of its use will only be possible as a long term solution, since the majority of vehicles
available in the country at present are not equipped for use of unleaded petrol.

Environmental degradation due to the noise from road traffic could be reduced to a great extent by improving the road surfaces by proper maintenance, better discipline among motorists and proper vehicle maintenance. Noise barriers and buffer zones will be required at locations which are sensitive to noise, such as places of worship, educational institutions, hospitals etc. if the above measures are not adequate in reducing the noise levels.

Transport activity may indirectly contribute to flood hazard if highway drainage is not adequate.

(e) Management Organization in the Sector
Public as well as private sector play a vital role in SL's transport activities. The public sector is responsible for provision of road, railway & port infrastructure, whereas it plays a smaller role in direct provision of transport services except in rail transport. The ownership of buses is either by the private sector, or the Peoplis Transport Companies, formed by privatization of the former Central Transport Board, with 50% of the shares held by the Treasury and the balance 50% by the employees. The Ministry of Transport and Highways (MTH) is in charge of all road transport activities, while the maintenance of the road network is the shared responsibility of the (RDA) and the MCs.

2.5 CONSTRUCTION

(a) Characteristics and Importance of Construction Activities
The Project Area experienced a very high rate of growth in the construction industry after the introduction of open economic policies in 1977. Housing & Urban Development was declared as one of the four national lead programmes. Construction activities took place in various sectors including buildings, roads, water supply, storm water drainage, sewerage and telecommunication. High rise buildings in Fort and other parts of the Project Area were a reflection of that construction boom. Conversion of uses of existing buildings (mainly from residential to commercial) has been another construction activity. While approximately a hundred conversions are authorized by the UDA every year, unauthorized constructions and unauthorized conversion of uses have been a common phenomenon.
Declaration of the new capital at Kotte, construction of the new Parliament, administrative complexes, a new hospital complex and a large housing scheme, together with the decision to shift administrative functions to Kotte, created the construction boom in Kotte too. At present following are the major on going construction activities in the Project Area.

**PUBLIC SECTOR**

(1) Storm water drainage  
(ii) Baseline Road-widening and extension  
(iii) Colombo Central bus terminal  
(iv) Other road improvements

**PRIVATE SECTOR**

(i) High rise apartment buildings  
(ii) Individual houses  
(iii) Telecommunication towers  
(iv) Commercial buildings

Construction industry is significant because it has a multiplier effect on the economy. Rate of growth of the construction industry is also a reflection of economic development.

(b) Resource Use by Construction

Land, building materials (clay, sand, minerals and timber) and water are the main natural resources used by the construction sector. Land has always been a scarce resource in the Project Area although not so acute in KMC area and hence there is competition for it within the construction industry itself. Most of the major building materials such as sand, bricks, clay tiles, rubble and timber are supplied from areas outside the Project Area, as shown in Map 11. Kelani river is the main source of supply of sand which is extracted at several locations. Brick is made in several areas close to Colombo such as Kaduwela, Hanwella, Malwana, Kochchikade etc. while Kaduwela and Athurugiriya are the main areas of supplying rubble. Clay tiles (roofing tiles) are manufactured in Kochchikade and Kaduwela, using clay extracted from nearby areas. Timber for construction is also transported from outside the Project Area. Some timber is available locally, while, due to logging restrictions, a major portion of the timber requirement for construction is imported from countries like Malaysia. Fresh Water is a requirement for production of building materials, construction processes such as concreting, curing and wetting of surfaces, and also for the use of construction personnel.
(c) Impact of Environmental Hazards on Construction Activities
Flooding restricts the availability of land for construction activities, and hence competition for buildable land increases. It also affects construction activities by delaying work programmes and resulting additional costs.

(d) Impact of Construction on Resources and Hazards
Extraction of large quantities of sand from Kelani Ganga has resulted in erosion of river banks, salt water intrusion to upper areas, and reducing the beach building process. Extraction of clay for brick and tile making has created a large number of abandoned clay pits in such areas, which degrades the quality of the land and has become a health hazard by promoting mosquito breeding and water pollution. Noise and dust generated by construction activities without proper control of these nuisances cause health impacts, while ad hoc construction activities without concern for public convenience cause great hardships to the local population.

(e) Management Organization in the Sector
Construction industry cuts across almost all the other sectors. Therefore all the Ministries and Departments are involved in the construction industry. As a subject, it comes under the Ministry of Housing and Urban Development (MHUD). Some of the important institutions involved in construction industry under MHUD/UDA, (NHDA), (NWS&DB), Building Materials Corporation (BMC), Institute of Construction, Training and Development (ICTAD), NBRO, Sri Lanka Land Reclamation & Development Corporation (SLLRDC) and the Buildings Department. Ministries of Industrial Development and Ports and Shipping also play a supportive role.

Some of the other major public sector institutions engaged in the construction sector are: the RDA, WPC and the MCs in the Project Area. The private sector has a large contribution in the sector as planners/designers, suppliers of materials, contractors and developers. These private sector organisations are represented in the FCCISL.
MAP 11
MAP OF THE PLACES FROM WHICH RESOURCES ARE BROUGHT TO THE PROJECT AREA

SCALE 1: 62500

LEGEND
- Sand
- Brick
- Rubble
- Clay

- MC boundaries
- Main trunk roads
- Water Bodies and Water Ways
- KMC
- CMC
- DMAC
- Play grounds
- Marshy Lands
- Paddy
- Railway Lines

Kotmale River
Kochchikade
Malwana
Kaduwela (out of the Project Area)
Athurugiriya (out of the Project Area)
2.6 INDUSTRY, POWER AND ENERGY

(a) Characteristics & Importance of the Sector

As shown in Map 12, the industries are dispersed in the city of Colombo mainly in Pettah, Slave Island, Borella, Maradana and Fort, while industrial estates are located in Ratmalana/Moratuwa area. A few other industries are situated in Nugegoda, Maharagama and Rajagiriya which are in the KMC and peripheral areas of the Project Area.

The industrial sector plays a vital role in its contribution to the SL economy. In 1996, manufacturing contributed to 21% of the country's GDP, increasing from 15.3% in 1978, while mining and quarrying contributed to 2.5% of GDP. The factory industries, which accounts for 82% of the total manufacturing output, contributed to 27% of the economic growth in 1995. (Central Bank Report 1995). A large part of the above industries are situated in the Project Area. Types of industries in the Project Area range from textile manufacturing and rubber products to canning of fruits in CMC, production of leather goods, textiles, sewing machines to biscuits and confectionery in DMMC and Terrazzo, timber and shoe manufacturing to grinding mills in KMC.

With the growth of industries and the services sector, the demand for power and energy has increased rapidly. The public electricity supply is generated by the CEB, and distributed by a public company. In 1989, 93% of the total electricity produced was hydroelectricity, only the balance 7% being produced by thermal plants. However, this situation has changed since then, due to the poor reliability of hydropower at the increased consumption rates experienced in the last decade. In 1992, the thermal power generation rose to 15%. The CEB is planning to increase this percentage still further to about 45% in the next few years. Electricity is distributed from the generation plants through the national grid. In certain parts of CMC area, power cables are running underground, while in most parts of DMMC and KMC, power transmission is through overhead cables. There are also a number of private diesel (and kerosene to a lesser extent) power generators installed for industrial uses as well as in hotels, offices and houses.
MAP 12
DISTRIBUTION OF INDUSTRIES
IN THE PROJECT AREA

LEGEND
- Industrial Locations
- Main Industries
- Industrial Zones
- Affected Water Bodies due to Industrial Pollution
- Other Industries
- Project Boundary
- Water Bodies
- Canals
- Main Roads

- Maharagama (out of the Project Area)
- Lunawa Lagoon (out of the Project Area)

38
(b) Resources Used by the Sector
This sector makes use of a large number of resources as both sources and sinks. Raw materials used in different industries such as clay, sand, minerals, gems, timber etc., which are mostly brought from outside the Project Area, land for industry locations, fuel and fuelwood as the energy source and fresh water can be considered as the different resources used as the source in the industry sector, while land for solid waste disposal, water for effluent discharge and air for receiving gaseous emissions can be considered as the resources used by the industry sector as sinks. Raw material use in the manufacturing industries has not been identified as a threat to environmental resources, whereas unsuitable waste disposal practices by industries are posing a great threat to the resources, particularly to surface and ground water, as described in more detail in Chapter 3.

The power generation in the Project Area is limited to diesel and kerosene generators, and thus generation of power only uses the airdshed as the recipient of emissions. However, land resources are used for the distribution system rather significantly, specially for the high tension power lines, as it restricts the utilization of the land corridor below the power line due to the risk of electrocution.

(c) Impact of Environmental Hazards on the Industry, Power and Energy Sector
Prolonged drought periods in the country due to failure of monsoons, which results in power cuts can be considered as a major barrier which affects the industrial sector. Further, floods and heavy rains also affect the industrial sector.

(d) Contribution of the Activity Sector to the Degradation of Environmental Resources and to Environmental Hazards
Noise and air pollution, pollution of water bodies and solid waste disposal problems are the crucial environmental issues due to industry, power and energy sector activities in the Project Area. The most affected water bodies are Lunowa lagoon, Beira Lake and the drainage canal system in the city, shown in Map 12 (on page 34), which receive effluent discharges containing chromium, oils & greases, dyes, acids, alkalis etc. as well as solid waste, mainly from the textile industries, tanneries, food processing factories and chemical industries. The location and spread of urban and industrial development in naturally flood prone areas aggravates the flooding hazard in the urban areas.
Management Organization in the Sector
At present, the major policy adopted by the government of SL for industry sector is export oriented industrialization with major incentives to the foreign and local investors. The Ministry of Industrial Development (MID) plays the policy maker, implementer and monitor roles, while servicing organizations such as the Industrial Development Board (IDB), Ceylon Institute of Scientific and Industrial Research (CISIR), National Institute of Business Management (NIBM), Universities etc. also support the industrialization process. The roles played by development financing institutions such as the National Development Bank (NDB) and Development Finance Corporation of Sri Lanka (DFCC) and regulatory/development authorities such as the Board of Investment of Sri Lanka (BOISL) and the Public Enterprises Reform Commission (PERC) are also important in the management setting. Most of the industries in the Project Area are owned by the private sector, with a trend towards privatization of the government sector industries in the recent past. In order to prevent further degradation of environment by industrial activities, management measures such as issuing environment pollution license (EPL) for small scale industries and carrying out (ELA) for medium and large scale industries (prescribed projects) have been taken.

2.7 TOURISM AND RECREATION

Characteristics and Importance of the Tourism and Recreation Sector
Sri Lanka’s sunny climate, sandy beaches, zoological gardens, wetlands with the high bird population etc. attract foreigners to the Project Area as tourists. Table 2.3 below gives the tourist arrivals to the country during the period 1991 to 1994.
Table 2.3: Tourist Arrival by Country of Nationality

<table>
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<tr>
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<tbody>
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<td>North America</td>
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<td>279</td>
<td>573</td>
<td>480</td>
<td>597</td>
</tr>
<tr>
<td>Asia</td>
<td>92,543</td>
<td>107,103</td>
<td>105,093</td>
<td>114,417</td>
</tr>
<tr>
<td>Australia</td>
<td>12,247</td>
<td>12,759</td>
<td>11,610</td>
<td>11,337</td>
</tr>
<tr>
<td>Total</td>
<td>317,703</td>
<td>393,669</td>
<td>392,250</td>
<td>407,511</td>
</tr>
</tbody>
</table>

Source: Department of Census and Statistics (1995)

The servicing of the tourist industry has increased employment opportunities and raised the level of earnings in the hospitality sector. Recreation facilities available in the Project Area includes water sports, Golf Links, parks, play grounds and beaches (including the Galle Face Green), and a few well equipped gymnasiums belonging to private clubs. Most of the big tourist hotels have their private swimming pools, saunas etc.

The importance of tourism arises due to enhanced foreign exchange earnings. Contribution to the GNP directly through tourist expenditure and indirectly through the operation of a multiplier effect and the creation of job opportunities directly in the service sector and indirectly in the supplying sector. The employment figures in the sector in the 1991-94 period is shown in Table 2.4

Table 2.4: Employment in the Tourism and Recreation Sectors

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Employment</th>
<th>Indirect Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>26,878</td>
<td>37,629</td>
</tr>
<tr>
<td>1992</td>
<td>28,790</td>
<td>40,306</td>
</tr>
<tr>
<td>1993</td>
<td>30,710</td>
<td>42,994</td>
</tr>
<tr>
<td>1994</td>
<td>35,064</td>
<td>49,090</td>
</tr>
</tbody>
</table>

Source: Dept. of Census & Statistics (1995)
Activities in the Tourism sector enhances cultural activities such as traditional dances and music. The international understanding and publicity received through the tourist industry helps in the image building of SL abroad.

(b) **Resources Used by the Sector**
Environmental resources used by this sector includes land for hotels and restaurant construction, recreational facilities in beaches, parks and playgrounds, surface water bodies and the sea used for boating, fishing, and significant amounts of energy used for air conditioning of hotels (which is speculated as a cause of increase of temperature in the Project Area, though no supportive evidence is available.) Thedished is used as the sink for hot air exhausts from the air conditioning plants in the hotels. There are no forests in the Project Area, but wetlands like Attidiya and Bellanwila (bird sanctuary) attract tourists.

(c) **Impacts of Environmental Hazards on Tourism**
Pollution of water bodies and unpleasant sight of solid waste dumped by the roadsides detracts the popular image of the cities in the Project Area, which affects the development of the tourist industry.

(d) **Impacts of Tourism on the Environment**
Erosion of the beaches in the Project Area has been aggravated by the tourism related activities, such as tourist hotel construction on the beaches, construction of unplanned erosion control structures, such as groynes, illegal breaking of corals from the off shore coral reefs, to be sold to tourists and replacement of natural vegetation with unsuitable flora.

Beaching of fishing craft as well as dragging of nets etc. in traditional coastal fishing areas have also been affected by these hotels. This also limits the public accessibility to beaches. Studies on socio-cultural impacts of Tourism in the Project Area have identified problems such as erosion of traditional social and cultural values, drug addiction and alcoholism, prostitution which also increases the health problems and homosexuality. The life styles of the people living in this area also have changed and many appear to have become westernized.

(e) **Management Organization in the Sector**
Institutional framework of the tourist industry comprises of public, private and the popular sector operators. Public sector operators include the Ministry of Tourism and Aviation, Ceylon Tourist Board, Ceylon Hotels
Corporation, Hotels School, travel sections of State owned Commercial banks, National Museum, National Arts Council etc. and private sector operators include hotels, guest houses, rest houses, travel agencies, shops, restaurants and other recreational facilities. Wild life conservation NGOs, environmental NGOs and individual tourist operators belong to the popular sector operators.

2.8 SOLID WASTE MANAGEMENT

(a) Characteristics & Importance of Activity

In some areas of the CMC, steel bins are placed on the roadside for collection of garbage, and a fleet of compacting vehicles are available for transporting them to the disposal site. In some other areas of the CMC as well as KMC and DMMC, concrete or brick bins are constructed on the roadside for collection of household garbage, from which it is manually loaded into tractors and transported to the disposal sites. Door to door collection by hand carts is also done in some areas. The total solid waste collection in CMC is about 800 tons per day, while 126 Tons and 90 Tons are collected per day in KMC and DMMC areas respectively. Map 13 shows the solid waste collection points and disposal sites in KMC area. A similar Map for DMMC area could not be gathered during the study period.

Municipal solid waste contains mainly organic matter with small quantities of other matters such as paper, glass, metal, plastics etc., while industrial waste contains fabric off cuts, leather off cuts, dyes, paints, paper, outdated pharmaceuticals etc.

In addition, in the CMC area, Colombo National Hospital generates one ton per day of solid waste, while there are several nursing homes and private hospitals too in the Project Area, producing waste. Bulk of the waste from hospitals are non-clinical waste such as packaging, food etc. Clinical waste includes human tissue, sharp accessories like blades and needles, disposable medical equipment etc., which are hazardous.

Although reusable materials such as metal, glass and plastics can be recovered from waste streams for reuse, this is not properly done in any of the MCs. Due to the availability of high moisture content composting is potentially viable. Since the available disposal sites are full in capacity, it is necessary to find new disposal sites, for all three MCs. The Wellampitiya open dump site has already become full at the end of September 1995.
MAP 18
DUMPING AND WASTE COLLECTING SITES IN KOTTE M.C. AREA

LEGENDS

- Dustbins
- Former dumping sites
- Existing dumping site
- Ward Boundaries

SCALE
100 M 200 METERS
World Bank funded Colombo Environmental Improvement Programme is planning a Disposal Site at Alupotha in Hanwella for this purpose, which also includes a composting plant. Waste dumping is continuing in many marshland areas in the Project Area, leading to un-aesthetic and un-hygienic conditions and rat and fly breeding. The leachate from these sites has already polluted the ground water and affected the nearby wells.

(b) Demand for Environmental Resources by Solid Waste Management
Land, which has a low ground water table is the most important natural resource required for this activity too. Due to the large volumes of garbage generated in the cities, available land for disposal is consumed in very short periods. Although marshlands are often used as disposal sites, this practice is extremely harmful to the environment. Waste minimization practices such as recycling, composting and reduction should be introduced in a more organized manner in order to reduce the demand for land.

(c) Impact of Environmental Hazards on Waste Management
Flooding in the low lying areas directly affects waste management by hindering waste collection and washing away the road side collections. Flood prone areas are sometimes used as sites for waste disposal, leading to environmental pollution.

(d) Impact of Waste Management on the Urban Environment
Waste management sector activities cause environmental problems because it is not carried out properly by the LAs. Improper and unplanned waste management causes several problems on urban environment. Indiscriminate dumping around the marshlands and into the nearby storm water drainage systems cause blockage of drains, resulting in floods. Seepage of leachate from the landfills take place because the landfill bottom is not sealed, and no leachate collection and pumping facilities are provided on site. Due to the irregular collection of solid waste, bad odour and breeding of flies as well as rats, stray dogs and cats takes place. Therefore some diseases such as rabies and leptospirosis spread excessively in these areas. Open burning of solid waste releases some harmful gases to the environment, such as carbon dioxide and carbon monoxide.
Management Organization in the Sector

The three MOCs are responsible for collection, treatment and disposal of solid waste from the Project Area. The present management of this activity sector is not satisfactory. The resource constraint (vehicles, trucks etc.) and personnel are the major problems for DMMC and KMC, while lack of public support is felt as a major constraint in CMC. The CEIP under the MMUDD is expected to be the main exercise to alleviate this problem in the CMC area. Public awareness and support and CBO/NGO intervention on a specific basis to alleviate the problem have been less, while criticism by media and the public have been observed as rampant.

2.9 WATER SUPPLY, SEWERAGE AND STORM WATER DRAINAGE

Characteristics and Importance of Activity Sector

Water supply to the Project Area is provided by the Greater Colombo Water Supply Scheme (GCWSS), which covers the peri-urban townships to the north, south and east of Colombo, in addition to the CMC. The water sources are the impounded reservoirs at Labugama and Kolatuwawa and Kelani River abstraction at Ambatota. The total production capacity is approximately 130 mgd, while the present supply is approximately 115 mgd. The major industrial zones at Biyagama and Moratuwa-Ratmalana are also supplied by the GCWSS (Please see Map 14). The percentage of directly connected services in different areas of Greater Colombo range from 40 to 65%. The unconnected population, who consist of mainly lower income groups, obtain water from street standposts. In addition, in CMC area specially, there are 1,074 Underserved Settlements which consist of about 54,500 low income housing units, which are served through common outlets.

