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CHAPTER 1: INTRODUCTION

1.1 Project Background: Western Megapolis – Why?

The Western Megapolis is envisioned and conceptualized as the prudent Grand Strategy for achieving two decisive inter-dependent transformations required in Sri Lanka's forward march to achieve the status of **'A High Income Developed Country'**, namely the **spatial transformation** of urban agglomerations in the Western Region of the country and the **structural transformation** of the National Economy as a whole.

Western Megapolis has three broad national goals:

- To address the issues resulting from the congestion pressures being exerted on the urban physical infrastructure, urban services & amenities, and the environment, that have been brought about by 'messy urbanization'.

- To create the enabling environment for propelling the nation to the status of a high income developed country tunneling through the middle income trap, by way of leveraging the economies of agglomeration, through development and transformation of the physical and institutional infrastructure and the national economic structure.

- To optimally harness the benefits of knowledge-based innovation-driven global economic environment characterized by such developments as the 'new industrial revolution' and emergence of 'smart cities'.

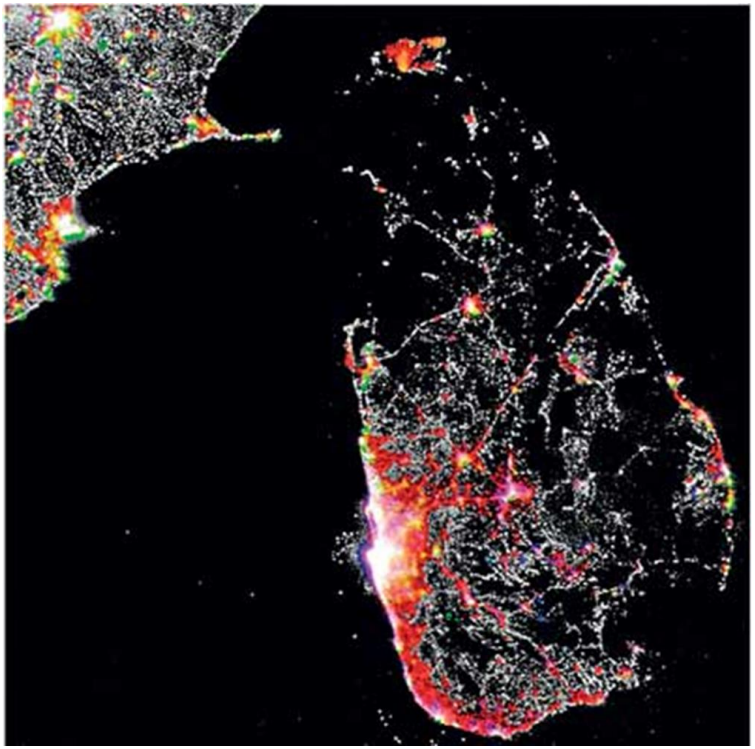


Figure: 1.1 Night-Time Light Image of Sri Lanka (Source: blogs.worldbank.org)

The implementation of this grand strategy involves two fundamental transformations. The first is the much needed structural transformation of the economy where the manufacturing sector as well as the high tech tradable services, should comprise the major component of the economy, with exports accounting for at least one third of the GDP. The other transformation that needs to be effected in parallel, and indeed, what would drive the above structural transformation, is the spatial transformation of the Western Region.

The Western Megapolis is planned to create that spatial transformation which will drive the nation's grand strategy for overall development in 3 ways:

- Firstly by way of enabling the national economy to leverage the benefits of economies of agglomeration brought about by urbanization,
- Secondly by way of eliminating the congestion pressures on urban infrastructure, services and environment brought about by messy urbanization and
- Thirdly by way of reduced per unit capital cost of infrastructure provisioning.

The planning philosophy that guides the formulation of objectives and strategies for realization of those national goals is based on the four fundamental pillars namely 'Economic Growth and Prosperity', 'Social Equity', 'Environmental Sustainability' and Individual Happiness.

1.2 Urban Development in Sri Lanka – A Historical Perspective

It is important to view the present Megapolis development exercise in the historical perspective of urban development not only in the city of Colombo but also of the proud heritage of Sri Lanka's ancient cities.