A pipe sewerage system is available in CMC and a part of the DMMC area. In KMC area, only isolated sewerage systems are available at the Parliament Complex, the Sri Jayewardenepura Hospital, and a few other building complexes. The sewage collected in the sewerage system is discharged into the ocean via two long sea outfalls, located in Wellawatta and Mutwal, each approximately 1.5 km in length (Please see Map 15). Those buildings that are not served by the public sewer system have individual sewage disposal systems, such as septic tanks and pit latrines. The septic tank effluents are commonly soaked into the soil, and this causes problems in low lying areas and water logged areas in the cities. This problem is most acute in parts of the KMC and DMMC, which are not provided with public water supply. The Colombo sewerage
MAP 14

MAP OF INDUSTRIAL ZONES WHICH ARE SUPPLIED WATER BY THE GCWSS

SCALE 1:62500

LEGEND

- Industrial Zones
- MC boundaries
- Main trunk roads
- Water Bodies and Water ways
- KMC
- CMC
- DMRC
- Play grounds
- Murshy Lands
- Paddy
- Railway Lines

*Biyaagara (out of the Project Area)

*Moratuwa (out of the Project Area)
MAP 15

DISTRIBUTION OF SEWERAGE AND STORM WATER DRAINAGE IN THE PROJECT AREA

LEGEND

- Surface Water Outfall
- Insulated Sewerage Systems
- Long Sea Outfall
- Project Boundary
- Water Bodies: Canals
- Sewered Area

SOURCE: SRI LANKA LAND RECLAMATION DEVELOPMENT CORPORATION

SCALE
system has 78 overflows which discharge the raw sewage onto the storm drainage system due to overloading.

Storm water drainage system in the Project Area consists of roadside drains, natural drainage paths draining the unpaved areas, culverts, underground storm drains and the canal system (described in Chapter Three under resources) About 500 ha of marshland areas, lying approximately one metre below mean sea level in the Project Area act as sponges for flood waters and provide retention. Indiscriminate filling of these retention areas has aggravated the flooding situation in the Project Area.

(b) Environmental Resources Used by the Activities in the Sector
Surface water is the main resource used by the water supply sector, although groundwater too is used by certain industries and hotels, mostly as a second supply. Ground water is also abstracted through shallow wells by the residents who are still not served by the public water supply, due to inaccessibility or unwillingness to be connected. There is a short supply situation for the Ratmalana-Moratuwa Industrial Zone, augmentation works for which has already commenced. Use of the Kelani river water by the industries and hotels for discharging their wastewater (e.g.: Biyagama Export Promotion Zone treated effluents) is causing pollution of the source water and is threatening its use as a water source. Being in the wet zone of the country, there is no real shortage of fresh water in the Project Area, but the public water supply does not cover the total area due to distribution problems.

The major resource requirements in sewerage and storm water drainage are the surface water bodies that act as the recipient of storm water, the ocean that receives and dilutes the sewage, land and ground water that receives the sewage from individual septic tanks, and the marsh lands (wetlands) that act as retention areas for the storm water and sinks for some wastewater discharges. Since ground water is a very valuable resource which is used extensively for drinking by people who do not have public water supply, this is a cause for concern, particularly in the case of high ground water table and soil conditions that allow direct seepage into the ground water (e.g. sandy soil, lateritic soil with cracks and crevices)
(c) Impact of Environmental Hazards on the Sector

Although a major flood could cause certain problems such as access to the river intake, there will not be a disruption to the water supply as the motors and electrical switch gear are installed above the high flood level. However, flooding often damages the pumps, pipes, drains and other appurtenances in the sewerage and drainage systems in the Project Area.

During a drought when the Kelani river water level is very low, salinity intrusion has been experienced at Ambotale intake, coinciding with the high tide. For the first time, supply had to be interrupted for about 8 hours in 1991. However, this situation was overcome by constructing a temporary barrage downstream of the intake using sand bags, Studies have also been undertaken to examine the feasibility of constructing a permanent salinity barrier on Kelani river. Droughts cause reduced flows in sewers and storm drains, leading to stagnation and deposition of silt and also cause changes in soil texture, which may increase the runoff coefficients and cause flash floods when it rains after a drought, due to sudden high flows that cannot be handled by the storm drainage system.

(d) Impact of Activities on Resources and Environmental Hazards

Accidental pollution of water supplies which are not detected in time by the NWS&DB, or accidents at the treatment plant or during transport of chlorine cylinders may also cause serious environmental impacts.

Upstream pollution from industrial effluents could cause certain water quality problems, unless corrective action is taken. The Biyagama Export Promotion Zone has a central waste water treatment plant which discharges into Kelani river upstream of the Ambotale intake. This plant however is not capable of removing toxic substances such as synthetic organic and heavy metals. The agreement is for the individual industries to have their own waste treatment facility for removal of such substances. Several other individual industries also discharge their wastes upstream of the intake. Pollution also may contaminate water in the distribution system through back siphonage. Pollution of air, water and soil causes numerous problems to healthcare activities by increasing the incidence of diseases.

Sewerage and storm water drainage are activities aimed at environmental improvement, and hence, if properly planned and implemented, would not have any adverse impacts on the resources or cause hazards. However, due to poor maintenance and overloading of
the systems, environmental pollution is caused by these activities in the Project Area. Blocking of the storm water drains due to physical damage, siltation and deposition of solid waste and other materials aggravates the flooding hazard. Depletion of the fresh water resources occurs due to pollution.

(e) Management Organization in the Sector
The NWSDB is responsible for operation, maintenance and development of the water supply to the entire Project Area, which is a part of the GCWSS. In the CMC, the Water Works Division maintains the system as agents or contractors for NWSDB.

The public sewerage system is managed by the NWSDB, while the individual disposal systems are controlled by the MCs. However, the current practice is to issue the certificate of conformity (COC) for the building at the time of first occupation of the building and any other additional buildings or annexes do not require a COC. Thus, very often, the septic tanks and soakage pits constructed initially get overloaded when the buildings are expanded. The monitoring of these effluent discharges is the responsibility of the Central Environmental Authority (CEA) and the BOISL.

The canal system is the responsibility of the SLRDC, while the Beira Lake is under the SLPA. The canal system is being improved under the "Greater Colombo Canal Rehabilitation and Environmental Improvement Project", funded by Japan. The SLPA considers the water pollution of Beira Lake and the Colombo Harbour as the responsibility of the CMC. The street storm water drains are provided and maintained by the RDA, while the provision of drainage from individual premises is a requirement by the MC when approving the building plan, but no further monitoring is done. The sewage disposal system in the slum/shanty areas causes grave problems to the city environment. The motivation for the MC to service these settlements has been less since they are considered as non-rate payers. The ad hoc nature in the management organization of this sector has led to many of the prevailing problems.

2.10 HEALTHCARE

(a) Characteristics and Importance of Activity
Healthcare in the Project Area includes both curative and preventive facilities provided by the Health Department "Central Government" as well as the PC and LA and the private sector. Facilities provided by the
Health Department include three well equipped teaching hospitals, while healthcare is a major function of the CMC too. There are six MOH attached to the six divisions of the CMC, of the CMC, who are responsible for environmental health and food sanitation for their areas. There are thirteen maternity and child welfare centres at which weekly anti-natal, post-natal, family planning, infant and pre-school clinics are conducted. At ten of these centres facilities are available for maternity deliveries. In the curative side there are twenty five Dispensaries, three dental clinics and two eye clinics. In addition to these services the CMC has twenty one Ayurvedic Dispensaries. The services rendered by the health centres and municipal dispensaries greatly help to reduce the pressure on the "central government" hospital service.

(b) Environmental Resources Used for Healthcare
The environmental resources used for healthcare activities in the Project Area include land for hospitals and clean water for drinking and personal hygiene.

(c) Impact of Environmental Hazards on Health Care
Flooding can cause problems to healthcare activities, as it will increase the incidence of enteric and respiratory diseases. Drought also affects the healthcare of the people as it leads to stagnation at water in canals and other water bodies, causing mosquito breeding, and skin diseases due to lack of water. Pollution of air, water and soil causes numerous problems to healthcare activities by increasing the incidence of diseases.

(d) Impact of Healthcare on the Urban Environment
This activity sector being definitely a sector of social welfare, the impacts are mainly positive on the human environment. Even on the natural environment, this activity has very few significant impacts. One such negative environmental impact is caused by the insecticides used to control mosquito and disease vectors in preventive healthcare.

(e) Management Organization in the Sector
The healthcare activities are managed by the Health Department "Central Government" the MCs and the private sector. The three sectors generally play complementary roles in sector activities. Government policy at present is to allow government doctors to serve in private hospitals outside their normal working hours. The health services are greatly assisted by UNICEF which helps in upgrading the health standards of the low income communities in the city. UNICEF had allocated funds totaling US$ 1.9 million for the years 1984 to 1988.
2.11 AGRICULTURE AND FISHERIES

(a) Characteristics and Importance of Agriculture
Agricultural activities in the Project Area are limited to “Keera” or green leaf cultivation in the marshes, fruits like banana and mangoes and coconuts in home gardens in the Project Area, and a little paddy cultivation in the DMMC and KMC area. The contribution of this activity from the Project Area to the national production is insignificant. Most of the fruits, vegetables and grain are transported to the cities from other parts of the country, but collection and distribution of agricultural products take place in Colombo. However, some agricultural industries, such as fruit canning, jam and cordial production are located in the Project Area. Fishing and fish processing, on the other hand, take place in the coastal belt of the CMC and DMMC areas, for use within the Project Area, as well as in the peripheral areas. Major fishing centers in the Project Area are Mutwal, Mattakkuliya and Moratuwa, while the main wholesale market for fish is the St. John’s Market in Pettah. In addition, local people fish in the Dehiwela canal and in the Parliament lake, for their consumption. There is a fishery harbour located adjoining the Colombo Port, which is managed by the Fishery Habours Corporation, where there is also a fish processing factory. Total number of fishing families dependent on Colombo fishery harbour is estimated to be 1,785, 20% of which are living around the harbour and the rest are dispersed along the beach from Moratuwa to Kelaniya. However, there are plans to move this fishery harbour further north to Negombo, in the next five years.

(b) Resources Used by Agriculture and Fisheries
Land and water are the main natural resources used by the agricultural sector. Since demand for land for housing and office building development is steadily increasing, the availability of land for agricultural purposes is diminishing. Wetlands are being reclaimed for building and the size of home gardens is also reducing due to the high cost of land, thus affecting cultivation. Most of the agricultural activities in the Project Area are rainfed, as the Project Area is located in the wet zone.

Marine and inland water bodies used for fishing and the beach for anchoring of boats, dragging of nets and connected activities and also for making living quarters for fishfolk are the natural resources used by the fisheries sector. However, pollution of the water bodies has major impact on fisheries, as the resulting poor water quality limits the types of fish available to very coarse varieties. High pollution loads also causes fish...
kills and the marketability of the fish catches is greatly affected. In addition to above, fuel as the energy source, fishing gear and the equipment required for this activity are also resources used by this sector.

(c) **Impact of Environmental Hazards on Agriculture and Fisheries**
Flooding affects the agricultural activities, when it does not recede in a few days. Consumption of green leaves by the public is less during the flooding times, as the marshy areas go under water, which usually is highly polluted by overflows from sewage and industrial effluent discharges.

(d) **Impact of Agriculture and Fishing on the Urban Environment**
Being activities directly connected with food production, the impacts produced by these sector activities are mainly positive. However, some land and water pollution and smell nuisance take place due to disposal of solid waste and discharge of waste water from market places and food processing factories. Land degradation also takes place due to overuse of chemical fertilizers and pesticides.

(e) **Management Organization in the Sector**
There is very little formal management organization for the agriculture sector in the Project Area, as the contribution to the national production, as mentioned in (a) above, is minimal. However, in the fishery sector, policy formulation, implementation, fishermen’s welfare activities, infrastructure development etc. are undertaken by the MFAR and its subsidiary organizations. The present policy adopted in the fisheries sector is to expand and improve the mechanization of fishing gear, more community services and infrastructure development. Several fishery cooperatives and private sector companies operate in the Project Area. The wholesale marketing of fish is done at the St. John’s Fish Market, which has been established with participation of the UDA and CMC. The catch from DMMC area is marketed locally and at the St. John’s Market.
CHAPTER THREE
ENVIRONMENTAL SETTING IN THE PROJECT AREA

3.1 THE RESOURCE BASE

3.1.1 LAND

(a) Resource Characteristics

The topography of the project area is mildly undulating, being located in the lowest peneplain, adjacent to the coast. The ground elevation varies between 0 and 20m mean sea level (MSL) which indicates flat land, compared to the central parts of the country. The soil in the project area includes regosols on recent beach sands (flat terrain), Red-yellow Podzolic soils with soft or hard laterite (rolling and undulating terrain), Bog and Half-bog soils (flat terrain) and Alluvial soils of variable drainage and texture (flat terrain). The beach sands and laterite soils are suitable for construction, while bog and alluvial soils are wetland areas, which are not suitable for such activities, and should be conserved as retention areas and green lungs of the city.

The general land use pattern in the Project Area, as shown in Map 16, consists of built-up area along the coastal belt, gardens with buildings and home gardens, interspersed with a few patches of paddy cultivation in the more inland sections.

Out of the Total Project Area of 75 sq. km., approximately 35% is covered by water bodies and marshlands, as shown in Table 3.1, which leaves only 65% of the area suitable for building construction. This percentage is even less when CMC Area is considered.
Table 3.1: Distribution of Land, Water Bodies and Marshes in the Project Area

<table>
<thead>
<tr>
<th></th>
<th>CMC</th>
<th>DMMC</th>
<th>KMC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (Ha)</td>
<td>%</td>
<td>Area (Ha)</td>
</tr>
<tr>
<td>Land</td>
<td>1,792</td>
<td>48%</td>
<td>1,945</td>
</tr>
<tr>
<td>Water Bodies</td>
<td>98</td>
<td>2.6%</td>
<td>115</td>
</tr>
<tr>
<td>Marshes</td>
<td>1,843</td>
<td>49.4%</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>3,733</td>
<td>100%</td>
<td>2,120</td>
</tr>
</tbody>
</table>

(Source: UDA: City of Colombo Development Plan, 1985 and others)

The CMC can be considered as the most urbanized area in the country, and the demand for land in this area is increasing at a tremendous rate. In the KMC area, on the other hand, there is land which can be used for institutional, administrative and commercial activities, thus releasing the pressure on land in the CMC area. DMMC area is second only to the City of Colombo in the aspect of urbanization.

(b) Use of Land Resource by Various Activities
Land is a resource used by all activity sectors for various purposes, as shown in Table 3.2, while the present land use pattern in the Project Area is given in Table 3.3 below.

(c) Impact of Activities on the Resource
Urbanization has made the land in the Project Area a very scarce resource, increasing the land prices and creating a very high demand for it. Activities such as industries and solid waste management causes degradation of the land due to deposition of waste on land, while construction activities tend to cover the land with buildings, roads etc. and thus render the land useless for other activities. Multi storey buildings for housing, hotels, commerce and trade and even for parking should be encouraged for more efficient use of available land resource. Although filling of wetlands for construction activities increases the available land area, it should be properly planned and controlled to avoid depletion of retention areas, leading to flooding.
Table 3.2: Use of Land Resource by Different Activity Sectors

<table>
<thead>
<tr>
<th>Activity Sectors</th>
<th>Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Port Related Activities</td>
<td>Harbour (Special Area), warehouses, container yards, shipping agents and other offices</td>
</tr>
<tr>
<td>2. Commerce, Trade and Financial Activities</td>
<td>CBD's (multistorey buildings make better use of available land resource)</td>
</tr>
<tr>
<td>3. Housing</td>
<td>For construction of houses (Single storey low income housing is very inefficient use of land resources. Multistorey housing should be encouraged. Filling of wetlands to increase available land area. (should be a controlled activity)</td>
</tr>
<tr>
<td>5. Construction</td>
<td>For the buildings, roads etc. that are being constructed, labour camps, parking for construction machinery etc.</td>
</tr>
<tr>
<td>6. Industry, Power and Energy</td>
<td>Industry locations, power substations and reservations for power lines</td>
</tr>
<tr>
<td>7. Tourism and Recreation</td>
<td>Tourist hotels, beach, Golf courses, parks, play grounds</td>
</tr>
<tr>
<td>8. Solid Waste Management</td>
<td>Solid waste collection points and dumping areas</td>
</tr>
<tr>
<td>9. Water supply, sewerage and storm water drainage</td>
<td>Water pipelines and sewer construction, pumping stations</td>
</tr>
<tr>
<td>10. Health care</td>
<td>Hospitals, health clinics</td>
</tr>
<tr>
<td>11. Agriculture and Fisheries</td>
<td>Home gardens, paddy fields, fishery harbour</td>
</tr>
</tbody>
</table>
space within their premises to provide treatment facilities for their effluents.

(e) Management Arrangements to Deal with Conflicts over the Resource
The UDA is the authority responsible for planning of land use in the urban areas, and as such, is the body responsible for resolving conflicts over the use of the land resource, by zoning, while the Municipal Councils are expected to work closely with UDA in planning activities. The UDA has declared that priority should be given to port related activities in the city, since it plays a vital role in the country’s economy. Therefore, more land will be converted to port related activities from other activities such as residential. Further, it has been proposed that mixed development, commercial activities and high income housing should be the activities that should be encouraged to be located within the CMC area. However, management of already existing conflict situations, such as found in Ratmalana area is more complicated, and although plans have been prepared to move the industries out to an industrial zone in a less densely populated area, implementation requires a concerted effort by the LAs, “central government” private and public sectors.

3.1.2 SURFACE WATER RESOURCES

(a) Resource Characteristics
The main water bodies in the Project Area are the Beira Lake, the Greater Colombo Canal system, Diyawanna Oya and part of Bolgoda Lake. These water bodies form a part of the drainage and flood protection system of the Project Area, as seen in Map 17. Kelani Ganga, a major river and one of the sources of water supply to the project area, lies just north of the Project area boundary. The canal system, Beira lake and Diyawanna Oya are interconnected, and is open to the sea at Dehiwala and Wellawatte. The Beira Lake has been open to the sea at Galle Face earlier, but has been permanently blocked by gates. Another opening at St. Sebastian’s Canal in North Colombo, to Kelani Ganga, also has been permanently closed. At present, the discharge of rain water mainly takes place from the two canal outlets at Dehiwala and Wellawatte, which are also often blocked by sand bar formation. The Bolgoda Lake is a separate water body, a part of which falls within the DMMC area, and it drains south, to the sea at Panadura, via Panadura Ella, which is outside the Project Area. Recent studies have shown that water in Beira Lake and many parts of the Canal system is highly polluted, with domestic as well as industrial waste. Beira lake is eutrophic and algal blooms have appeared in recent times. Bolgoda lake too is polluted in
certain parts. Several projects are planned to clean up the water bodies in the Project Area, and the canal system is being rehabilitated under the "Greater Colombo Flood Control and Environmental Improvement Project", Phase I, which is due to be completed by the end of January, 1998.

(b) Use of Surface Water by Various Activities
The surface water bodies in the project area are currently being used mainly as a recipient of storm and waste water. Many industries are located by the water ways in the Project Area, as seen in Map 12, and discharge their treated or untreated waste water streams to the canals. Diyawanna Oya is used for fishing, while most of the other water bodies in the Project Area are too polluted for fishing or contact sports, and can support only other recreational activities such as rowing and sailing. Surface water bodies in the Project Area are not being used as sources of public drinking water supply, as the Kelani Ganga which is situated just North of the Project Area has an adequate supply of good quality water for the GCWSS.

(c) Impact of Activities on the Surface Water
It has been observed that in CMC, coconut processing industries along St. Sebastian canal, chemical, metal & textile industries along Baseline Road and food processing factories in Narahenpita are the major polluters of the canal waters, while food processing factories in Slave island pollute Beira Lake. In addition, it has been reported that there are more than 5,000 outlets, many of which contain sewage and waste water, discharging into the Beira lake. When considering the DMMC, textile, asbestos and rubber based industries are reported to pollute the Bolgoda lake. KMC is the least affected in this sense.

(d) Competing Interests in Use of Surface Water
Due to the use of the surface water bodies as a recipient of untreated waste water discharges, by the public and the industries, its usefulness for other purposes such as bathing, swimming, washing, industrial process water, drinking and culinary purposes are greatly affected. The water is not suitable even as cooling water, its use even as an aesthetic resource is affected by the smell, green colour and appearance of floating solid matter at certain locations.
Management Arrangements to Deal with Conflicts over the Resource

There are environmental regulations to control the pollution of water resources in Sri Lanka. EIA and EPL are the most important instruments. EIA is required for any new projects listed as "Prescribed Projects", while all new and existing industries need to obtain the EPL. If any industries reported to be polluting the surface water ways above the prescribed standards, CEA has the authority to stop their activities, in order to protect the water resource.

It is proposed that once the rehabilitation programmes are completed, the water bodies could be used for recreation and non contact sports. This would require that all untreated wastewater outfalls are disconnected from the water bodies. This would create another conflict, but the industries will be required to reduce, recycle and reuse their waste water as much as possible, and hence reduce the treatment costs. The domestic waste water that is discharged to the canals and Beira Lake mainly originate from the underserved settlements along the canal banks, and they should be included in shanty upgrading and other welfare programmes in order to improve their sanitary conditions.

3.1.3 GROUND WATER

(a) Resource Characteristics

Very little data is available on the quantity or quality of the ground water aquifer in the Project Area. The reason for the lack of data is the fact that no groundwater investigations have been carried out by the NWSDB for using it as a source of public water supply. A few isolated tube wells are available in places like the Army Housing Scheme in Narahenpita, Madampitiya Cemetery and Ladies’ College, Colombo, which have been found to produce 90 to 120 litres per minute. No data could be found on the quality of the ground water resource in the Project Area.

(b) Use of Ground Water by Various Activities

Ground Water is being used by some hotels, industries and others in the Project Area to supplement the water supplied by NWSDB. Water from the overburden is used for domestic purposes by extraction from dug wells in areas where public water supply is not available or where wells producing good quality water existed before the public water supply was introduced.
Impact of Activities on the Ground Water

Pollution of Ground Water is taking place in the Project Area due to unsanitary disposal of sewage as well as industrial waste. Oily scums and discoloration of well water have been reported in the industrial areas such as Ratmalana (in DMMC) and pollution of wells by faecal matter has been common in the densely populated coastal areas. Public Water supplies have been introduced to almost the entire Project Area, but the pollution of ground water, specially by synthetic organic chemicals that do not perish easily (having long half life) due to industrial wastes, is a cause for concern. In addition, solid waste disposal activities too, cause ground water pollution. The land fill site at Welampitiya and several other low lying areas that are used as municipal dumping grounds in the Project Area, are not sealed at the bottom, and evidence of ground water pollution exists.

Competing Interests in the Use of Ground Water

Ground water is abstraction by private organizations for domestic and industrial use. Competition in the use of ground water resource does not appear to be a problem in the Project Area, due to its location in the wet zone of the country, usually getting sufficient rainfall throughout the year. However, if uncontrolled abstraction of ground water is allowed to continue, serious repercussions may follow due to intrusion of salt water into the ground water aquifer.

Management Arrangements to Deal with Conflicts over the Resource

The Water Resources Board and the NWSDA are both involved in management of the ground water resource. The Water Resources Secretariat was formed recently and coordinates activities of this sector.

3.1.4 WETLANDS

Resource Characteristics

The Directory of Asian Wetlands included 41 wetlands in Sri Lanka which are regarded to be of international importance. Out of them, Bellanwila-Attidiva marshes in the DMMC area was declared as a sanctuary under the Fauna and Flora Act, giving legal protection to an area of about 372 ha, while Mahawatha/Kollonnawa North, Kalannawa East, Kate and Heen marshes covering an area of 380 ha, and the low lying lands named as the “green belt” surrounding the Parliament lake which covers several hundreds of hectares, lie in the KMC.
Preservation of Bolgoda Lake is essential for flood prevention in the valuable lands located at Nugegoda, Attidiya, Bellanwila etc. These water bodies act as a wet sponge in absorbing flood runoff and as a buffer against salinity intrusion. Kolonnawa, Kotte, and Heen marshes were considered as temporary flood detention areas rather than flood retention areas. To a certain extent these marshes facilitate recharge of aquifers. Wetlands also enhance the micro-climate of the surrounding areas by providing breezes and cooling effects as well as modifying humidity and local rainfall.

(b) Use of Wetlands by Various Activities

Many useful plant species such as leafy vegetables used by the people of the area as well as sold in other parts of the city, medicinal herbs, sedges and grasses used for matting, tuberous vegetables used for animal consumption, aquatic flowers used in religious ceremonies and grasses used as fodder are found in these wetlands.

However, the most important function of the wetlands in the Project Area is detaining of storm water to prevent urban flooding. By holding the storm water for some time before releasing into the drainage canal system, the peak discharge in the canals is reduced and thus the flow in the canals becomes more uniform, rather than if all the storm water was allowed to discharge as it fell on the ground. Thus flood surges are prevented by the retention areas. They are also used for discharge of waste water, dumping of solid waste and for housing after filling. Small scale fishing is practised in some areas (around Ethul Kotte New Bridge and Sri Jayewardeneepura Mawatha) for ornamental fish collection and commercial fishing.

(c) Impact of Activities on Wetlands

A considerable reduction (25-30%) of marshland has taken place in recent years as a result of planned and un-planned land fills. Due to scarcity of buildable land, both SLLRDC and private parties have been filling marsh land and selling them for very high prices. The activities that have a significant impact on wetlands are housing, transport, construction, industry, tourism and recreation, solid waste management, sewerage and storm water drainage and agriculture. The major impacts are filling of wetlands for housing and building and highway construction, pollution caused by discharge of industrial effluents, domestic sewage and agro-chemicals and silting due to discharge of storm water.
(d) **Competing Interests in the Use of Wetlands**

While the housing, industries and construction sectors are interested in filling up of wetlands, the industrial, sewerage and storm water drainage sectors require the water bodies and marshlands to retain the flood waters and assimilate the waste discharges. The tourism and recreation sector as well as the water supply and health care sectors are interested in conservation of the quality of the water bodies. The industrial and sewerage sectors are interested in discharging their pollutants into the water bodies.

(e) **Management Arrangements to Deal with Conflicts over the Resource**

Filling of wetlands in the Project Area is controlled by the SLLRDC. They authorize filling only in certain areas, according to a plan, prepared considering the flood retention requirements and conservation plans. Strict enforcement of the regulations is required to prevent the loss of wetlands in these areas.

3.1.5 **AIR RESOURCE**

(a) **Resource Characteristics**

The airshed in the Project Area is being monitored as a part of the ongoing World Bank funded MEIP, but the testing commenced only in 1997, and data has not been published yet. However, it has been indicated that the biggest threat to air quality comes from vehicle emissions, rather than from industries. Air pollution has been reported to be significant only in the congested roads in the Colombo Fort-Pettah area, and Galle Road. (Please see Map 18) SPM due to incomplete combustion in diesel engines and lead (Pb) from petrol vehicles are the main pollutants observed. The ground level ozone also has been reported to be high, and this is attributed to the sea breeze.

(b) **Use of Air by Various Activities**

Fresh air is a resource essential for existence of all human, animal and plant life, and thus, is essential for all development activities. In addition, the airshed is used by the transport sector and industry and power sector as a recipient of their exhaust gases.

(c) **Impact of Activities on Air**

Emission of exhaust gases from vehicles has led to the deterioration of the air quality near the busy highways in the Project Area, as mentioned in Section (a) above. The increasing use of air-conditioning plants in offices, hotels and other buildings also leads to deterioration of the air quality by emission of Chloro Fluoro Carbons (CFC) and hot air.
MAP 18
MAP OF CONGESTED ROADS IN THE PROJECT AREA

LEGEND

- Congested Roads
- MC boundaries
- Main trunk roads
- Water Bodies and Water Bodies
- KMC
- CMC
- DMRC
- Playgrounds
- Marshy Lands
- Paddy
- Railway Lines
The open burning of refuse as an alternative to solid waste disposal also causes air pollution.

(d) **Competitive Interests in the Use of the Airshed**
Competing interests are encountered when the airshed is used as a recipient of exhaust gases by traffic and industries, without proper controls and monitoring.

(e) **Management Arrangements to Deal with the Conflicts over the Resources**
As the traffic on roads increases with development, the exhaust emissions should be properly controlled by enforcement of emission standards (which are already available), in order to prevent further degradation of air quality. Industrial emissions should also be controlled by enforcement of standards.

3.1.6 **MINERAL RESOURCES**

(a) **Resource Characteristics**
The only important non-renewable mineral deposit in the Project Area is clay. Clay deposits are found in the periphery of the Project Area, mainly in Boralesgamuwa, as shown in Map 19.

(b) **Use of Mineral Resources by Various Activities**
Clay from the Project Area is mainly used for ceramic industries in Piliyandala and Negombo areas.

(c) **Impact of Activities on Mineral Resources**
Most of the clay deposits are in marshy lands or abandoned paddy fields. The ceramic industry exploits the resource by mining the clay. There is no reported threat of over-exploitation of clay at present.

(d) **Competing Interests in Use of Minerals**
Some of these lands which are used for clay mining are abandoned paddy fields. Therefore sometimes these lands could be used for agricultural purposes rather than mining. Clay mining causes environmental problems such as formation of large pits in the lands, which often get filled by water and leads to public health hazards. Therefore, people in the neighborhood oppose clay mining.
Management Arrangements to Deal with Conflicts Over the Resource
Clay mining should be carried out after an Initial Environmental Examination (IEE) or EIA, and regulation and monitoring of extraction operations needs to be enforced.

3.2 ENVIRONMENTAL HAZARDS

3.2.1 FLOODING

(a) Characteristics of the Hazard
The possibility of flooding of the Kelani Ganga into the Project Area is prevented by the flood bund on its left bank. As such, flooding occurs in the Project Area only due to poor drainage of storm water. The areas prone to frequent flooding is shown in Map 5. The duration of flood waters in residential areas is never more than one or two days, and the more frequent floods recede within a few hours. The reasons for flooding has been identified as poor maintenance of the storm drainage system, blocking of drains by refuse that is washed off from the roadsides, formation of sand bars at the outlets to the drainage canals at Wellawatta and Dehiwala, and the filling up of wetlands that act as flood retention areas.

(b) Impact of Flooding on Activities (Magnitude and Significance)
The most significant impact of flooding is felt on the housing, transport and construction activities, due to threat to life and properties, economic losses and public inconvenience. The more frequently flooded areas (Please see Map 9) are the low lying areas, which are mostly occupied by the underserved settlements. However, when a major flood event takes place, such as in 1993, the entire Project area could go under water, as the terrain is nearly flat.

(c) Influence of Activities on Flooding
Main activities that have influence over flooding are housing, construction, solid waste disposal and storm water drainage. Housing and construction affects flooding due to the filling up of retention areas for these purposes, thus causing more frequent flooding. Solid waste disposal practices currently used in the Project Area also aggravates the flooding, due to selection of marshlands as refuse dump and also blocking of drains by solid waste that are left by the roadsides. Inadequate storm water drainage is also a main cause of flooding in the Project Area.
(d) **Conflicts between Activity Sectors Over the Hazard**

Conflicts occur between sectors in the acquisition of land for housing, commercial and business activities in the Project Area, as they all want to avoid the flood-prone areas.

(e) **Existing Management Arrangements to Control the Hazard**

The "Greater Colombo Flood Control and Environmental Improvement Project" of the SLLDRC has nearly completed dredging of the canal system and widening them to improve the drainage of the Project Area.

### 3.2.2 POLLUTION

(a) **Characteristics of the Hazard**

The most severe environmental pollution in the project area is in the surface water. All the water bodies in the Project Area are reported to be polluted and unsuitable for human consumption, bathing or contact sports. Beira Lake and some of the canals are eutrophic and algal blooms make them unsightly and odorous. Being in the heart of the Colombo city, this creates a very unpleasant impression on visitors to the city. There is very little diversity in the aquatic ecosystem, being highly dominated by the blue-green algae due to eutrophication. Pollution of the land by solid waste and also beach pollution by the underserved settlements along the coast line and discharge of sewage from hotels along the beach via short sea outfalls is also a problem. The polluted waterways in the Project Area is considered as an environmental hazard, as it affects the development and welfare activities in the Area, and though it is a manmade hazard, it has reached a stage that redemption of the water ways will only be possible by long term solutions which need investment of large amounts of money.

(b) **Impact of Pollution on Activities (Magnitude and Significance)**

One of the most important activities affected by the pollution hazard is tourism and recreation. The water bodies in the Project Area, particularly Beira Lake, has potential as a tourist attraction for water sports and recreation, if it was not so polluted. The polluted water does not support any edible fish and therefore its potential for inland fishery is also lost. Use of the polluted water by the people for bathing and washing causes health problems such as skin rashes. Sometimes, fish caught in these water bodies are sold by unscrupulous people, which causes health problems to the consumers.
(c) **Influence of Activities on Pollution**
Industries, housing (particularly underserved settlements), sewage and storm water drainage and transport activities contribute to the pollution in the project area.

(d) **Conflicts between Activity Sectors Over the Hazard**
Conflicts occur between the tourism, recreation and healthcare sectors and the housing and commerce sectors over pollution, as the activities of the latter sectors affect the former sector.

(e) **Existing Management Arrangements to Control the Hazard**
The CEA can prosecute any industries that violate pollution control regulations. The MCs also have powers to fine polluters under the Public Nuisance Act, but the fines are so small (not being revised in the recent past), it is not a deterrent for polluters.
CHAPTER FOUR
MUNICIPAL MANAGEMENT

4.1 THE MANAGEMENT SETTING

4.1.1 INTRODUCTION

Chapters Two & Three demonstrate a wide range of issues and public, private and popular sector stakeholders, who need to be involved in city environmental upgrading. This Chapter will discuss these stakeholders who are relevant to the issues pertaining to sustainable cities development programme activities and the current institutional arrangements or the management setting and areas where strengthening is required to forcefully and vigorously pursue sustainable city development activities in the Project Area. The importance of this Chapter arises as a result of certain very obvious weak or ineffective management and institutional situations observed in the Project Area.

4.1.2 KEY STAKEHOLDERS

Stakeholders are groups or individuals who have a stake in or an expectation of the organization’s performance. They include employees, managers, stakeholders, suppliers, customers and the community at large. It seems from the above definition of stakeholders that there is none left out in the society, who is not a stakeholder. However the key stakeholders in the Project Area can be divided into four groups as follows.

(o) **Public Sector**
- "Central" Government
- Semi-Government or para-statal
- Provincial Government
- Local Government/Municipal Government

(b) **Popular Sector**
- NGOs
- CBOs

(c) **Private Sector**
- Formal private Sector
- Informal private Sector
- Grouped private Sector
(d) Private Groups
   - Political Organizations

Donors are a group of key stakeholders in city environment development. However, in the Sri Lankan context their interventions reach activity sectors through Ministries and the Director General of External Resources (DGES), and hence they have not been separately identified as a group, as the DGES is an office in the Ministry of Finance (MOF).

4.1.3 PUBLIC SECTOR

The central government comprises of many Ministries which are involved in sustainable city development, i.e., Departments, Boards, Authorities and Corporations. For purpose of convenience, even the PCs and LAs are also considered here as the public sector. Though several ministries can be initially identified as having responsibilities for city environmental management, the main Ministries considered here as key public sector stakeholders are:

(a) The Presidential Secretariat
(b) Ministry of Housing & Urban Development (MHUD)
(c) Ministry of Forestry & Environment (MFE)
(d) Ministry of Finance (MOP)
(e) Ministry of Shipping Ports & Rehabilitation (MSPR)
(f) Ministry of Transport and Highways (MTH)
(g) Ministry of Industrial Development (MID)
(h) Ministry of Health & Indigenous Medicine (MHIM)
(i) Ministry of Fisheries & Aquatic Resources Development (MFAR)
(j) Ministry of Vocational Training & Rural Industries (MVTRI)

The environmental resources and activity sectors stated in the previous sections are relevant to the above mentioned key stakeholders in different ways. Some (i.e., MFE, MFAR) are relevant as resource managing agencies. Excepting (a), (d) and (j) above, all others have direct or face to face relationships to the interactions created by environmental resources and activity sectors. The Presidential Secretariat is the strongest body, that can influence all other ministries, since the executive authority of the President is really powerful. The MVTRI can be considered as an agency which can tie up the social development aspect of city environment and MOF is important as large financing exercises have to be undertaken for sustainable city development.
Table 4.1 gives a brief resume of involvement of each of the Ministries as stakeholders with regard to the contribution of these organizations as implementers of sustainable city development programmes. They are based on mandate and responsibilities, environmental concerns, available information and expertise and control of policy implementation instruments. A summary of stakeholder importance is given in Table 4.2. It is apparent that the summary situations shown in Table 4.2 speaks for itself in the sense, the cross cutting nature of activities, which are addressed by authorities on an islandwide manner. At the same time, facilities to undertake all aspects addressed in Table 4.2 are not commonly available with all relevant stakeholder organizations. For purposes of clarity and completeness similar summaries are incorporated for the private and NGO sectors in Tables 4.3 & 4.4 respectively.

The public sector consists of many semi-government organizations which deal with environmental activities. For example, the CEA, NHDA, UDA, NWSDB, CAB etc. can be quoted. However, organizations such as CAB are small institutions, which contribute minimally towards the objectives and therefore cannot be considered independently as large contributors. A summarized situation depicting the objectives, environmental concerns, available information and expertise, sources of funding, implementation instruments and participatory levels are shown in Table 4.5. Table 4.6 shows the organizational arrangements in two lead statutory authorities, servicing the Project Area. The responsibilities attached to each one of them can be clearly understood by these Tables.