Sri Lanka has a history of city-dwelling dating back to the era of King Ravana as evident from references to prehistoric cities such as Shirshagrama. In the 2500 years of recorded history, written uninterruptedly in our historical chronicles - Mahawansa as well as other chronicles, Anuradhapura had been the capital city for 14 centuries. The ancient city of Anuradhapura stands out for the wisdom of city development demonstrated by ancient Sri Lankans just as much as for its unparalleled global record of the longest sustenance as a capital.

The recorded plans of the City of Colombo date back to 16th Century. The Portuguese and the Dutch drew up some development plans respectively in 1554 & 1656.

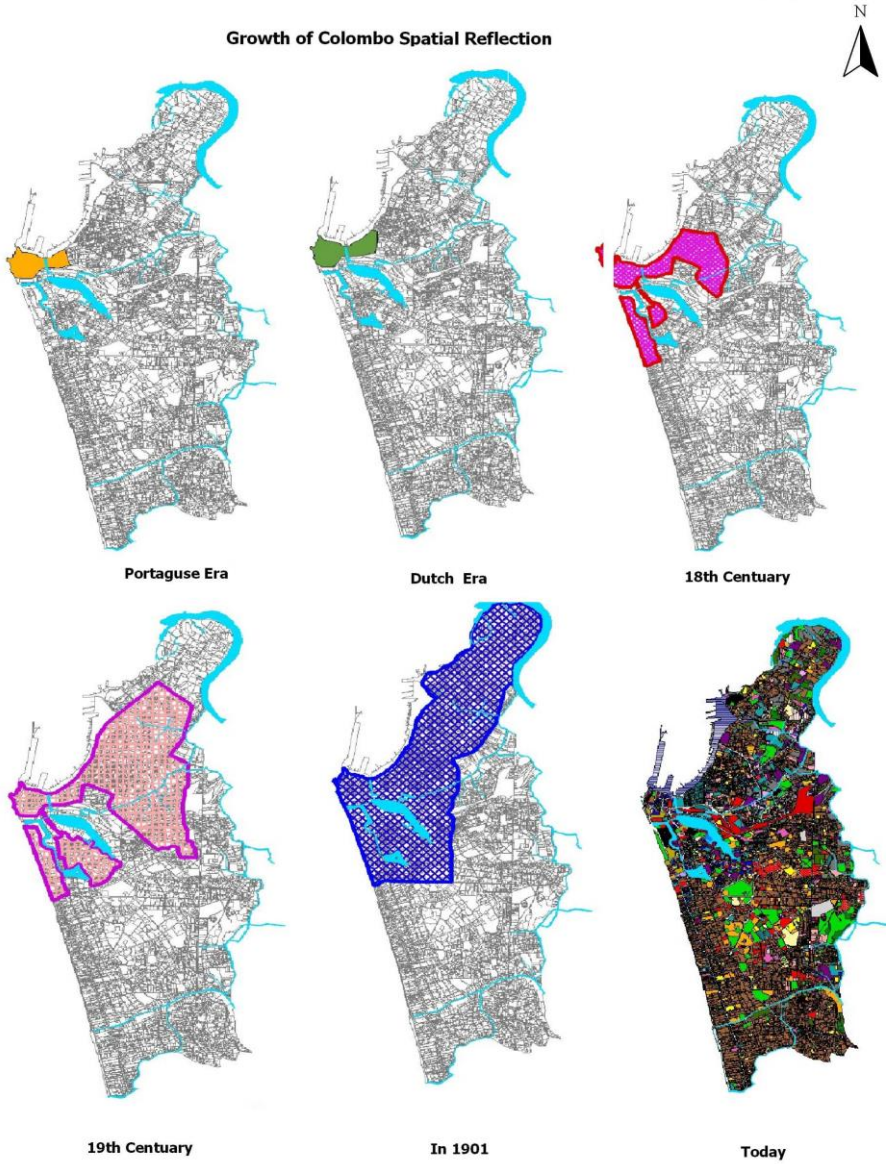


Figure: 1.2 Recorded Plan for City of Colombo

In 1921 the British Town Planner Patrick Geddes, who is considered a prominent contemporary authority on Town Planning, developed a 'Garden City' conceptual plan for Colombo. (Figure 1.3)

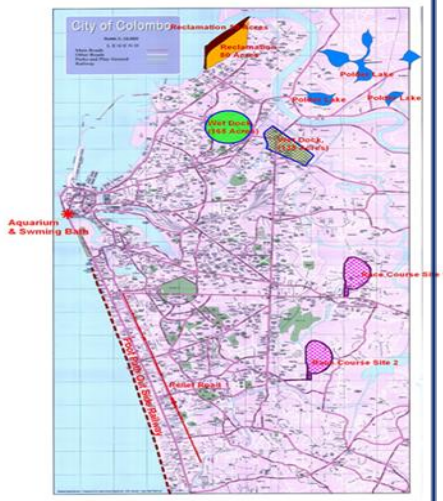


Fig 1.3 Patrick Geddes Plan in 1921

This was followed by a few other planning attempts. The Patrick Abercromby Plan in 1949 (Figure 1.4) covered the Colombo Metropolitan Region as a whole, and emphasized decentralization of the city's activities and creation of satellite towns around Colombo, with Ratmalana as an Industrial Centre, Ragama as a Logistics Centre, and Homagama as a residential area.

Figure 1.4 Abercromby Plan in 1949

The Colombo Master Plan undertaken with UDP assistance resulted in formation of the UDA in 1978. The City of Colombo Development Plan in 1985 recommended shifting of from Mono-Centric to Poly-Centric City Development and shifting of the Administrative Capitol to Sri Jayewardenepura. A highlight of the Colombo Metropolitan Development Plan of 1998 (Figure 1.5) was identification of the Inner and the Outer necklaces.

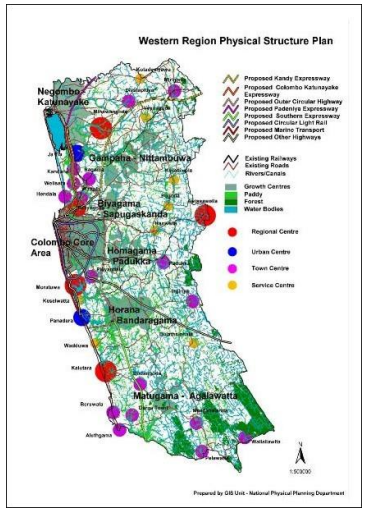


Figure 1.5 Colombo Metropolitan Regional Structure Plan in 1998

The present Master Planning effort of the Western Region Megapolis is entirely based on the recommendations made in the National Physical Plan, (Figure 1.7) which was approved by the National Physical Planning Council that included the Ministers in charge of 14 key ministries, and presided over by the President of the Republic.

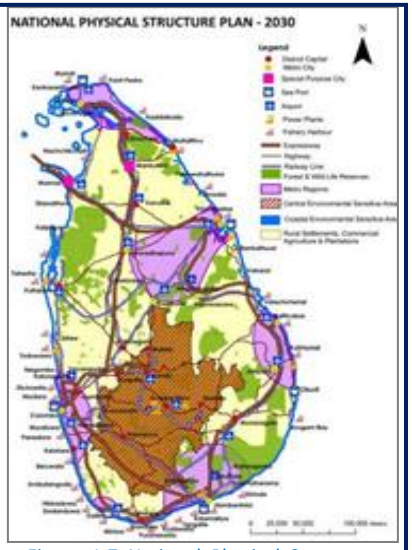


Figure 1.7 National Physical Structure Plan 2030 (Source: NPPD)

The Western Megapolis Development Plan which envisioned development of the entire Western Province as a Single Megapolis was initially conceptualized in 2002. (Figure 1.6)