Under Ministries and semi-government organizations there are many foreign funded projects, which receive resources from the Consolidated Fund also, and support the cause of sustainable city development. Some of them are the Asian Development Bank assisted Urban Development Sector Project (UDSP), World Bank assisted MEIP, CEIP, CSP etc. Please see Table 4.7 for summarized information on some of the important programmes/projects related to environment. Although basic or core policy guidelines, conservation, regulation etc. are in the hands of the MFE, since urban sustainable development is a function of the MHUD, it is therefore, understandable why these projects and programmes are mostly located in the MHUD.
<table>
<thead>
<tr>
<th>NAME OF STAKEHOLDERS</th>
<th>MANDATES &amp; RESPONSIBILITIES</th>
<th>ENVIRONMENTAL CONCERNS</th>
<th>AVAILABLE INFORMATION</th>
<th>AVAILABLE EXPERTISE</th>
<th>CONTROL OF POLICY IMPLEMENTATION INSTRUMENTS</th>
</tr>
</thead>
</table>
| Presidential Secretariat | • Ensure proper management of relevant policies/Programmes/Action Plans  
• Give appropriate guidelines to relevant organizations | • Change of policies by Ministries/organizations/institutions  
• By encouraging national programmes  
• Speaking on behalf of the Government on issues related to sustainable city development | • Policy statements  
• Concise National Action Plans  
• Evaluated implementation performance | • Monitoring skills  
• Skills for overall impact assessment of programmes and projects  
• Coordination skills | • Through Executive Presidency  
• Performance review and evaluation  
• Policy guidelines control through the Presidential for Urban Development |
<table>
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<tr>
<th>NAME OF STAKEHOLDER</th>
<th>MANDATE &amp; RESPONSIBILITIES</th>
<th>ENVIRONMENTAL CONCERNS</th>
<th>AVAILABLE INFORMATION</th>
<th>AVAILABLE EXPERTISE</th>
<th>CONTROL OF POLICY IMPLEMENTATION INSTRUMENTS</th>
</tr>
</thead>
</table>
| Ministry of Forestry & Environment (MFE) | • Policy formulation on Forestry and Environment  
• Guidelines given to other relevant agencies on sustainable environment  
• Negotiate for donor assistance  
• Coordination with relevant NGOs  
• Implementation of projects and the Master Plan on Forestry  
• Marco-decision making on environment | • Influencing policy making by other relevant ministries on environment as a whole  
• Influencing development activities (positive/negative)  
• Supporting planning/designing of natural/built environment  
• Through special projects (e.g., E A I P)  
• Through research findings of the MFE affiliated studies  
• Effect on tourist industry which would affect the economy of families  
• Preserving and maintaining adequate and suitable forest resources for amelioration of local climatic conditions, conservation of soil and water resources which are extremely important to the community | • Environmental resources  
• Environmental hazards  
• Overall management tools required for environmental management (updating required)  
• Policy documents/Research findings  
• Information on -Performance levels  
-Regulatory activities for which the MFE is responsible  
• National/local planning exercises (NEAP, NAREPP, etc)  
• Information on NGOs, engaged in environmental activities  
• Forestry Master Plan actions | • Environmental planning/designing  
• Regulatory/Legal Expertise  
• Project management | • Through CEA, Conservator of Forests, State Timber Corporation activities etc.  
• Through LAs (Environment Protection Licensing)  
• Through Project Approving Agencies  
• EIA process  
• Delegation of powers to LAs  
• Through International Convention requirements  
• National Action Plans and agreed strategies  
• Policy formulation and contribution to overall sustainable environmental development  
• Through NGO interventions supported by the MFE |
<table>
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<tr>
<th>NAME OF STAKEHOLDER</th>
<th>MANDATE &amp; RESPONSIBILITIES</th>
<th>AVAILABLE EXPERTISE</th>
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| Ministry of Finance (MOF) | - Logically assess financial requirements with refinance to initiate plans/strategies etc.  
- Act as a source of funding, reviewing and financing  
- Negotiate for foreign assistance  
- Overall monitoring and reporting to the authorities and donor agencies | - Through financing projects affecting communities  
- Negotiating foreign assistance  
- Assisting policy formulation for the sector | - Financial & Technical assistance needs of the sectors  
- Availability of capacities, assistance and other results  
- Overall plans for environmental development  
- Budgetary provisions for the sector  
- Basic performance levels  
- Government policy on urban development and strategies  
- Foreign assistance availability | - Expertise related to planning foreign funding and budgeting  
- Through interventions by planners, budgetary, foreign assistance negotiations etc.  
- Influencing PIP & CIP preparation |
## Importance of Each Major Stakeholder in City Environment Activities

<table>
<thead>
<tr>
<th>Name of Stakeholder</th>
<th>Mandate's Responsibilities</th>
<th>Environmental Concerns</th>
<th>Available Information</th>
<th>Available Expertise</th>
<th>Control of Policy Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Shipping, Ports Rehabilitation (MSPR)</td>
<td>For planning designing, implementation of activities, reviewing projects/programmes related to Shipping Ports &amp; Rehabilitation</td>
<td>Pollution caused by the Port of Colombo affecting the coastal areas/sea front</td>
<td>Arrival, departures of vessels (time schedules, waiting time, servicing, oil and waste disposal etc.)</td>
<td>Engineering, Computer, Communication, Navigation</td>
<td>Negligible Control on the city environment, Authority for Port related environment</td>
</tr>
<tr>
<td>NAME OF STAKEHOLDER</td>
<td>MANDATE &amp; RESPONSIBILITIES</td>
<td>ENVIRONMENTAL CONCERNS</td>
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</table>
| Ministry of Industrial Development (MID) | • Policy formulation for industrial development  
• Support industrial development  
• Resource management in the industrial sector  
• Adhering to the NIPMS - 1996  
• Coordination with relevant Project Approving Agencies | • Minimize environmental damage due to industries  
• Balancing the development and environmental sustainability  
• Influence on basic physical needs of people living near industrial areas (ground water, air, noise, housing etc.) | • On location, type, activities products, markets, technology in industries etc.  
• Environmental degradation caused by industries  
• Needs of the industrialists to alleviate environmental problems | • Macro Planning  
• Technical expertise in some fields (Mineral & Mines Bureau, CISIR, NIEM etc.) | • EIA Process  
• EPL Process  
• Board of Investment (BOI) rules/regulations  
• Project Approving Agency cooperation  
• Through National Industrial pollution Management Strategy (NIPMS) 1996  
• Incentives  
• Regulatory systems |
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<th>NAME OF STAKEHOLDER</th>
<th>MANDATE &amp; RESPONSIBILITIES</th>
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<tr>
<td>Ministry of Transport and Highways (MTH)</td>
<td>• Provision of affordable transport facilities to all areas in Sri Lanka</td>
<td>• High level of air and noise pollution</td>
<td>• Commuter population</td>
<td>• Transport management</td>
<td>• Through Departments and Regional Transport Boards</td>
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<td></td>
<td>• Servicing production, activities etc.</td>
<td>• Congestion and its environmental and economic impacts</td>
<td>• Availability of transport facilities CTB, railways etc.</td>
<td>• Research / Construction Maintenance</td>
<td>• Operational activities such as registration, licensing, court actions</td>
</tr>
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<td></td>
<td>• Minimizing environmental pollution</td>
<td>• Need to integrate activities of transport/highways sectors for efficient &amp; effective service, while protecting the environment.</td>
<td>• Congestion/parking needs/facilities</td>
<td>• Mechanical expertise (railway bus, highway)</td>
<td>• Projects to alleviate problems (e.g. SWE Road Project)</td>
</tr>
<tr>
<td></td>
<td>• Timely operations</td>
<td>• The effects on activities of the community due to high pollution levels created by the transport/highway sector</td>
<td>• Air pollution/noise pollution levels</td>
<td>• Planning</td>
<td>• Planning for integrated transportation</td>
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<td></td>
<td>• Monitoring Private Sector transport systems</td>
<td>• Influence on private sector transportation systems</td>
<td>• Foreign funding needs/availability for projects</td>
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<td></td>
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<td>• Accidents and economic impacts</td>
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<td>NAME OF STAKEHOLDER</td>
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</tbody>
</table>
| Ministry of Housing & Urban Development (MHUD) | - Sustainable urban development  
- Regulatory activities to create favorable environments  
- Policy formulation for built environment  
- Assist LAs and other relevant agencies in UDA related activities  
- Housing development (NHDA)  
- Water supply, drainage, low-lying area reclamation etc. (SLLRDC)  
- Supporting urban settlements (CSP/USDP) | - By upgrading built environment  
- Through influencing relevant policies  
- Slum/shanty and other undeserved areas, specially in CMC & DMMC areas at residential level (CAB), housing financing (HDFC) building material supply (BMC) and similar sectoral activities  
- Involving in Projects Programmes based activities with/without donor assistance  
- Negotiate for donor assistance for relevant sectors.  
- Researching/Upgrading usage of technical talents (NBRO/ICTAD) | - Volume and extent of problems (Resources use, Environmental hazards etc.)  
- Management tools required for development (Maps, Plans, statistics, international and national strategies etc.) (Updating required)  
- Policy documents  
- Information on performance levels  
- Regulatory information  
- Futuristic projections on environment  
- Resource bases | - Planning  
- Executing  
- Coordinating  
- Reviewing  
- Technical skills (architectural, mapping, basic GIS etc.) available with organizations under purview | - UDA “declared areas”  
- Regulations  
- Involvement in decision making at the implementation stage (Local Authority, Projects Ministerial and Presidential Task Force (PTF) levels)  
- Involvement in City planning  
- Coordinating/Steering Committees for projects/programmes  
- Through budgeting |
<table>
<thead>
<tr>
<th>NAME OF STAKEHOLDER</th>
<th>MANDATE &amp; RESPONSIBILITIES</th>
<th>ENVIRONMENTAL CONCERNS</th>
<th>AVAILABLE INFORMATION</th>
<th>AVAILABLE EXPERTISE</th>
<th>CONTROL OF POLICY IMPLEMENTATION INSTRUMENTS</th>
</tr>
</thead>
</table>
| Ministry of Fisheries & Aquatic Resources (MFAR) | • Arrange for logical exploitation of fisheries and aquatic resources  
• Take action to conserve, preserve and protect threatened species  
• Ensure affordable priced fish  
• Development of training facilities  
• Welfare of the fishing community | • Prevention, conservation and development of marine and inland fisheries without creating a threat to the environment  
• Trans-boundary interventions on fishing  
• Fisheries as a polluter | • Aquatic / marine resource base  
• Future projections  
• Personnel availability  
• Training needs in the sector | • Fisheries & other marine ecology related sciences  
• Planning  
• Coordination / presentation of environmental issues  
• International support base | • Budgeting for activities  
• Foreign funding  
• The law, rules and regulations  
• Through organizations under the purview of the MFAR |
<table>
<thead>
<tr>
<th>NAME OF STAKEHOLDER</th>
<th>MANDATE &amp; RESPONSIBILITIES</th>
<th>ENVIRONMENTAL CONCERNS</th>
<th>AVAILABLE INFORMATION</th>
<th>AVAILABLE EXPERTISE</th>
<th>CONTROL OF POLICY IMPLEMENTATION INSTRUMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Health &amp; Indigenous Medicine (MHIM)</td>
<td>• Maintenance of better health facilities</td>
<td>• Health infrastructure development to suit urban needs</td>
<td>• Diseases and acuteness/periodical eruptions</td>
<td>• Medical personnel</td>
<td>• Health related regulations</td>
</tr>
<tr>
<td></td>
<td>• Infrastructure development for better health</td>
<td>• Enhancing high level of family health/community health</td>
<td>• Available treatment/medicines</td>
<td>• Para medical personnel</td>
<td>• Institutional facilities</td>
</tr>
<tr>
<td></td>
<td>• Use of participatory methods for grassroots level health and sanitation development</td>
<td>• Supplementing health standards by research findings</td>
<td>• Health/medical institutions</td>
<td>• Specialists</td>
<td>• Special programmes during epidemics</td>
</tr>
<tr>
<td></td>
<td>• Reducing the vulnerability of epidemics</td>
<td>• Development of a healthy environment through appropriate systems</td>
<td>• Future projections related to health activities</td>
<td>• Research</td>
<td>• Infrastructure development to maintain better health standards</td>
</tr>
<tr>
<td></td>
<td>• Regulating built environment to assist high standards of health</td>
<td>• By managing the national health institutions and supporting the PC health institutions</td>
<td>• Preventive/curative services</td>
<td>• Indigenous health personnel</td>
<td>• Mobile services</td>
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<td></td>
<td></td>
<td></td>
<td>• Personnel</td>
<td></td>
<td>• Community participatory programmes</td>
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<td></td>
<td></td>
<td>• Research</td>
<td></td>
<td>• Training and education</td>
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<td>NAME OF STAKEHOLDER</td>
<td>MANDATED RESPONSIBILITIES</td>
<td>ENVIRONMENTAL CONCERNS</td>
<td>AVAILABLE INFORMATION</td>
<td>AVAILABLE EXPERTISE</td>
<td>CONTROL OF POLICY IMPLEMENTATION INSTRUMENTS</td>
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<tr>
<td>Ministry of Vocational Training and Rural Industries (MVTRI)</td>
<td>- Attract otherwise unqualified persons for technical employment after giving them a vocational training</td>
<td>- Availability of training opportunities for the public</td>
<td>- Vocational Training courses</td>
<td>- Trainers</td>
<td>- Through training units</td>
</tr>
<tr>
<td></td>
<td>- Assist poverty alleviation by intervening in training of deserving individuals</td>
<td>- Potential employment generation</td>
<td>- Potential employment opportunities</td>
<td>- Vocational expertise</td>
<td>- Surveying on employment opportunities</td>
</tr>
<tr>
<td></td>
<td>- Side effects of income generation and the impact on environmental rehabilitation</td>
<td></td>
<td>- Training needs</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>- Available foreign assistance</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>- Information on rural industries, industrial development</td>
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<tr>
<td>Environment development</td>
<td>Policy formulation for the country</td>
<td>Policy documents</td>
<td>Planning</td>
<td>Law/Regulations</td>
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<tr>
<td>Sustainable human settlements development</td>
<td>PIP/CIP interventions</td>
<td>Action Plans</td>
<td>Organizing</td>
<td>Delegated agencies</td>
<td></td>
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<tr>
<td>Policy formulation</td>
<td>Productivity</td>
<td>Performance levels</td>
<td>Coordinating/Reviewing</td>
<td>Coordination</td>
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<tr>
<td>Necessary information upgrading</td>
<td>Poverty alleviation</td>
<td>Volume of problems</td>
<td>Legal</td>
<td>Budgeting/financing</td>
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<tr>
<td>Negotiation for financing</td>
<td>Technological upgrading</td>
<td>Management tools</td>
<td>Research</td>
<td>Institutional interventions</td>
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</tr>
<tr>
<td>Controlling degradation by preservation conservation, regulation</td>
<td>Awareness creation</td>
<td>Regulatory information</td>
<td></td>
<td>International Conventions/Agreements</td>
<td></td>
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<td></td>
<td></td>
<td>Budgetary provisions</td>
<td></td>
<td>NGO/CBO participation</td>
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<td>NGOs</td>
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<td>Incentives</td>
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<td>Training/Education</td>
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<tr>
<td>Influence on</td>
<td>Policy formulation</td>
<td>On</td>
<td>On</td>
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<td>- Spokesman for people's concern on environment</td>
<td>- Programme development</td>
<td>- NGO Strengths/Weaknesses</td>
<td>- Legal</td>
<td>- Legal interventions</td>
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<tr>
<td>- Organise public for pro-environment development activities</td>
<td>- Assist projects</td>
<td>- Contact points (National/International)</td>
<td>- Research</td>
<td>- Coordinated activity</td>
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<tr>
<td>- Undertake environment development activities</td>
<td>- Assist awareness creations</td>
<td>- Field activities</td>
<td>- Organising</td>
<td>- Public sector</td>
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<td>- Awareness creation on environmental issues</td>
<td>- Maintain higher level of environmental standards</td>
<td>- Participatory behavior of stakeholders</td>
<td>- Legal</td>
<td>- Participation in activities</td>
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<tr>
<td>- Assist relevant government activities to formulate environmental friendly activities</td>
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<td>- Media interventions</td>
<td>- Training</td>
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<td>- Information collection to support environmental upgrading</td>
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<td>- Workshops/Seminars Conferences</td>
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<td>MANDATE &amp; RESPONSIBILITIES</td>
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<td>Influence on</td>
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<tr>
<td>• Industrial production</td>
<td>• Clean air</td>
<td>• Policy guidelines on</td>
<td>• Planning</td>
<td>• Implementation of guidelines</td>
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<td>• Trade/ Commerce</td>
<td>• Clean water</td>
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<td>• Organizing</td>
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<td>• Performance levels of</td>
<td>• Coordinating and</td>
<td>• Chambers of Commerce/Trade/</td>
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<td>• Research</td>
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<td>• Technological upgrading</td>
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<td>• Financial</td>
<td>• Awareness creation among the</td>
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<td>management</td>
<td>business/industrial community</td>
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<td>• Use of environmental</td>
<td>• Technological</td>
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<td>friendly mechanisms in</td>
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<td>business activities</td>
<td>• Awareness creation</td>
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<td></td>
<td>• Development of</td>
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<td></td>
<td>environment related</td>
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<td>information</td>
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<td>• Develop acceptance</td>
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<td>of environmental</td>
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<td>upgrading</td>
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<td>• Public responses to</td>
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<tr>
<td></td>
<td>business activities</td>
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<tr>
<td>• Clean environment</td>
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<tr>
<td>• Establish environment</td>
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<tr>
<td>friendly service</td>
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<tr>
<td>infrastructure</td>
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Table 4.4
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ENVIRONMENTAL CONCERNS</th>
<th>AVAILABLE INFORMATION</th>
<th>AVAILABLE EXPERTISE</th>
<th>SOURCES OF FUNDING</th>
<th>IMPLEMENTATION INSTRUMENTS</th>
<th>PARTICIPATORY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Direct construction of living accommodation</td>
<td>• Better housing facilitation</td>
<td>• Housing stock</td>
<td>• DGM (Urban Housing)</td>
<td>• Government Budget</td>
<td>• Lending systems</td>
<td>• National Level - (Private sector/Govt. sector) coordination at MHUD Govt./PTF</td>
</tr>
<tr>
<td>• Formulate schemes to alleviate housing shortage</td>
<td>• Development of service infrastructure</td>
<td>• Housing need projections</td>
<td>• Coordinating Managers and Provincial Managers, inclusive of District Manager (Colombo City)</td>
<td>• Charges/fees etc. collected by NHDA</td>
<td>• Urban Housing Programme 1.5 Mil: Houses Program</td>
<td></td>
</tr>
<tr>
<td>• Promote housing development</td>
<td>• NGO, CBO, private sector involvement in environmental activities with the LAs</td>
<td>• Land availability</td>
<td>• Engineers</td>
<td>• Donations/Grants received by the NHDA</td>
<td>• Community Action Planning methodologies</td>
<td></td>
</tr>
<tr>
<td>• Make available land for housing</td>
<td></td>
<td>• Legal information</td>
<td>• Building and development experts</td>
<td>• Loans/grants/aid from donors</td>
<td>• Community Resources Units/CBOs</td>
<td></td>
</tr>
<tr>
<td>• Provide relevant assistance to housing developers</td>
<td></td>
<td>• Technical information</td>
<td>• Property development and management experts</td>
<td>• National Housing Fund</td>
<td>• Community building guidelines</td>
<td></td>
</tr>
<tr>
<td>• Coordinate housing development activities</td>
<td></td>
<td></td>
<td>• “Sevana” Account</td>
<td>• Rehabilitation funds</td>
<td>• NHDA rules</td>
<td>• LA Level - Coordination through Housing and Community Development Committee (HCDC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sale of fixed assets, houses etc.</td>
<td>• “Sevana” Account</td>
<td></td>
<td>• At settlement level with NGOs/CBOs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Housing Development and Finance Corporation</td>
<td>• Sale of fixed assets, houses etc.</td>
<td></td>
<td>• Coordinating of Community Development Councils</td>
</tr>
</tbody>
</table>
## Organization - Urban Development Authority (UDA)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Environmental Concerns</th>
<th>Available Information</th>
<th>Available Expertise</th>
<th>Sources of Funding</th>
<th>Implementation Instruments</th>
<th>Participatory Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare urban development policies etc.</td>
<td>Building infrastructure service concern (special built environment)</td>
<td>All relevant information required for urban development (Eg., population, lands, floods, industries, projections on development needs etc.)</td>
<td>Planners</td>
<td>UDA funds</td>
<td>Influencing policy developments through the Presidential Task Force (PTF)</td>
<td>Presidential Secretariat level in the PTF for Urban Development</td>
</tr>
<tr>
<td>Planning of integrated development projects in UDA declared Urban Areas</td>
<td>Involvement in other projects with environmental concerns</td>
<td>Urban development funding in Sri Lanka and other countries</td>
<td>Designers</td>
<td>Government grants</td>
<td>Delegation of authority to LAs</td>
<td>Ministry level in policy formulation, raising finances and advisory roles</td>
</tr>
<tr>
<td>Develop environmental planning &amp; building standards</td>
<td>Policy concerns with the government</td>
<td>On LAs (Development needs, potential, demand etc.)</td>
<td>Architects</td>
<td>Funds generated by exercise of UDA powers/duties</td>
<td>Direct execution of projects (Eg., USDP)</td>
<td>At Provincial level working with the PCs and LAs</td>
</tr>
<tr>
<td>Execute urban development projects/schemes (Eg., housing)</td>
<td></td>
<td>Technical capacity requirements of line organizations &amp; LAs</td>
<td>Development regulations expertise</td>
<td>Loans</td>
<td>Contributing to other projects Eg., CSP</td>
<td>Grassroot level in advising LAs and public on development norms, projects rules, regulations etc.</td>
</tr>
<tr>
<td>Regulate urban development</td>
<td></td>
<td></td>
<td>Project formulation, evaluation implementation expertise</td>
<td>Donations</td>
<td>UDA Regulations application in declared areas</td>
<td>With private sector on urban development projects Eg., BO Industrial projects etc.</td>
</tr>
<tr>
<td>Undertake slum clearance &amp; redevelop shanty areas</td>
<td></td>
<td></td>
<td>Land use experts</td>
<td>Foreign assistance/grants/loans</td>
<td>Interventions in planning process of LAs</td>
<td></td>
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<tr>
<td>OBJECTIVES</td>
<td>ENVIRONMENTAL CONCERNS</td>
<td>AVAILABLE INFORMATION</td>
<td>AVAILABLE EXPERTISE</td>
<td>SOURCE OF FUNDING</td>
<td>IMPLEMENTATION INSTRUMENTS</td>
<td>PARTICIPATORY LEVEL</td>
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<tr>
<td>• Develop, provide operate &amp; control an efficient and coordinated water supply &amp; distribute water</td>
<td>• Flood impacts</td>
<td>• On water and resources</td>
<td>• Planning and designing</td>
<td>• Foreign assistance</td>
<td>• Direct service delivery system</td>
<td>• National Level (PTF/MHUD)</td>
</tr>
<tr>
<td>• Establish, develop, operate &amp; control an efficient coordinated sewerage system</td>
<td>• Quality of water</td>
<td>• Demand/Supply of water</td>
<td>• Construction maintenance</td>
<td>• Finances raised by services rendered to the public &amp; LAs</td>
<td>• Service delivery through LAs</td>
<td>• With institutions Eg, UDA/LAs</td>
</tr>
<tr>
<td></td>
<td>• Health of the living environment</td>
<td>• Technical capacity of LAs</td>
<td>• Special Projects management with foreign assistance</td>
<td>• Treasury funds</td>
<td>• Special Projects</td>
<td>• With CBOs (minimally)</td>
</tr>
<tr>
<td></td>
<td>• Sea outfall effects on population</td>
<td>• Sewage projections, demand for services etc.</td>
<td>• Regulatory</td>
<td></td>
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<tr>
<td>OBJECTIVES</td>
<td>ENVIRONMENTAL CONCERNS</td>
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<tr>
<td>• Reclaim &amp; develop low-lying areas and conserve areas declared as flood detention/retention areas</td>
<td>• Coordination with NHDA under Greater Colombo Flood Control &amp; Canal Development Programme</td>
<td>• Location of low lying areas</td>
<td>• Planners</td>
<td>• Marginal funds from Treasury</td>
<td>• Development of sustainable canal systems through projects</td>
<td>• In national organizations Eg. UDA/PTF</td>
</tr>
<tr>
<td>• To keep in custody, management, control, pending such reclamation &amp; development of lands vested in the SLLRDC</td>
<td>• Liase with private sector developers, BOI projects etc. for development of lands vested in SLLRDC</td>
<td>• Location of relevant sectoral activities in low lying and other areas</td>
<td>• Designers</td>
<td>• Generated revenue</td>
<td>• Projects to “create” new lands within a flood free environment</td>
<td>• At Ministry level in various coordinating/steering committees on urban land use/development</td>
</tr>
<tr>
<td>• Undertake construction works and consultancy assignments in areas other than the declared areas</td>
<td>• Flood control</td>
<td>• Market valuation of lands</td>
<td>• Engineering skills</td>
<td>• Foreign assistance</td>
<td>• “Creation” &amp; maintenance of inland waterways comprising of canals, reservoirs, tanks</td>
<td>• Inter-institutional arrangements- Eg. with UDA private sector</td>
</tr>
<tr>
<td>• Carryout environment/social development activities</td>
<td>• Balancing environment and development efforts in a sustainable manner</td>
<td>• Land demand projections</td>
<td>• Project designing and implementaion skills</td>
<td></td>
<td>• Assisting housing development</td>
<td>• NGO/CBO participation</td>
</tr>
<tr>
<td></td>
<td>• Information on environmental hazards in low lying areas</td>
<td></td>
<td>• Construction skills</td>
<td></td>
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<td>• Rational exploitation of fisheries/aquatic resources</td>
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<td>• Environmental information management</td>
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<td>• Regulation of environment to permit rational exploitation of natural resources</td>
<td>• Rational exploitation and conservation of wildlife</td>
<td>• Technical</td>
<td>• Generated revenue</td>
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| Colombo Environmental Improvement Project (CEIP)            | (a) Solid waste disposal  
(b) Contamination of ground and surface water (Beira Lake Included)  
(c) Discharge of untreated waste water from industries |
| Clean Settlements Project (CSP)                             | (a) Macro-urban development programmes through macro development plans/projects  
(b) Community based participatory project formulation  
(c) Partnership building  
(d) Improve housing, service infrastructure, financial capabilities, health, sanitation, education and urban environment.  
(e) Arranging commercial development of urban lands |
| Colombo Metropolitan Regional Structure Plan (CMRSP)        | (a) Increase economic activity/employment  
(b) Improve natural/built environment  
(c) Assist decentralization of management  
(d) Develop information on housing |
| Greater Colombo Flood Control and Environment Project       | (a) Develop flood controlling activity  
(b) Improve environment |
| Water & Sanitation Project Phase IV                         | (a) Improve water supply  
(b) Improve sanitation conditions |
| Rehabilitation of Water Transmission and Distribution System| (a) Reinforcement of the Greater Colombo Water distribution system, mainly in Ratmalana & CMC areas.  
(b) Scraping & cement mortar lining of Greater Colombo transmission mains and distribution system |
4.1.4 Provincial Government

The WPC is the main sub-governmental organization which takes an important interacting position in sustainable city development. The legal authority for such interactions arises as a consequence of the 13th Amendment to the Constitution, made in 1987. According to the constitutional provisions there are three Lists (I, II & III) which demarcate the subject areas on a functional/subject basis, which appear as Schedules to the Constitution. Please See Annex 1. It is observed in it that there are several direct and indirect activities managed by the WPC. E.g. Local Government, Health, Education etc. which are relevant to the development of sustainable cities in the Project Area. Out of these sectors, the Local Government sector plays a key role in sustainable city development as most of the environmental activities in cities are the responsibilities of LAs. The Municipal Councils Ordinance details the operational functions of MCs. Basically, the MC functions and responsibilities are to ensure that the city environment is kept at a higher standard. It ranges from managing of drains and sewerage systems, doling out public assistance, assist flood victims when floods occur, undertake roads and thoroughfare development and even to air pollution, which cuts across even to other adjoining MC areas.

As stated in 4.2 of List I in Annex 1, the PC is the supervisory authority for LAs and hence direct relevance of the PC to LA activities emerges. However, as seen in List II, the National Policy on Local Government is a function of the government and hence the interactions between the PC and the government become important. Under Article 154 R of the Constitution of SL, Finance Commission provides funds for PC activities and that too gives a hold to the government to indirectly control the LAs, thus city development. Since the Ministry of Provincial Councils and Local Government (MPCLG) is the central authority which can influence resource supply (manpower, finances, machinery etc.) to the PCs and LAs (MCs), the "paternal" role played by the MPCLG has to be noted in that context. Political differences between the Government & WPC may make these fatherly concerns "step fatherly". However, it is noted that prioritization of projects in the process of budgeting is been done at the LA level and hence the political side effects can take place only if discrimination takes place in the finalisation of the total budget for the LA sector.

It is relevant here to identify the way how the WPC coordinates with the MCs. The Minister of Local Government is the most senior politician who has legal authority over MCs. The Provincial Commissioner of Local Government (PCLG) is the office that administratively deals with LAs/MCs. Although the
Divisional Secretary has been considered as Assistant Commissioner of Local Government in some other Provinces, the Western Province has not adhered to that working arrangement. Therefore, his intervention on MC activities is not applicable to the Project Area. Many interventions with the Divisional Secretariats are direct and do not create legal issues. However, for political reasons, it is not uncommon to find various meetings, at which even the Provincial Minister of Local Government would have a dialogue with Mayors/Chairmen and officials of LAs. The normal administrative tools such as reports, review meetings, auditing, powers to take action against Mayors/Chairmen etc. are normally used to coordinate, control and review performance.

4.1.5 Municipal Councils

The three MCs function under the Municipal Councils Ordinance. It is noted that a new Statute has not been passed by the PC for MC administration. Therefore, the powers, responsibilities, duties etc. as envisaged under the MC Ordinance are applicable. The MC authorities seem to have failed in convincing the relevant authorities (PC & Government) regarding the necessity to change certain legal provisions, which would benefit the MCs. Theoretically, the management arrangements are simple. The Council is the apex body in all three MCs. The municipal administration is a part of the Provincial Public Service. The citizens are represented in the Council by members. See Fig.4.1 However, due to many reasons, the hierarchical order in dealing with problems is not observed. Direct interventions by citizens with the Council or Councillors is a common phenomenon, which has sometimes embarrassed the officials.

Figure 4.1

RELATIONSHIP IN MUNICIPALITIES

\[
\begin{array}{c}
\text{MUNICIPAL COUNCIL} \\
\downarrow \\
\text{MUNICIPAL ADMINISTRATIONS} \\
\downarrow \\
\text{CITIZENS}
\end{array}
\]
Although this simplistic management setting on municipal affairs is shown, there are various other complex situations arising out of formal and informal organizational structures and behaviors in performing their functions in the open environment. As for formal behavior/structure, one can point out the various Standing Committees of the MCs. The Standing Committees differ in number from MC to MC. CMC has fifteen whereas KMC has nine. More important are the Finance, Planning and Health Committees. Since all political parties are represented in them, a political dialogue is also observed in the Standing Committee process. The regrettable situation arises when these Standing Committees are made use of to discuss individual issues than policy or guidance.

Some informal arrangements are the HCDC, Expert Groups etc. The HCDC has been an influential arrangement for coordination and to rouse enthusiasm at some stage of municipal administration. It has been so due to political motivations. Further, the combined efforts of the peoples' organizations and officials could be appreciated due to the establishment of the HCDC. The Experts Groups to advise the MCs have been established in CMC, under the initiation of the present Mayor. Here, too, its strength will lie on the interactions, coordination and political acceptability, rather than on the membership. It is noted that both these mechanisms are prominent in the CMC area only. For informal behavior/structures, one can show the political groupings. "Division Days" held by the Mayors or public day "interviews" with electors/tax payers, direct and indirect interventions by parliamentarians etc. The more complex management environment setting is shown in Fig 4.2

Figure 4.2
EXTERNAL ENVIRONMENT IN MUNICIPAL MANAGEMENT
**Fig. 4.2** shows that the interactions are vivid and depicts a situation where everyone interacting with each other. It may look unbelievable. However, it is the true status of affairs. There are positive and negative results due to this complex interactions. Especially, when different political groups are engaged in controlling supervision municipal authorities, the political influences may affect funding, engagement of personnel, approving work programmes etc. Further, since the government contributes to the establishment costs of the MCs, the Councils have to abide by the main stipulations of the government on recruitment, payment of salaries, contracting and procurement systems etc. The private sector, NGOs, CBOs etc. have different objectives in dealing with municipal authorities. The influence on service delivery by MCs is definitely connected with the performance of statutory authorities. The role of media can create awareness, citizens’ participation, as well negative responses and would affect the performance of MCs.

### 4.1.6 The Popular Sector

The popular sector involvement in the Project Area is observed through NGO and CBO interactions with the community. LAs and other outside organizations, NGO groups, interactions are seen at various levels. At the activity sector level (e.g. Pavement Hawkers, Manning Market Vegetable Sellers) in government/PC-owned organizations (E.g. Hospital Committees) in money transactions (E.g. Thrift and Credit Cooperative Societies (SANASA), other savings groups) and sometimes affiliated to other ongoing structures, such as Multipurpose Cooperatives, Cooperative Rural Banks etc. Also the middle and upper middle class oriented sports and recreation organizations are non-governmental bodies, which matter in environmental/social sustainability in cities. One important observation on NGO interaction is that many NGOs are more like spokesmen than participants in the creation of sustainable cities. Even SANASA which has seeped down to grassroots in the rural areas has not performed so dynamically in the city areas.

However, in fairness to some organizations, it must stated that some of the CBOs/NGOs have actively participated in city development activities, e.g. CDCs in CMC area. The normal political influence on CDCs is unavoidable. It may not have been intentional. Although there is a well organized funded groups of NGOs to support sustainable city development, in operation, such a group system is not in the forefront. Instead, it is observed that individual contacts are made with such networks on a scattered and unorganized manner. An umbrella organization of CDCs was thought of in the past, but was never established as a strong group of NGOs. The local NGO apex...
organizations have not been engaging in comparably large projects in the 
process of city development, although isolated efforts have been made.

In addition, formal and informal influences are brought about through 
political organs, which can be considered as politically motivated NGOs. 
The contributions and impacts of these organizations in maintaining and 
developing sustainable city environments have not been exceptionally 
rewarding, due to very obvious social and political stratification of 
organizations as well as shortage of resources, participation and 
commitment to be dynamically operative. Sometimes, such politically 
motivated popular sector has been responsible for improper use of resources 
(especially land) as observed in location of certain housing schemes, 
constructed by semi-government authorities.

However, the CBOs have been an important arm which linked the 
managerial authorities with the community, especially in the so-called "low-
income" settlements. Their contribution to action planning programmes in 
the past years has been satisfactory. The number of Community 
Development Councils (CDCs) the leading CBO organizations in CMC area, 
has been reduced to about 50 or less from around 400 or more, which 
existed some years back. They were the "Low income settlement" level 
citizens' organizations, that played the role of spokesmen of the people. The 
CDCs were involving in representing issues of importance to authorities, thus 
contributing to the planning and prioritizing processes. As they were 
represented at the HCDC meeting, it was possible for them to have a 
dialogue with other relevant stakeholders. The withdrawal of government 
support (especially from NHDA) has been a main cause for the weakened 
performance of the CDCs at a later stage.

Grouped private sector activities in the creation of sustainable city 
environments have not been so largely active in the Project Area. However, 
the Pavement Traders' Association and the Manning Market Vegetable 
Traders' Association are some of the organizations, which are operative. The 
interests of the Chambers of Commerce have been on much advanced 
business ventures. However, their interests are not necessarily limited to the 
Project Area always. For example, the Ceylon Chamber of Commerce and 
National Chamber of Commerce are apex organizations, expanding their 
activities through out the country. At the same time the Pavement Traders' 
Association has a limited area of concern, namely the heartland of the city 
of Colombo. Similarly, the Manning Market Vegetable Traders' Association 
looks after the interests of the vegetable traders.
Although these organizations are not extremely powerful to make great policy changes, they are an important sector, who keep the needs of the city dwellers' and the migratory population fulfilled. Further, many persons who are living in the underserved settlements are engaged in the informal sector. These two Associations stand for them, in a way. Another organized informal sector group is found in the Labour Co-operatives. The planning/implementation processes up to now do not permit much integration among these organizations and city management authorities. This field status leads to the need to organize such integration at the field level. Occasional conflicts between the organizations are also reported. Sometimes even Police interventions have been mentioned. This lack of rapport, communication and cooperation had been due to attitudes, neglect and lack of importance given to such possible advantageous behavioral situations.

In addition to these operational NGOs, there are many advocacy NGOs in SL, who look at issues in a macro framework, such as migratory labour in the Middle East, women in development, abuse of children, anti-narcotic activities etc. In a background where poverty alleviation would help in a big way to create sustainability in cities, especially to alleviate the problems of social inequity, economic efficiency and sustainability, the contribution from whatever NGOs/ CBOs, and their relevant partners will be crucial. As the political implications of poverty alleviation are quite important, the inputs from political organizations also have to be viewed with respect.

4.2 THE CITY MANAGEMENT

The city management will be discussed under three main functions of management. They are as follows:

(a) Information and expertise
(b) Policy formulation
(c) Policy implementation

4.2.1 INFORMATION AND EXPERTISE

In a well planned management system, for urban managers to make things happen as planned, it is imperative that they do not lack information in the manner in which various events occur, within both the internal and the external organizational environments. These two situations can be described as the macro urban environment and micro urban environment.
The macro urban environment can be diagrammatically explained as shown here.

**Fig. 4.3**

Macro Urban Environment

The collection, management and use of information on these forces in the macro urban environment is not an easy task. The cultural trait of jealously guarding data and information one possesses, affects the information collection process. Due to various reasons, it is common to be confronted with biased data and information appearing on the tables of urban managers. The usage of new technological changes in data collection, processing of data, especially through computer systems application have not been well established or utilized to the maximum in the MCs of the Project Area.

It must be mentioned that some of these forces are acting in a manner detrimental to the development processes, which can be considered unfortunate. The conflicting situations between urban political forces or urban economic forces, lacking environmental planning, weak technological and technical backup etc., can be quoted as having negative impacts on sustainable city development. Thus, these have to be considered as creating issues of governance.

As observed in previous chapters, the natural environmental forces and their impacts have not been seriously assessed by all MCs in the Project Area, which has caused a shortage of correct information. The economic forces also are such, the challenges faced by the urban management setting become extremely complex. The estimations on employment, savings, etc.
economic activities", hidden economic consequences affecting the urban society etc. need more support and hence do not get incorporated into the available database. Since a large percentage of the population of CMC area are in the non-regularized, non-rate payer category, the impact on such population in the process of environment and infrastructure development has not been properly accounted by with the municipal authorities. This is not an isolated occurrence, as other two MCs also suffer from similar state of affairs.

The importance and the need to bring this category of citizens along with the regularized citizens in the cities cannot be overstated. It is due to the fact they will be a great force for revenue generation of MCs. Further awareness creation and resulting participatory activities involving them will be helping to maintain higher level of environmental standards in the cities. More than all that, it is a humanitarian act that these neglected citizens get a better deal in life, which would enhance the urban economies contribution to national efforts, creating equity in social relationships and develop the city environment.

The internal or micro urban environment in the urban management setting in the Project Area also lacks a better or higher level of information collection systems or management. Fig 4.4 below shows the major areas which could generate data and information within the urban management setting at the micro level.

**Fig. 4.4**

*Micro Urban Environment*
All the activities in Fig. 4.4 generate information, valuable to the management process. Unfortunately, in the Project Area, some activities e.g. Research and Development, production of services, etc. are very weak. Excepting the CMC, the other two MCs lack required management cadres to act on urban development needs, and hence do not generate positive performance information. For example, DMMC which has a fleet of about seventy-five vehicles has only one Mechanical Engineer. Only two draughtsmen are available to the MC. No veterinary surgeon is available. About 25% of the labour force is short. In such a situation one cannot expect the best of service or gathering of data for future planning purposes or day to day decision making.

The expertise for building and maintenance of sustainable cities cannot be achieved with the available specialist personnel in the Ministries, WPC or LAs. For example, there is only one Civil Engineer in the KMC. There is inadequacy of medical officers in the KMC. Even the DMMC lacks technically qualified staff. Even the government controlled national hospitals are congested. CMC is a little fortunate to have a larger percentage of required expertise in comparison to other MCs in the Project Area. However, it is noted that even the country is short of sanitary landfill construction engineers. While the solid waste management problem is deteriorating continuously. General capability shown for service delivery by the DMMC seems to be comparatively limited due to this weak situation, although dynamism is observed in the KMC, in spite of the weak resource information and expert resource bases it possesses. It is satisfying to note that organizations like UDA have released officers to assist city management, although UDA is also short of expertise on environment and community mobilization. Very little or nothing had been done to share whatever resources are available to MCs, to make the city environments sustainable.

As the MCs are under the WPC, it becomes the responsibility of the PC to strengthen the LAs - the three MCs. That is what is expected in theory of devolution of power and the legal expectations of the 13th Amendment to the Constitution of SL. However, it is noted that the power and authority for manpower, finances and statute making have been nullified by Governments after 1987 up to date, and due to lacking interest shown by the PCs to execute their legal demands for power sharing.
4.2.2 QUALITY OF INFORMATION

The value of information does not depend only on the collection and the sources created by activities in the urban management setting. It depends on the quality of information also. The more closely information represents reality, the higher the quality and greater the value for practical use. Collected data on the increase of urban underserved settlements, contaminated drinking water and ground water resources, quality of food, poverty situation in the urban environment etc. are not updated in a timely manner. The machinery to collect information to satisfy management needs is also not strong. So much so, attempts to plan out specific micro-projects in municipal areas have been delayed due to non-availability of various required information which has forced them to conduct new surveys and investigations. The experiences of the CSP can be quoted as an example.