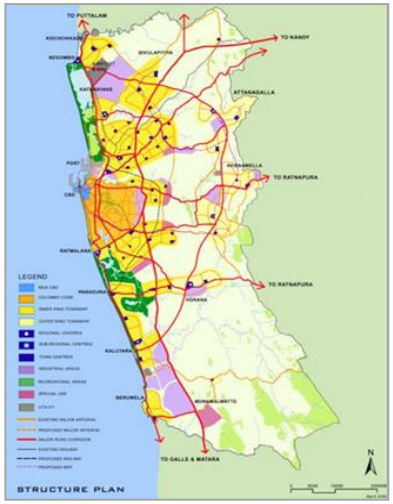


Figure 1.6 Western Megapolis Development Plan 2002

CHAPTER 2: OVERVIEW OF WESTERN REGION

2.1 Location and Land Area

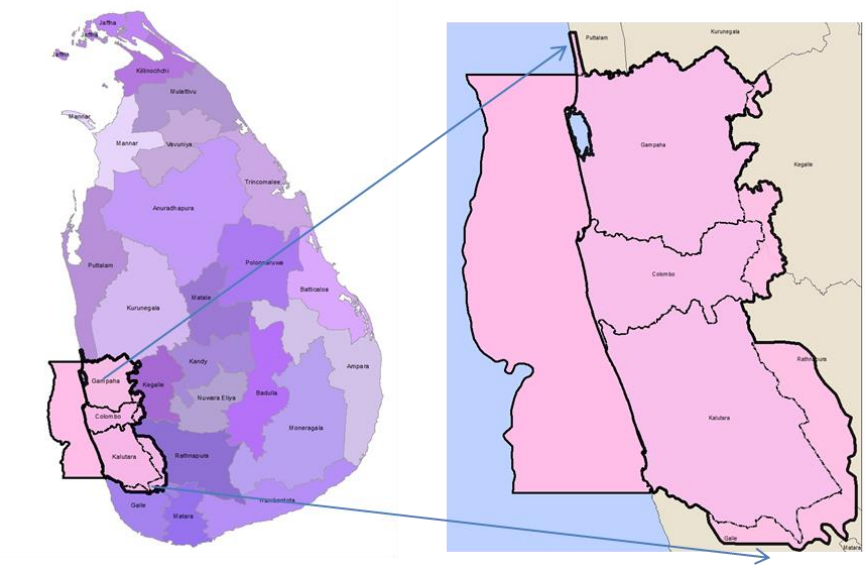


Figure. 2.1 Western Region Location Map

The Geographic area designated as the Western Region shall constitute of all Divisional Secretariat Divisions of the administrative Districts of Gampaha, Colombo and Kalutara, and the Marine Zone which encompasses marine waters and landmass bounded by 200m depth contour along the continental shelf from West, westward line drawn at Ma Oya (Kochchikade) river mouth at the Western Province border from North, westward line drawn through Bentara Ganga river mouth at Western Province border from South, and 300m shoreward from the High Water Line from East.

The city of Colombo is the economic, commercial, financial, political as well as intellectual nerve centre of the country, with the Western Region centered on the City of Colombo leading the rest of the country in all those spheres. The administrative capital Sri Jayewardenepura is located in the outskirts of the city of Colombo.

Geographically, the region covers a flat area along the coastline and undulating areas towards the eastern and southern part. Paddy fields, marsh land, Coconut and rubber plantations dominate the landscape of the region.

Present population (2012) of the region is around 5.8 million, with about 2 million living in the city of Colombo and its suburbs while majority of the population living in villages scattered across the flat areas. The total population in the proposed Western Megapolis is envisaged to reach 8.7 million by 2030.

2.2 Strategic Significance

Although in terms of land area, Western Region only constitutes about 6 % of the total land area in Sri Lanka, it accommodates the highest population, which is about 29 % of total population of Sri Lanka.

In terms of GDP contribution, Western Region produces more than 40 % of the total GDP of Sri Lanka and thus is the main contributor to the country's economy. Another indicator of its importance is that, around half of the total universities in Sri Lanka are located in Western Region.

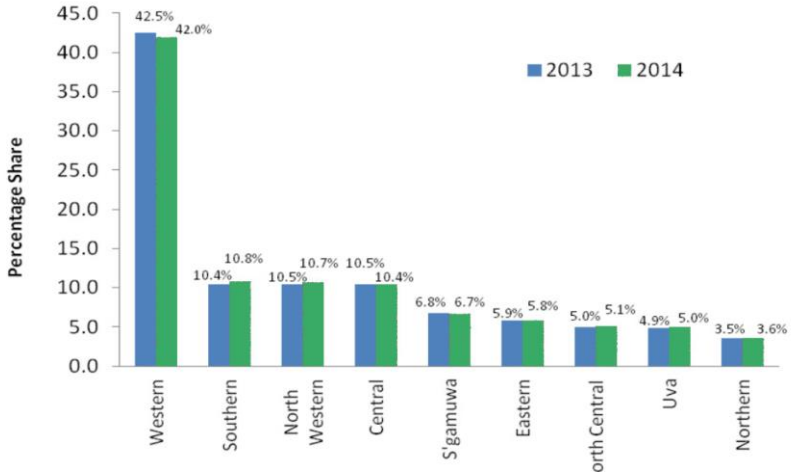


Fig. 2.2 Share of Percentage GDP in the Overall GDP by Province (Source: Central Bank of Sri Lanka)

Colombo with its strategic location alongside one of the busiest sea-routes of the world connecting South-East and East Asia and Oceania to Middle East and Europe, has the potential of building upon its already prominent standing as an important sea-port in the region to a Strategic Maritime Hub serving the Southern part of Indian sub-continent as well as all neighbouring countries bordering the Indian Ocean and beyond.