4.2.3 ACCESSIBILITY TO INFORMATION

While appropriateness and timeliness in collection, analysis and interpretation of information is important, whether the available information is accessible to the urban management setting and personnel also becomes important. Having a large quantity of information which are not decision-related, would not satisfy the urban management. If sharing of information does not take place, time is wasted to reinvent information, available with other sources. The existence of a large amount of such information on the Project Area (especially on CMC) with the UDA, SLRDC, NHDA, etc. is sometimes not recognized by some authorities concerned with city development. Or at least the behavior of certain authorities reflects the knowledge gap existing among stakeholder organizations. Sharing of information and its value does not seem to have been recognized by various organizations. Further, monitoring and upgrading information not for the sake of upgrading, but to strengthen management decision-making has to be accepted by relevant organizations.

4.3 IDENTIFICATION OF POLICY ISSUES AND SUPPORT TO DECISION MAKING

The processing of information for urban decision making by experts and top management groups is summarized as shown in Fig. 4.5
However, it must be stated that the process is not so simple as shown in Fig. 4.5 above. The information as well as expertise are scattered geographically, institutionally and otherwise. It is vivid as observed in the form of activity sectors, environmental resources and hazards or outcomes. The complexity is further aggravated due to various institutions engaging in a mixture of activities. Therefore, the difficulties of having scattered information has to affect the planning, organizing, directing, staffing, coordinating, reviewing and budgeting functions. Therefore, the need to bring together the available information to enhance decision-making capacities has to be highlighted.

4.3.1 POLICY FORMULATION

Policy formulation is ensured according to an appropriate legal basis emanating from the Constitution of SL. The declaration of the national policy on any subject is a responsibility of the government. Therefore, urban environment related policy formulation process has become the responsibility of the MFE and MHUD. Further, some of the major organizations which matter in developing a suitable city environment (e.g. UDA, NHDA, SLLRDC, NWSDB, etc.) are controlled by the Government, as such their policies are centrally developed and controlled. Coordination of urban policy implementation is done by the MHUD, through various steering committees, reporting systems etc.
Although the MPCLG has the power and authority for national policy on Local Government and PCs, its weak technical capacity has not permitted making its presence felt with the government, donors or the private sector and to strongly participate in policy formulation on city development. Further, there is no competition between MHUD and MPCLG on this issue. So much so, almost all foreign funded projects (e.g. CEIP, CSP, Colombo Metropolitan Region planning process etc.) are attached to MHUD. In fact, the execution authority given to MPCLG on CEIP was suddenly withdrawn by the government and transferred to MHUD, perhaps due to MPCLG’s technical incapacities.

The authority to influence policy formulation at the LA level is in the hands of the WPC, since it is the legal authority to supervise MCs. Basic policy initiatives at the LA or MC levels emanate from the membership of the MCs. Since they are politically motivated, the political thinking of the party in power in the PC and the Government invariably influences those initiatives. It is unfortunate to note that the WPC’s capacity to formulate policies, execute them, coordinate, review and budget for activities etc. is low.

4.3.2 POLICY COORDINATION

The activity sectors in Chapter Two showed the complex nature of the environmental situation in the Project Area. Across development sector activities, it is observed that policy coordination is lacking. There are many examples where organizations had been passing the responsibility for the deterioration of environment to another, without formulating policies in a coordinated manner. The way how authorities react to instances where citizens are affected due to weak environmental management is a good example to gauge the situation. Generally, the blame for any failures are shifted to the MCs, who will blame the statutory authorities or the PC or the Government for not allocating funds. The way how many institutions act in the housing development activity for the poor is another example of unclear policies. More importantly, the lacking policy coordination between the private sector, the government/Local Government and NGO/CBO sectors has affected performance in many fields, such as housing, infrastructure development, servicing communities, etc. The Inter Agency Coordination Committees of the MFE look in to the performances of all environmental policies encompassing urban and non urban activities, but such interventions have not solved the problems of coordination.

The latest addition to institutional interventions is observed with the appointment of a Presidential Task Force (PTF) for urban development. It has
the ability to intervene in policy formulation implementation and even reformulation. The contribution of the PTF, based on the disciplines from which the PTF members have been picked up to be appointed, shows how far the PTF is infrastructure and urban planning bent. Although it is said that co-option of others is possible, there had not been even one instance of co-opting the Chief Minister of WPC or the Mayor or the Commissioner of any of the MCs in the Project Area in any of the deliberations held up to now. Such policy coordination, without the participation of the local level or provincial level government authorities etc. cannot be considered as practical, logical or feasible.

Since traditionally the activities required for sustainable city development are municipal functions, the coordinating role of the WPC has to be noted. However, the WPC also lacks the technical capability to exercise any such municipal service development. Some felt that CMC is more advanced in technical capacity than the WPC! Side stepping of the WPC by the centrally oriented government authorities in certain planning processes, as well as in coordination has been definitely due to the strength of the latter authorities in the possession of required information collected over the years, the expertise which is extremely scarce at the WPC level and the legal base on which they performed. The MHUD which controls many projects and programmes regarding city environment development coordinates them through Steering Committee mechanisms.

Further, the Director - General of External Resources as the agency taking the lead role in coordinating foreign assistance also coordinates policy issues. Policy formulation is more influenced by the way the National Planning Department considers the environmental issues in hand.

At the PC level also it is necessary to have a policy coordination mechanism as the supervisor of LAs, who undertake city development activities. However, due to deficiencies in expertise and even information, this has not been established to call it satisfactory. The establishment of an Environment Unit in the WPC, which could have coordinated many programmes has been overdue. As stated earlier, the HCDC was a meaningful mechanism for policy implementation and coordination. The performance of HCDC has been fluctuating depending on the political leadership given by the Mayors. The KMC and DMMC have not had strong organizational capacity for policy coordination and requires strengthening.

The public sector governed by the center has been "encroaching" (of course legally) into many activities of LAs as seen in the performance of CEB.
Further, as for financing of LA activities the Finance Commission depends on the Treasury, which is again a central authority. Hence, many of the policy formulation and coordination activities have to be dependent on the centre. Initiation of a bottom up approach by these authorities has been remote. The private sector has not been engaging in policy formulation for environment development in the cities, although they have contributed to beautifying the city. However, both the positive contribution by the private sector in the form of contracting for infrastructure development, housing development etc. and engagement in many other sector activities which negatively affect the sustainability of cities have to be reckoned with. Further, the potential for private sector engagement in many fields also has to be considered favorably.

The emerging thinking on solid waste management with private sector partnership under the CEIP seems to be one such new opportunity. The limited operation of solid waste management in Fort and Pettah areas being opposed by the Opposition members of CMC is a good example of contradictory behavior on narrow political grounds. It is so, as the present government has pledged to engage the private sector for solid waste management, whereas the supporters of the same political group oppose the same activity at the CMC. In the other two MCs private sector participation in the delivery of Municipal Services is not even discussed seriously. The popular sector participation in policy formulation has been observed mostly in CFA related activities, where a dialogue has been in existence on a continuous basis. The standing Committee system, which is applicable in case of Municipalities shows a large potential, if properly used.

Previously there had been the Ward system in all MCs in the Project Area. The new electoral system is based on proportional representation which has erased the Ward based development efforts. The current thinking of zoning of city land areas by the UDA for specific activities in the future is an appreciable move towards long range planning across city space. In the Project Area the potential for higher level of policy coordination seems to be feasible, since the KMC area can share some of its resources to satisfy the emerging needs of the other two MCs on one hand and the physical location and the size of the Project Area on the other.

The need to plan for policy coordination over a period of time becomes quite a reasonable suggestion, due to the emerging patterns of urbanization creating expansion of service delivery in the Project Area. With more powers being devolved to the Provinces, which seems to be the futuristic indication of governance, the coordination role of the WPC has to be well reckoned.
The need to devolve important activities related to city development to the WPC and LA levels will become the order in the future. The possibility of a Municipal Corporation managing the CMC and KMC areas in the future is also on the cards, taking the geographical area of "capital territory" in the new Devolution Package into consideration. However, the action taken to strengthen the local level will not be wasted, even after the establishment of a Municipal Corporation.

4.3.3 Policy Implementation

Implementation of city development policies is a responsibility of several organizations. The instruments which are and can be used for implementation of city development policies are discussed below. Since the national policy with regard to city development has main attractions to MHUD, MPCLG and MFE, at that level, those three Ministries look at policy implementation in their areas of activity. Further, they negotiate with foreign donors, coordinate activities at the national level, review the performance of policy implementation by their relevant line agencies and sub-national organizations and clear bottlenecks in project execution. The statutory agencies which undertake the policy implementation activity are many. However, the UDA, CEA, NHDA, NWSDB etc. are the main functionaries at the national level.

WPC has several organizations which function as the implementation arms for city development. The infrastructure development divisions, Local Government sector organizations and health sector institutions are in the forefront in these exercises. Under the supervision of the WPC, the three MCs in the Project Area undertake many responsibilities for city development. However, some of the national level organizations also coordinate and cooperate with the MCs and the communities in policy implementation for city development. Secondment of officers to the Planning Committees of LAs from the UDA can be shown as a means of constructive coordination and support.

There are many instruments which are used for policy implementation by these organizations. Since organizations at all three levels are administered at more or less in a similar manner, these instruments will be discussed as in common.

(a) The public awareness in city development is arranged at all three levels through an elected representative basis. Whether it is national, provincial or local government level, the political input for public awareness is important.
The constant interactions between the political authorities and the communities create awareness, awareness of rights, duties, obligations and societal needs. In special circumstances this is undertaken by special projects, e.g. CEP and its Awareness Programme. Due to media interactions public awareness is increased. However, as a rule what is highlighted in the media happens to be the weaknesses of service delivery, which has to change to a constructive system of responding. The fact that CEP has been delayed due to weak responses from the public may be interpreted as a result of weak public awareness building. One may counter argue that such protest is a reflection of proper awareness. Of course, not built up by the project but by other interested groups.

(b) The economic incentive mechanisms for city development is connected to the budgeting process at all three levels. Further, many national programmes have a serious impact on sustainable city development, as the area of operations are in the areas of water, sanitation, health, housing, poverty alleviation, etc. Therefore, some of the economic incentives given as subsidies, grants for city development, duty waivers, infrastructure facilitation, attraction of foreign investors etc. can be considered. The policy to develop hierarchical towns to ease the pressure on the Project Area can be quoted as an attractive incentive mechanism. The economic incentives given to industry, tourism etc. are not duplicated in city development investments, which has been one reason for lagging private sector participation. The failure of the available incentives for urban development is well proved by the fact that there has not been any investments of the BOI/SL for service delivery projects in the Project Area. In a country where regulations, prosecutions etc. are considered as major mechanisms for environmental upgrading, whatever incentives given for the purpose will be highlighted as a positive approach will be appreciated. Thus, any attempt to create sustainable cities by creation of opportunities to take the pressure out of city areas (e.g. hierarchical town development) has to be considered as a positive step.

(c) The regulatory mechanisms are mainly in the hands of the CEA and the UDA. Both legal instruments of these organizations have the power to delegate certain functions to the LAs. Further, designation of certain areas bringing them under the purview of the powers and authority of the CEA and UDA has made it mandatory for LAs to act according to the requirements of those organizations. The EIA, EPL, Building Regulations, etc. can be quoted as instruments used by these organizations. In addition, there are many legal instruments which control and regulate development in the Project Area, such as, laws pertaining to State lands, reservations, coast conservation, road
development, etc. The proposed traffic limitation scheme for Colombo is another administrative mechanism to ease congestion and air pollution, which can be considered as a regulatory mechanism.

As several ministries and institutions are responsible to implement and administer these legal provisions, under a system of separated responsibility as observed in SL, it is difficult to coordinate all connected activities through simple mechanisms. Many failures or delays are prominent than successes (e.g. air pollution and the proposed use of unleaded petrol due to lack of coordinated and concerted efforts to deal with the problem.)

(d) **Strategic capital investment in city development has taken place in certain (mostly with donor assistance) areas such as road development, water and sanitation, housing, etc.** Toggling on to national development programmes and specialized service delivery by government corporations have been the main medium of such capital investments. **Corporate planning exercises on a scientific basis have not been practised by the LAs in the Project Area. Instead sectoral development activities dependent on such national projects have taken precedence.**

It is regretted that a large population in the under-served settlements in the CMC and DMMC areas have not been included in such development efforts. And, even the developed infrastructure has not been made use of due to various reasons, e.g. DMMC’s Sewerage disposal system. **Another weakness in capital investment is observed in the form of lacking participation of the private sector in large investments for infrastructure service delivery.** This situation can be compared as negative in comparison to other countries, such as Philippines. **The interest of successive governments to pursue foreign exchange earning and employment generating projects, rather than an environment sustainable, once has created such a situation.**

(e) **Master planning for the city areas has been undertaken by the UDA.** It is noted that the UDA is considered largely as a planning and regulatory body than an implementation agency. **Excepting the CMC, the other two MC’s in the Project Area are weak in their technical capacities** even to undertake a large scale project, which speaks of their inability to undertake large physical planning exercises. For instance, the lack of technical know-how in sanitary landfill construction is a good example where technical capacities do not match with the bigger requirements of service delivery. The capacity of the UDA itself to undertake environmental development activities is subjected to shortage of staffing in the UDA also. **Master planning always strengthens the centre, as resources for planning and implementation are**
better organized there. This process looks at problems/issues on a top-down way and neglects many a local problem/issue. By being so, Master Plans sometimes alienate themselves from sustainability. However, these negative repercussions are forgotten by authorities who consider the LAs (MCs) as weak organizations to undertake development activities. Rather than been so, the need is to develop capacities of LAs to face the urban challenges.

(7) Another important area of intervention to maintain sustainable cities lies in poverty alleviation, in addition to enhancement of service delivery. The worse is that the poor are the least heard and tolerated by the authorities. The chances for the poor to be in representative bodies also become less, making them less participatory. It is due to the present system of electioneering on a proportional election process. Although it is estimated that the Project Area is comparatively better off than other areas in receipt of Samurdhi Assistance, it is well known that poverty situation in the Project Area, especially in CMC and DMMC areas among the working classes and the informal sector workers is high. Public awareness and education to alleviate such situations by way of technology transfer, transferring of informal labour to skilled labour categories, arrangement of financial support for self employment for the poorer groups in the Project Area, etc. have received lesser attention. That would mean that the economic benefits of city environment would not reach the poor classes for a longer time. It creates environment sustainability problems in turn. Hence, if sustainable city environment is to be maintained, mechanisms to alleviate poverty should be further strengthened.

4.3.4 LEVELS OF IMPLEMENTATION

The levels of implementation can be divided into three specific areas, namely, technical, administrative/managerial and political. The technical level has been discussed previously and has been found to be lagging behind, especially in DMMC and KMC areas.

The administrative/managerial levels of implementation are shown in Fig. 4.6. As observed therein, there is a clear link between the national, provincial, district and LA levels. Although it is easy to comprehend such a situation, one cannot gauge the performance level in implementation only by the structures. The resource base has to be considered if implementation is to be successful. In a situation where manpower, specially the skilled technical manpower, financial resources, information inputs, private sector investment, etc. are in short supply, the administrative/managerial personnel become somewhat redundant due to under utilization. In addition, weaknesses in
Lines of Accountability for Environmental Management in the Project Area

Figure 4.6

LEVEL

NATIONAL

DEVOLVED SUBJECTS

CONCURRENT SUBJECTS

RESERVED SUBJECTS

GOVERNOR

CHIEF MINISTER

BOARD OF MINISTERS

CABINET OF MINISTERS

OTHER RELEVANT LINE MINISTRIES

MINISTRY OF HOME AFFAIRS

PROVINCIAL

GOVERNOR

CHIEF MINISTER

BOARD OF MINISTERS (SECRETARIAT)

LINE MINISTRY DEPARTMENTS / CORPORATION

DISTRICT SECRETARY (FORMER GOVERNMENT AGENT)

DISTRICT

PROVINCIAL CLO

DIVISIONAL SECRETARY

DIVISIONAL

MUNICIPAL COUNCILS

URBAN COUNCILS

PRADESHYA SARAS (RURAL COUNCILS)

DIVISIONAL LEVEL ORGANIZATIONS

VILLAGE / WARD

TECHNICAL / OTHER OFFICERS

GRAHA NILAKHARI (VILLAGE HEADMAN)

FIELD LEVEL OFFICIALS

Explanatory Notes

** Several FC Ministries influence environment management.凡特殊管理权属于LAs.

*** Government funds disbursement through Divisional Secretary (E.g., District Budget allocations)

**** There are several organizations relevant to environmental development coming under the purview of other ministries (E.g., NIKOR, USAID, NABARD, ICB).

Legend

- President
- Cabinet of Ministers
- Other relevant line ministries
- Ministry of Home Affairs
- Governor
- Chief Minister
- Board of Ministers (Secretariat)
- Provincial Council
- Urban Council
- Panchayat Sabha (Rural Councils)
- Divisional Level Organizations
- Technical / Other Officers
- Grama Niladari (Village Headman)
- Field Level Officials
managerial systems are proved by the mismanagement of solid waste, encroachments, illegal lining of wetlands, etc., which affect city environment in the Project Area. The incapacity to attract the private sector to develop city areas has not been only the weakness of the administration, but even the result of security considerations in and around the Colombo city area.

The political participation in implementation of plans is more indirect. At all three levels the politicians are officially involved, mostly in the formation of policy at their own level. The national level political hierarchies are responsible for the national policy, approving the financial requirements, obtaining foreign technical/financial assistance, etc. Further, they intervene with the management of servicing organizations coming under their purview. Due to political competition in the field of politics, the politicians in the WPC intervene in reviewing activities connected with city development that have connections to the implementing agencies coming under the purview of WPC. It is the LA membership who are directly involved and confronted with the macro/major problems of and within the cities. More interventions on prioritization of activities do arise at this level. However, it must be concluded that at all three levels there are interventions for prioritization of activities coming under the purview of each of them. At the LA level, the Mayor is the Chief Executive Officer and hence his intervention in the managerial process is more direct than that of the other two levels.

Since these activities are done under formal political structures, unanimity in action on logical, rational and fair reasoning cannot be expected always. The competitive nature of politics fuels this situation. The fact that the population knows each other authority or level on an individual basis sometimes creates problems in planning, implementation, budgeting and other important management functions.

4.4 CRUX OF THE MANAGEMENT PROBLEM

From the above, it is clear that the city environment in the Project Area has been affected due to certain activity sectors, depleting or deteriorating the environmental resources. It has become necessary to use environmental resources to nourish the socio-economic, political and development needs and activities. This deterioration has caused hazardous situations in the living environment. Certainly the situation has developed to very difficult proportions. This is not only a consequence of nature, but man-made also. The traffic congestion or way side heaps of garbage, clogging sewer lines, various epidemics due to weak management of health and sanitation cannot be considered at all as due only to natural causes, since
they are direct results of weak management. Hence, in the context of SL, it will be a correct conclusion to consider strengthening of management as the most important means to develop sustainable cities.

The fact that the PCs have not "grabbed" the powers given to them by the 13th Amendment to the Constitution of SL has to be agreed. The lukewarm responses shown by the successive governments to support sharing of power and authority to decide on manpower, financial and statute making also have to be recognized and accepted. The end result of this situation has been that the devolution process itself has become lukewarm. It has resulted in lesser involvement in planning, privatization, partnership building, budgeting and mostly lacking coordination of affairs in city development processes. Therefore, the crux of the management problem has to be looked not only as an environment related problem, it is a good governance problem also.

The increasing dangers of such "developments" or "non-developments" were understood by the administrations, not only today, but decades back. Therefore, there were the promulgation of laws, rules and regulations, which may be close upon one hundred years old. Many structures have been created to implement those laws, rules and regulations. Many surveys/researches have been done to identify the latest situations and the consequences on the society. Many programmes and projects have been funded by donors and the government to alleviate the problems and the resulting poverty situations in the Project Area. However, on review it is clearly seen that while some patch working has taken place, the problems are not seen as solved to the expected level.

Many factors are basically seen as reasons for failure, out of which the main are as follows:

(a) Wrong prioritization on activities, projects, areas of operation, etc. weakening local prioritization and determination to act later

(b) Improper directions on implementation. Loosening the hold of local prioritization

(c) Lack of coordination which in turn creates lack of cooperation in implementation and involvement of stakeholder participation; weaknesses in sharing of information, under-utilization of resources, wastage of resources, frustration and psychological disenchantment on operators and organizations.

(d) Non-usage of the legal authority due to petty considerations which has weakened the organizational structures.
(e) **Lack of participation** in the planning/execution/reviewing/budgeting processes by the beneficiaries and the relevant stakeholders.

(f) **Lack of awareness** in the country/cities

(g) **Shortage of resources** - manpower, finances, mechanisms, methods, etc. to deal with problems.

(h) **Lack of training** which has weakened the administrative/managerial personnel. This with lacking coordination prevents use of legal authority.

(i) **Failure in alleviating poverty** resulting in potential weaknesses in sustainability in the long run.

Hence, it is clear that the problems should be addressed in a manner to improve management by administering the relevant laws/rules/regulations, etc. by peoples' participation to the most. When necessary, even upgrading the legal instruments may assist performance. Ways to enhance coordination and cooperation should be found out. **Supervision of activities** from the lowest to highest levels should be undertaken. **Various conflicting situations arising out of narrow perceptions such as class distinctions, political differences, group interests etc. have to be resolved.** One may have to consider the success rates of regulations and if it is low, find alternatives for regulations to be effective and efficient, when applied by the city managers. May be that incentives have to be thought of as an alternative. These are suggestions/proposals which are easily said than done. Many showy ideas, proposals and programmes have been discussed and some executed, but not with sufficient and satisfactory results to suit the escalating problems in the city environments. Hence, a more down to earth approach is required, and it is required immediately if a satisfying social, economic and physical fabric is to be retained intact, which is under threat of extinction. It is mandatory to develop it quickly, to ensure that it would be sustainable for the future generations to enjoy the benefits of having been the citizens of the Project Area.

The evolving constitutional making process in Sri Lanka seems to give certain hints which may be considered by authorities. The regional urban development activities are to be a subject coming under the purview of the proposed Regions. It is an indication of where the winds blow. One may ask the question whether it would be successful under a situation where many managerial factors are negatively identified, as seen above. Therefore, **strengthening Regions/Provinces, grass-root level organizations, motivating lowest level planning, participation and partnership building, mobilizing resources by proper fiscal devolution etc. may be some ways out.** Those
may have to be considered positively to face the issues in a successful manner. These are the ingredients which are either absent or remote at present, which have caused weak environment management in the Project Area.
EIGHTH SCHEDULE

Provinces

Western
North Western
Uva
Sabaragamuwa
Central
Eastern
Southern
North Central
Northern.

NINTH SCHEDULE

List I

(Provincial Council List)

1. Police and Public order.—Public order and the exercise of police powers, to the extent set out in Appendix I, within the Province, but not including National Defence, National Security and the use of any armed forces or any other forces under the control of the Government of Sri Lanka in aid of the civil power, and not including the city of Colombo, Sri Jayawardanepura Kotte, and their environs the limits of which shall be specified by the President by Order published in the Gazette.

2. Planning.—Implementation of provincial economic plans.

3. Education and Educational Services.—Education to the extent set out in Appendix III.

4. Local Government.—

4:1 Local authorities for the purpose of local government and village administration, such as Municipal Councils, Urban Councils and Pradeshiya Sabha, except that, the constitution, form and structure of local authorities shall be determined by law;

4:2 Supervision of the administration of local authorities established by law, including the power of dissolution (subject to such quasi-judicial inquiries into the grounds for dissolution, and legal remedies in respect thereof, as may be provided by law, and subject to provisions relating to audit as may be provided by law).

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Thirteenth Amendment to the Constitution

4 : 3 Local authorities will have the powers vested in them under existing law. Municipal Councils and Urban Councils will have the powers vested in them under the Municipal Councils Ordinance and the Urban Councils Ordinance. Panchayats will have the powers vested in them under existing law. It will be open to a Provincial Council to confer additional powers on local authorities but not to take away their powers;

4 : 4 Gramodaya Mandalayyas will have the powers vested in Gramodaya Mandalayyas under existing law. It will be open to a Provincial Council to confer additional powers on Gramodaya Mandalayyas.

5. Provincial Housing and Construction—

5 : 1 Implementing, co-ordinating, supervising and monitoring provincial housing development programmes and projects (other than National Housing Development Authority projects), including aided self-help housing projects, housing loans and the provision of building materials;

5 : 2 The implementation of the Protection of Tenants Act and the Rent Act within a Province;

5 : 3 Construction activity in respect of subjects in this List.

6. Roads and bridges and ferries therewith within the Province, other than—

(a) national highways;

(b) bridges and ferries on national highways.

7. Social Services and Rehabilitation—

7 : 1 Probation and Child Care Services;

7 : 2 The Rehabilitation of destitute persons and families;

7 : 3 Rehabilitation and welfare of physically, mentally and socially handicapped persons;

7 : 4 Relief of the disabled and unemployed.

8. Regulation of road passenger carriage services and the carriage of goods by motor vehicles within the Province and the provisions of inter-provincial road transport services.

9. Agriculture and Agriarian Services—

9 : 1 Agriculture, including agricultural extension, promotion and education for provincial purposes and agricultural services (other than in inter-provincial irrigation and land settlement schemes, State land and plantation agriculture);

9 : 2 Rehabilitation and maintenance of minor irrigation works.
Thirteenth Amendment to the Constitution

9.3 Agricultural research, save and except institutions designated as national agricultural research institutions.

10. Rural Development

11. Health—

11:1 The establishment and maintenance of public hospitals, rural hospitals, maternity homes, dispensaries (other than teaching hospitals and hospitals established for special purposes);

11:2 Public health services, health education, nutrition, family health, maternity and child care, food and food sanitation, environmental health;

11:3 Formulation and implementation of Health Development Plan, and of the Annual Health Plan for the Province;

11:4 The provision of facilities for all institutions referred to in 1 above within the Province, excluding the procurement of drugs;

11:5 Awarding of Scholarships for Post-Graduate Education within Sri Lanka to personnel attached to the Institutions specified in 1 above.

12. Indigenous Medicine—Ayurveda, Siddha and Unani—

12:1 Establishment of Ayurvedic dispensaries and hospitals, grants to such dispensaries and hospitals;

12:2 Establishment and maintenance of herbaria.

13:1 Resthouses maintained by local authorities; and

13:2 Circuit bungalows presently administered by Government departments whose functions are exclusively specified in this List.

14. Pawnbrokers—Pawnbrokers other than pawnbrokers business carried on by Banks.

15. Markets fairs.

16. Food supply and distribution within the Province.

17. Co-operatives—

17:1 Co-operative undertakings and the organisation, registration, supervision and audit of co-operative societies within the Province;

17:2 Co-operative development within the Province including co-operative education and propaganda;

17:3 Provincial Co-operative Employees Commission;

17:4 Matters connected with employment, promotion, retirement and other connected matters of employees of co-operative societies within the Province.
Thirteenth Amendment to the Constitution

19. Irrigation—Planning, designing, implementation, supervision and maintenance of all irrigation works, other than irrigation schemes relating to rivers running through more than one Province or inter-provincial irrigation and land development schemes.

20. Animal husbandry—Preservation, protection and improvement of stock and prevention of animal diseases within the Province.

21. Subject to the formulation and implementation of National Policy in regard to development and planning, the power to promote, establish and engage in agricultural, industrial, commercial and trading enterprises and other income-generating projects, within the Province without prejudice to the power of the Government and public corporations to have such enterprises and projects.

(Th'is would include the promotion of scientific and industrial research within the Province and the preparation, co-ordination and the implementation of industrial development plans for the Province).

22. Reformatory, Borstal institutions and other institutions of a like nature and persons detained therein, arrangements with other Provinces for the use of such institutions.

23. Possession, transport, purchase and sale of intoxicating liquors.

24. Burials and burial grounds, cremations and cremation grounds, other than those declared by or under law made by Parliament to be national memorial cemeteries.

25: 1 Libraries, Museums and other similar institutions controlled or financed by a Provincial Council;

25: 2 Ancient and historical monuments and records other than those declared by or under law made by Parliament to be of national importance.

26. The regulation of mines and mineral development, to the extent permitted by or under any law made by Parliament, within the Province.

27. Incorporation, regulation and judicial winding up of corporations with objects confined to the Province, excluding trading corporations, banking, insurance and financial corporations.

28. Regulation of unincorporated trading, literary, scientific, religious and other societies and associations.
Thirteenth Amendment to the Constitution

29: 1 Theatres and dramatic performances, music, cinema, entertainments and amusements, excluding the sanctioning of cinematograph films for exhibition and public performances.

29: 2 Encouragement and development of sports (other than national sports associations).

30. Betting and gambling, other than imposition of licence fees and taxes.

31. Provincial debt.

32. Offences against statutes with respect to any of the matters specified in this List.

33. Fees in respect of any of the matters in this List, excluding fees taken in any court.

34. Development, conservation and management of sites and facilities in the Province for the generation and promotion of electrical energy (other than hydro-electric power and power generated to feed the national grid).

35. The borrowing of money to the extent permitted by or under any law made by Parliament;

36: 1 Turnover taxes on wholesale and retail sales within such limits and subject to such exemptions as may be prescribed by law made by Parliament;

36: 2 Betting, taxes, and taxes on prize competitions and lotteries, other than National Lotteries and lotteries organized by the Government of Sri Lanka;

36: 3 Licence taxes, arrears, toddy rents, tapping licence fees, and liquor licence fees;

36: 4 Motor vehicle licence fees within such limits and subject to such exemptions as may be prescribed by law made by Parliament;

36: 5 Dealership licence taxes on drugs and other chemicals;

36: 6 Stamp duties on transfer of properties, such as lands and motor cars;

36: 7 Toll collections;

36: 8 Fines imposed by courts;

36: 9 Fees charged under the Medical Ordinance;

36: 10 Fees charged under the Motor Traffic Act;

36: 11 Departmental fees in respect of any of the matters specified in this List;
Thirteenth Amendment to the Constitution

36: 12 Fees under the Fauna and Flora Protection Ordinance;
36: 13 Fees on lands alienated under the Land Development Ordinance and Crown Lands Ordinance;
36: 14 Court fees, including stamp fees on documents produced in court;
36: 15 Regulatory charges under the Weights and Measures Ordinance;
36: 16 Land revenue, including the assessment and collection of revenue, and survey and maintenance of land records for revenue purposes;
36: 17 Taxes on lands and buildings, including the property of the State to the extent permitted by law made by Parliament;
36: 18 Taxes on mineral rights within such limits and subject to such exemptions as may be prescribed by law made by Parliament;
36: 19 Licensing fees on the possession, transport, purchase and sale of intoxicating liquors;
36: 20 Other taxation within the Province in order to raise revenue for provincial purposes to the extent permitted by or under any law made by Parliament.
37. Protection of environment within the Province to the extent permitted by or under any law made by Parliament.

APPENDIX I

Law And Order

1. The subject devolved shall be described as follows:—

   Public Order and the exercise of Police powers as set out in this Appendix within the Province, but not including—
   (a) national defence;
   (b) national security; and
   (c) the use of any armed forces or any other forces under the control of the Government of Sri Lanka in aid of the civil power.

2. The I.G.P. shall be the head of the Sri Lanka Police Force. The Sri Lanka Police Force shall be divided into—

   (a) the National Division (including Special Units); and
   (b) a Provincial Division for each Province.
Thirteenth Amendment to the Constitution


2 : 2 A Provincial Division shall consist of the D.I.G., S.S.P.P., S.P.P. and A.S.P.P. all seconded from the National Division and Provincial Assistant Superintendent of Police, Chief Inspectors, Inspectors, Sub-Inspectors, Sergeants and Constables recruited in the Province. Members of the Provincial Division shall be eligible for promotion to the National Division.

3. Recruitment to the National Division and promotions of Police Officers in the Provincial Divisions to the National Division shall be made by a National Police Commission composed of three members, namely—

(a) the I.G.P.;

(b) a person nominated by the Public Service Commission in consultation with the President; and

(c) a nominee of the Chief Justice.

3 : 1 The National Police Commission shall, before promoting any Police Officer serving in any Provincial Division to the National Division, call for a Confidential Report on such Officer from the relevant Provincial Police Commission and take the matters specified in such report into consideration in deciding whether to promote such Officer or not.

3 : 2 The Commission shall also be responsible for promotions, transfers and disciplinary control of members of the National Division other than the I.G.P. subject to paragraph 4 : 1 below.

3 : 3 It shall hear and determine appeals from officers seconded to Provincial Divisions against whom disciplinary action has been taken by Provincial Police Commissions.

3 : 4 It shall set standards for recruitment and promotion of Police Officers of all Divisions and such standards shall be uniform for all Provincial Divisions.

4. Recruitment to each Provincial Division shall be made by a Provincial Police Commission composed of three members, namely

(a) the D.I.G. of the Province;

(b) a person nominated by the Public Service Commission in consultation with the President; and

(c) a nominee of the Chief Minister of the Province.
Thirteenth Amendment to the Constitution

4.1 A Provincial Police Commission shall be responsible for transfers, promotions and disciplinary control over officers in the Provincial Division; for promotion of Officers of the National Division seconded to the Provincial Division up to the rank of S.S.P.; and for transfer and disciplinary control over officers seconded to the Provincial Division, except the D.I.G.: Provided that any Officer of the National Division seconded to any Provincial Division against whose disciplinary action has been taken by a Provincial Police Commission, shall have the right to appeal to the National Police Commission, whose decision on such appeal shall be final.

5. The National Police Commission or a Provincial Police Commission shall be entitled to delegate such of its powers as may be prescribed to such other person or authority as may be prescribed.

6. The I.G.P. shall appoint a D.I.G. for each Province with the concurrence of the Chief Minister of the Province. However, where there is no agreement between the Inspector-General of Police and the Chief Minister, the matter will be referred to the President, who, after due consultations with the Chief Minister, shall make the appointment.

7. The cadre of Police Officers of all ranks of the National Division shall be fixed by the Government of Sri Lanka. The cadre of Officers and other ranks of each Provincial Division shall be fixed by the Provincial Administration with the approval of the President, having regard to—

(a) the area of the Province;
(b) population of the Province; and
(c) such other criteria as may be agreed to or prescribed.

These principles shall be uniformly applied to all Provincial Divisions.

7:1 The cadres of the Provincial Divisions shall be fixed on ascertainable principles such as population, area, number of Police Stations involved and other relevant considerations. These principles shall be applied to all Provincial Divisions without distinction.

7:2 The salary scales and perquisites of office enjoyed by the various ranks in the National and Provincial Divisions shall be determined by the Government of Sri Lanka after consultation with the Chief Ministers of the Provinces. The salary scales and perquisites of office as enjoyed by members of the Provincial Divisions shall apply uniformly to all Provincial Divisions.
Thirteenth Amendment to the Constitution

8. The nature, type and quantity of fire-arms and ammunition and other equipment for the National Division shall be determined by the National Police Commission. The nature, type and quantity of fire-arms and ammunition and other equipment for all Provincial Divisions shall be determined by the National Police Commission after consultation with the Provincial Police Commission and uniform standards and principles shall be applied for all Provincial Divisions.

9. Recruitment to the National Division shall be made at the ranks of P.C., S.I., and A.S.P. Recruitment to the Provincial Division shall be made at the ranks of P.C., S.I., and P.A.S.P. (rank referred to in paragraph 3:2 above).

9:1 Recruitment to the National Division shall be made by the National Police Commission and recruitment to the Provincial Division shall be made by the Provincial Police Commission having regard to the standards of recruitment and other criteria prescribed in this behalf:

Provided also that a recruit may, on appointment, set out his preferences as to the Division in which he wishes to serve and that he shall, if possible, be posted to the Division of his choice, with the consent of the Division concerned.

9:2 The Government of Sri Lanka shall be responsible for the training of all recruits to and of members of all Divisions of the Sri Lanka Police Force.

The President may, where he considers it necessary, provide for alternative training for members of any Provincial Division.

10. Members of the National Division and the Provincial Divisions shall wear the same uniforms and insignia of rank, provided that uniforms of the members of each Division shall bear a distinctive shoulder flash, indicating the Division to which he belongs.

10:1 There shall be one uniformed police force in each Province, comprising of the members of the Provincial Division and the officers seconded thereto. Members of the National Division shall ordinarily be in plain clothes provided that they may wear uniform when performing any duties in respect of the maintenance or restoration of public order as set out in paragraph 12:3, 12: 4 and 12:6. Provided also that the I.G.P. and such other Officers as may be specified shall ordinarily be attired in uniforms.

11. All Police Officers serving in units of the National Division and Provincial Divisions in any Province shall function under the direction and control of the D.I.G. of such Province.

11:1 The D.I.G. of the Province shall be responsible to and under the control of the Chief Minister thereof in respect of the maintenance of public order in the Province and the exercise of police powers in the Province as set out in this Schedule.
Thirteenth Amendment to the Constitution

11:2 The provisions of paragraph 11:1 above are subject to the qualifications that—

(a) upon the declaration of an emergency in the Province, the President may assume such powers and responsibilities of the Chief Minister and the Provincial Administration in respect of public order within the Province as he may, by regulation, provide; and

(b) where the President is of the opinion that the security of or public order in a Province is threatened by grave internal disturbance, he may, without the declaration of an emergency, but in consultation with the Chief Minister of such Province, and subject to the provisions of the Public Security Ordinance, by order, deploy in aid of the civil power, any unit of the National Division, in the Province for the purpose of restoring public order:

Provided that every such order shall cease to be in force as soon as the President is satisfied that public order has been restored or on the expiry of thirty days from the date of the order, whichever is earlier.

12:1 The Provincial Division shall be responsible for the preservation of public order within the Province and the prevention, detection and investigation of all offences except the offences specified in the Schedule and subject to the powers of the Attorney-General in terms of the Code of Criminal Procedure Act, the Institution of Prosecutions in the relevant Courts in respect of such offences.

The National Division of the Sri Lanka Police Force shall be responsible for the prevention, detection and investigation of all offences specified in the Schedule and subject to the powers of the Attorney-General in terms of the Code of Criminal Procedure Act, for the Institution of Prosecutions in the relevant Courts in respect of such offences.

12:2 Where the Chief Minister seeks the assistance of the National Division to preserve public order within a Province, the I.G.P. shall deploy such personnel of the National Division as are necessary for the purpose and place them under the control of the D.I.G. of the Province.

12:3 Where a State of Emergency is declared in the Province, the I.G.P. may deploy such units of the National Division as he deems necessary in any Province for the restoration and maintenance of public order within such Province.

12:4 Any offence which may ordinarily be investigate by a Provincial Division may be investigated by the C.I.D., or any other unit of the National Division:

(c) where the Chief Minister requests that such investigation be undertaken by the C.I.D. or any other unit of the National Division; and
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(b) where the I.O.P. is of opinion that an investigation of such offence by the C.I.D. or any other unit of the National Division is necessary, in the public interest and directs, after consultation with the Chief Minister, and the approval of the Attorney-General, that such offence be investigated by the C.I.D. or any other unit of the National Division.

13. The National Division shall perform all the functions vested in a Provincial Division, in any Province, for a period of one year or until a Provincial Division is established in such Province, whichever is earlier.

14. All gazetted officers of the National Division and Provincial Divisions shall be required to attain the prescribed standard in Sinhala and Tamil. All Officers of the rank of A.G.P. and above shall also be required to attain the prescribed standard of English.

Every recruit to the Sri Lanka Police Force shall have proficiency in his mother tongue. For the first promotion he shall acquire proficiency in a language other than his mother tongue. For the next promotion he shall acquire a knowledge of the third language. The three languages recognized for this purpose are Sinhala, Tamil and English.

SCHEDULE

List of Offences to be investigated by the National Police

1. Offences against the State.
2. Offences relating to the Navy, Army and Air Force.
3. Offences relating to the Elections.
5. Any offence committed against the President.
6. Any offence committed against a Public Officer, a Judicial Officer, or the Speaker, or the Prime Minister or a Minister, or a Member of the Judicial Service Commission, or a Member of Public Service Commission, or a Deputy Minister or a Member of Parliament or the Secretary General of Parliament or a Member of the President's Staff or a Member of the Staff of the Secretary General of Parliament.
7. Any offence relating to property belonging to the State or a State Corporation or Company or Establishment, the whole or part of the capital whereof has been provided by the State.
8. Any offence prejudicial to National Security or the maintenance of Essential Services.
9. Any offence under any law relating to any matter in the Reserve List other than such offences as the President may, by order published in the Gazette, exclude.
10. Any offence in respect of which Courts in more than one Province have jurisdiction.
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APPENDIX II

Land and Land Settlement

State land shall continue to vest in the Republic and may be disposed of in accordance with Article 33 (d) and written law governing the matter.

Subject as aforesaid, land shall be a Provincial Council Subject, subject to the following special provisions:

1. State Land—

1:1 State Land required for the purposes of the Government in a Province, in respect of a reserved or concurrent subject may be utilised by the Government in accordance with the laws governing the matter. The Government shall consult the relevant Provincial Council with regard to the utilization of such land in respect of such subject.

1:2 Government shall make available to every Provincial Council State land within the province required by such Council for a Provincial Council subject. The Provincial Council shall administer, control and utilise such State land, in accordance with the laws and statutes governing the matter.

1:3 Alienation or disposition of the State land within a Province to any citizen or to any organisation shall be by the President, on the advice of the relevant Provincial Council, in accordance with the laws governing the matter.

2. Inter-Provincial Irrigation and Land Development Projects.

2:1 Such projects would comprise irrigation and land development schemes—

(a) within the Province initiated by the State and which utilize water from rivers following through more than one Province; a Provincial Council however, may also initiate irrigation and land development schemes within its province utilizing water from such rivers;

(b) within the Province which utilise water through diversions from water systems from outside the Province; and

(c) all schemes where the command area falls within two or more Provinces such as the Mahaweli Development Project.

2:2 These projects will be the responsibility of the Government of Sri Lanka.
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2: 3 The principles and criteria regarding the size of holdings of agricultural and homestead lands arising out of these projects will be determined by the Government of Sri Lanka in consultation with the Provincial Councils.

2: 4 The selection of allottees for such lands will be determined by the Government of Sri Lanka having regard to settled selection criteria including degree of landlessness, income level, size of family and agricultural background of the applicants. The actual application of these principles, selection of allottees and other incidental matters connected thereto will be within the powers of the Provincial Councils.

3: 5 The distribution of all allotments of such land in such projects will be on the basis of national ethnic ratio. In the distribution of allotments according to such ratio, priority will be given to persons who are displaced by the project, landless of the District in which the project is situated and thereafter the landless of the Province.

2: 6 Where the members of any community do not, or are unable to take their entitlements of allotments from any such project, they would be entitled to receive an equivalent number of allotments in another inter-provincial irrigation or Land Development Scheme. This unused quota should be utilized within a given time-frame.

2: 7 The distribution of allotments in such projects on the basis of the aforesaid principles would be done as far as possible so as not to disturb very significantly the demographic pattern of the Province and in accordance with the principle of ensuring community cohesiveness in human settlements.

2: 8 The administration and management of such projects will be done by the Government of Sri Lanka.


3: 1 The Government of Sri Lanka shall establish a National Land Commission which would be responsible for the formulation of national policy with regard to the use of State land. This Commission will include representatives of all Provincial Councils in the Island.

9: 2 The National Land Commission will have a Technical Secretariat representing all the relevant disciplines required to evaluate the physical as well as the socioeconomic factors that are relevant to natural resources management.
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2:3 National policy on land use will be based on technical aspects (not on political or communal aspects), and the Commission will lay down general norms in regard to the use of land, having regard to soil, climate, rainfall, soil erosion, forest cover, environmental factors, economic viability, etc.

2:4 In the exercise of the powers devolved on them, the powers shall be exercised by the Provincial Councils having due regard to the national policy formulated by the National Land Commission.

APPENDIX III

Education

1. Provision of facilities for all State Schools other than specified schools (Specified Schools will be National Schools, Special Schools for Service personnel and schools for specified development schemes).

2. Supervision of the management of—
   (a) all pre-schools; and
   (b) all State schools other than specified schools indicated above.
   (In order to ensure standards the Ministry of Education will retain the right to inspect and supervise the management of schools).

3. The transfer and disciplinary control of all educational personnel, i.e., Teachers, Principals and Education Officers. Officers belonging to a National Service but serving the Provincial authority on secondment will have the right of appeal to the Public Service Commission. Officers belonging to the provincial Public Service will have a right to appeal to the Public Service Commission against dismissal.

4. Recruitment into the Teaching Service of those with diplomas and degrees, from Colleges of Education and Universities, recognised as teaching qualifications.

5. Until adequate numbers of these categories are available recruitment into the Teaching Service will be on the results of recruitment examinations conducted by the Public Service.
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Commission. On the results of these examinations interviews and selection will be conducted together with the Provincial Authorities.

6. Appointment of Principals of all schools other than those in IA, B, C categories. (Criteria will be laid down by the Minister of Education.)

7. Appointment of Principals of IA, B, C schools will be by the Secretary to the Ministry of the Minister in charge of the subject of Education or the Public Service Commission.

8. Training of teachers and other educational personnel will come within the purview of the National Institute of Education. Provincial Authorities will indicate their needs to the National Institute of Education.

9. Appointment of Provincial Boards of Education which will have the advisory functions, will be the responsibility of the Minister of Education. However, this will be done with concurrence of the Chief Minister of the Provincial Authority.

10. Provincial Authorities will establish School Boards conforming to the specifications laid down by the Ministry of Education.

11. Provincial Authorities will supervise the working of School Boards.

12. Preparation of plans (educational development plan and annual implementation plan) will be the responsibility of the Provincial Authority.


15. Conducting of In-service training programmes for which prior approval of the National Institute of Education has been obtained.

16. Conducting of local examinations approved by the Commissioner-General of Examinations.

17. Implementation of non-formal education programmes.

18. Registration and supervision of pre-schools.

19. Obtaining the approval of the National Institute of Education for local variations in the primary curriculum and selected subjects in the secondary curriculum.

20. Construction and maintenance of educational buildings, libraries and playgrounds.
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21. Procuring and distribution of teaching aids, visual aids and audio visual materials, furniture and other equipment.
22. Procuring and distribution of science equipment other than certain specified items indicated by the Ministry.
23. Production and distribution of school textbooks after approval by the Ministry.
24. Organization and development of school libraries in accordance with guidelines given by the National Library Services Board.

(Above based on the recommendations of Committee I of the Political Parties Conference)

List II

(Reserved List)

National Policy on all Subjects and Functions

Defence and National Security; Internal Security; Law and order and prevention and detection of crime except to the extent specified in Item I of List I.

This would include—

(a) Defence of Sri Lanka and every part thereof including preparation for defence and all such acts as may be conducive in times of war to its prosecution and after its termination, to effective demobilisation;

(b) Naval, military and air forces; any other armed forces of the Government of Sri Lanka;

(c) Deployment of any armed force of the Government of Sri Lanka or any other force subject to the control of the Government of Sri Lanka or any contingent of units thereof in any Province in aid of the civil power; powers, jurisdiction, privileges and liabilities of the members of such forces while on such deployment;

(d) Delimitation of cantonment areas, local self-government in such areas, the constitution and powers within such areas of cantonment authorities and the regulation of house accommodation (including the control of rents) in such areas;

(e) Naval, military and air force works;

(f) Arms, firearms, ammunition and explosives;

(g) Atomic energy and mineral resources necessary for its production;

(h) Industries declared by Parliament by law to be necessary
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for the purpose of defence or for the prosecution of war;

(i) Criminal Investigation Department;

(j) Preventive detention for reasons connected with Defence, Foreign Affairs, or the security of Sri Lanka, persons subjected to such detention; and

(k) Extension of the powers and jurisdiction of members of a police force belonging to any Province to any area outside that Province, but not so as to enable the police of one Province to exercise powers and jurisdiction in any area outside that Province without the consent of the Provincial Council in which such area is situated; extension of the powers and jurisdiction of members of a police force belonging to any Province to railway areas outside that Province.

Foreign Affairs

This would include—

(a) Foreign Affairs; all matters which bring the Government of Sri Lanka into relation with any foreign country;

(b) Diplomatic, consular and trade representation;

(c) United Nations Organization;

(d) Participation in international conferences, associations and other bodies and implementing of decisions made thereat;

(e) Entering into treaties and agreements with foreign countries and implementing treaties, agreements and conventions with foreign countries;

(f) War and peace; and

(g) Foreign jurisdiction.

Posts and Telecommunications; Broadcasting; Television

This would include—

(a) Posts and telegraphs; telephones; wireless, broadcasting and other like forms of communications; and

(b) Sanctioning of cinematograph films for exhibition.

Justice to so far as it relates to the judiciary and the courts structure.

This would include—

(e) Constitution, organisation, jurisdiction and powers of the Supreme Court (including contempt of such Court), and the fees taken therein; persons entitled to practice before the Supreme Court, Court of Appeal and other Courts;
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(b) Constitution, organisation, jurisdiction and powers of the Court of Appeal, and the fees taken therein; and

(c) Jurisdiction and powers of all courts, except the Supreme Court and the Court of Appeal.

Finance in relation to national revenue, monetary policy and external resources; customs

This would include—

(a) Public debt of the Government of Sri Lanka;
(b) Currency, coinage and legal tender; foreign exchange;
(c) Foreign loans;
(d) Central Bank;
(e) National Savings Bank;
(f) Lotteries organised by the Government of Sri Lanka or a Provincial Council;
(g) Banking;
(h) Bills of exchange, cheques, promissory notes and other like instruments;
(i) Insurance;
(j) Stock exchanges and futures markets;
(k) Audit of the accounts of the Government of Sri Lanka and of the Provinces;
(l) Taxes on income, capital and wealth of individuals, companies and corporations;
(m) Customs duties, including import and export duties, and excise duties;
(n) Turnover taxes and stamp duties, except to the extent specified in List I;
(o) any other tax or fee not specified in List I.

Foreign Trade; Inter-Province Trade and Commerce

This would include—

(a) Trade and commerce with foreign countries; import and export across customs frontiers; definition of customs frontiers; and

(b) Inter-province trade and commerce.

Ports and Harbours

This would include—

(a) Ports declared by or under law made by Parliament or existing law to be major ports, including their delimitation, and the constitution and powers of port authorities therein; and

(b) Port quarantine, including hospitals connected therewith; women's and marine hospitals.
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Aviation and Airports

This would include—

Airways; aircraft and air navigation; provision of aerodromes; regulation and organisation of air traffic and of aerodromes; provision for aeronautical education and training and regulation of such education and training provided by Provinces and other agencies.

National Transport

This would include—

(a) Railways;

(b) Highways declared by or under law made by Parliament to be national highways; and

(c) Carriage of passengers and goods by railway, land, sea or air, or by national waterways in mechanically propelled vessels.

Rivers and Waterways; Shipping and Navigation; Maritime zones

including Historical Waters, Territorial Waters, Exclusive Economic zone and Continental Shelf and Internal Waters; State Lands and Offshore, Except to the Extent Specified in Item 18 of List I.

This would include—

(a) Piracies and crimes committed on the high seas or in the air; offences against the law of nations committed on land or the high seas or in the air;

(b) Shipping and navigation on inland waterways, declared by Parliament by law to be national waterways, as regards mechanically propelled vessels; the rule of the road on such waterways;

(c) Maritime shipping and navigation, including shipping and navigation on tidal waters; provision of education and training for the merchant marine and regulation of such education and training provided by Provinces and other agencies;

(d) Lighthouses, including lightships, beacons and other provision for the safety of shipping and aircraft;

(e) Regulation and development of inter province rivers; and river valleys to the extent to which such regulation and development under the control of the Government of Sri Lanka is declared by Parliament by law to be expedient in the public interest;

(f) Fishing and fisheries beyond territorial waters; and

(g) Property of the Government of Sri Lanka and the revenue therefrom, but as regards property situated in a province, subject to statutes made by the Provinces save in so far as Parliament by law otherwise provides.
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Minerals and Mines
This would include—

(a) Regulation and development of oilfields and mineral oil resources; petroleum and petroleum products; other liquids and substances declared by Parliament by law to be dangerously inflammable; and

(b) Regulation of mines and mineral development to the extent to which such regulation and development under the control of the Government of Sri Lanka is declared by Parliament by law to be expedient in the public interest.

Immigration and Emigration and Citizenship
This would include—

(a) Citizenship, naturalization and aliens;
(b) Extradition; and
(c) Admission into, and emigration and expulsion from, Sri Lanka; passports and visas.

Employees including Presidential, Parliamentary, Provincial Councils and Local Authorities
This would include—

Elections to Parliament, Provincial Councils, Local Authorities and to the Office of President; the Department of Elections.

Census and Statistics
This would include—

(a) Census; and
(b) Inquiries, surveys and statistics for the purpose of any of the matters in this List.

Professional Occupations and Training
This would include—

(a) Institutions, such as universities, declared by Parliament by law to be institutions of national importance;
(b) Institutions for scientific or technical education by the Government of Sri Lanka wholly or in part and declared by Parliament by law to be institutions of national importance;
(c) Provincial agencies and institutions for—
   (i) professional, vocational or technical training, including the training of police officers; or
   (ii) the promotion of special studies or research; or
   (iii) scientific or technical assistance in the investigation or detection of crime; and
(d) Co-ordination and determination of standards in institutions for higher education or research and scientific and technical institutions.
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National Archives; Archaeological activities and sites and antiquities declared by or under any law made by Parliament to be of National Importance

This would include—

Ancient and historical monuments and records, and archaeological sites and remains declared by or under law made by Parliament to be of national importance.

All Subjects and Functions not Specified in List I or List II including—

(a) Pilgrimages to places outside Sri Lanka;

(b) Incorporation, regulation and winding up of trading corporations, including banking, insurance and financial corporations but not including co-operative societies;

(c) Incorporation, regulation and winding up of corporations, whether trading or not, with objects not confined to one province, but not including universities;

(d) Patents, inventions and designs; copyright, trade marks and merchandise marks;

(e) Establishment of standards of weight and measure;

(f) Establishment of standards of quality for goods to be exported out of Sri Lanka or transported from one province to another;

(g) Industries, the control of which by the Government of Sri Lanka is declared by Parliament by law to be expedient in the public interest;

(h) Regulation of labour and safety in mines;

(i) Manufacture, supply and distribution of salt by agencies of the Government of Sri Lanka; regulation and control of manufacture, supply and distribution of salt by other agencies;

(j) Cultivation, manufacture, and sale for export, of opium;

(k) Industrial disputes concerning employees of the Government of Sri Lanka;

(l) Institutions such as Museums and War Memorials financed by the Government of Sri Lanka wholly or in part and declared by Parliament by law to be institutions of national importance;

(m) The Survey of Sri Lanka, the Geological, Botanical, Zoological and Anthropological Surveys of Sri Lanka; Meteorological organizations;

(n) National Public Service; National Public Service Commission;

(o) Pensions, that is to say, pensions payable by the Government of Sri Lanka or out of the Consolidated Fund;

(p) Salaries and allowances of Members of Parliament, and the Speaker and Deputy Speaker of Parliament;
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(q) Powers, privileges and immunities of Parliament and of the members and the Committees of Parliament; enforcement of attendance of persons for giving evidence or producing documents before Committees of Parliament or Commissions appointed by Parliament;

(r) Emoluments, allowances, privileges, and rights in respect of leave of absence, of the President and Governors; salaries and allowances of the Ministers of the Government of Sri Lanka; the salaries, allowances and rights in respect of leave of absence and other conditions of service of the Auditor-General;

(s) Inter-Provincial migration; inter-province quarantine;

(t) Offences against laws with respect to, any of the matters in this List; and

(u) Fees in respect of any of the matters in this List, but not including fees taken in any Court.

List III

(Concurrent List)

1. Planning—
   1 : 1 Formulation and appraisal of plan implementation strategies at the provincial level;
   1 : 2 Progress control;
   1 : 3 Monitoring progress of public and private sector investment programmes;
   1 : 4 The evaluation of the performance of institutions and enterprises engaged in economic activities;
   1 : 5 The presentation of relevant data in the achievement of plan targets;
   1 : 6 The dissemination of information concerning achievements of plan targets;
   1 : 7 Publicity of implementation programmes;
   1 : 8 Manpower planning and employment Data Bank;
   1 : 9 Nutritional planning and programmes.

2 and 3. Education and Educational Services.—Education, except to the extent specified in items 3 and 4 of List I.

4. Higher Education—

4 : 1 The establishment and maintenance of new Universities.

6:2 The establishment of degree awarding institutions under the Universities (Amendment) Act No. 7 of 1982, and other institutions for tertiary, technical and post-school education and training.

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5. National Housing and Construction—The promotion of integrated planning and implementation of economic, social and physical development of urban development areas.

6. Acquisition and requisitioning of Property.

7. Social Services and Rehabilitation—
   7:1 Relief, rehabilitation and resettlement of displaced persons;
   7:2 Relief of distress due to floods, droughts, epidemics or other exceptional causes and rehabilitation and resettlement of those affected;
   7:3 Restoration, reconstruction and rehabilitation of towns, villages, public institutions and properties, industries, business places, places of worship and other properties destroyed or damaged; grant of compensation or relief to persons or institutions who have sustained loss or damage and the reorganization of civil life.

8. Agricultural and Agrarian Services—
   8:1 Establishment and promotion of agro-linked industries, the establishment and maintenance of farms and supervision of private nurseries;
   8:2 Soil conservation;
   8:3 Pest pests.

9. Health—
   9:1 Schools for training of Auxiliary Medical Personnel;
   9:2 The supervision of private medical care, control of nursing homes and of diagnostic facilities within a province;
   9:3 Population control and family planning;
   9:4 Constitution of Provincial Medical Boards.

10. Registration of births, marriages and deaths.

11. Renaming of Towns and Villages.

12. Private lotteries within the Province.

13. Festival and Exhibitions.

14. Rationing of food and maintenance of food stocks.


16. Surveys—For the purpose of any of the matters enumerated in the Provincial or Concurrent List.

17. Irrigation—
   17:1 Water storage and management, drainage and embankments, flood protection, utilization of water resources;
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27. Services provided for inter-provincial land and irrigation schemes, such as those relating to rural development, health, education, vocational training, co-operatives and other facilities.

28. Social Forestry and protection of wild animals and birds.

29. Fisheries—Other than fishing beyond territorial waters.

30. Animal Husbandry—
   30:1 Production, processing, distribution and sale of livestock and livestock products;
   30:2 Veterinary training services and research, inclusive of the provision of science laboratories and science equipment;
   30:3 Animal breeding, care and health;
   30:4 The establishment of pastures.

31. Employment—
   31:1 Employment planning at Provincial level;
   31:2 Special Employment programmes relating to the Province;
   31:3 Promotion of youth employment activities relating to the Province;
   31:4 Technical Manpower Development Programmes in relation to the Province.

32. Tourism—Development and control of the Tourist Industry in the Province.

33. Trade and commerce in, and the production, supply and distribution of—
   (a) the products of any industry where the control of such industry by the Government is declared by Parliament by law to be expedient in the public interest, and imported goods of the same kind as such products; and
   (b) foodstuffs and cattle fodder.

34. Newspapers, books and periodicals and printing presses.

35. Offences against statutes with respect to any matters specified in this List.

36. Fees in respect of any of the matters in this List, excluding fees taken in any Court.

37. Charities and charitable institutions, charitable and religious endowments and religious institutions.

38. Price control.
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29. Inquiries and statistics for the purpose of any of the matters in this List or in the Provincial Council List.

30. Adulteration of foodstuffs and other goods.

31. Drugs and Poisons.

32. Extension of electrification within the Province and the promotion and regulation of the use of electricity within the Province.

33. Protection of the environment.

34. Archaeological sites and remains, other than those declared by or under any law made by Parliament to be of national importance.

35. Prevention of the extension from one Province to another of infectious or contagious diseases or pests affecting human beings, animal or plants.

36. Pilgrimages.