Sri Lanka has been a prominent maritime and trading hub in the Indian Ocean for over two millennia of record history, primarily due to its strategic location in the Indian Ocean. Its potential to re-emerge as a Strategic Maritime and Trading Hub is further enhanced by re-emergence of the Indian Ocean as the economically most vital Ocean in the 21st century, having lost its standing to Atlantic Ocean in the 19th century and to the Pacific Ocean in the 20th century. The potential for enhanced maritime, trade and logistics activities will be largely complemented and synergized by parallel development of an Aviation Hub. The potential as a Maritime, Aviation and Trading Hub would be further strengthened by the 'time-zone' benefit.

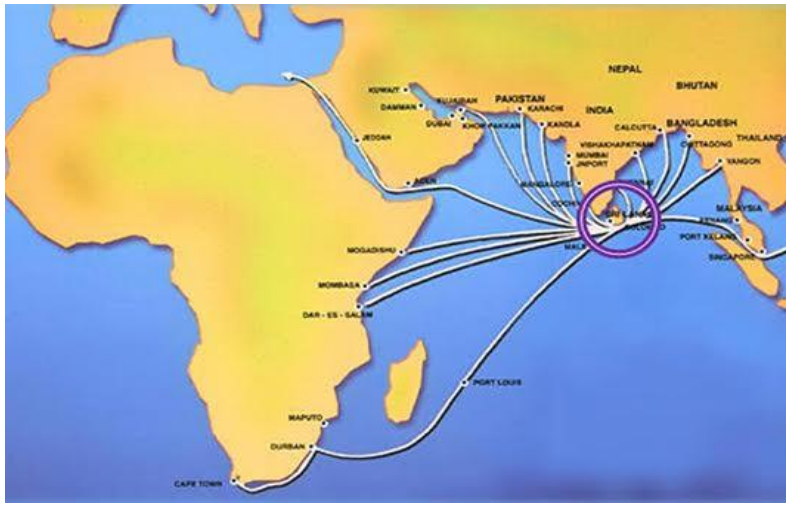


Fig.2.3 Maritime Routes of the Indian Ocean

Sri Lanka's investment friendly policies, its cosmopolitan society, high education level, good living quality as well as environment quality have also position the country as a favorable investment destination in South Asia.

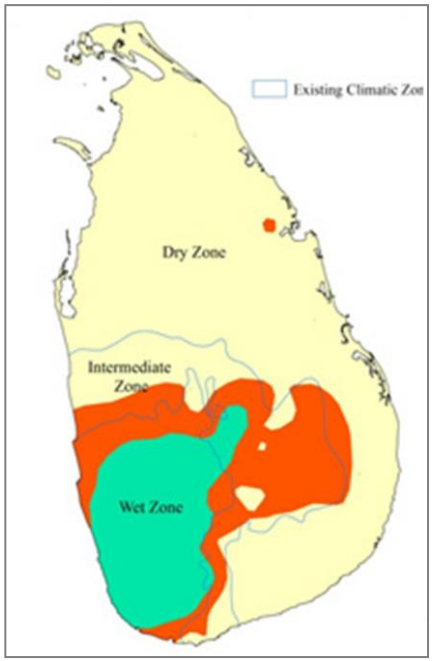
Considering the above and looking at the steady economic growth in South Asia, it is rightful for Colombo and Western Region to position itself as one of main Regional Hubs in South Asia, serving the southern parts of India and the smaller States in Indian Ocean.

On the other hand, the unique landscape of Western Region with water bodies, wetlands, and lakes also position Western Region as the greenest Metropolis in the region.

Fig.2.4 Aviation Route Map of the region

2.3 Physical Features of Western Region

Climate



The entire region belongs to the wet zone except for a small area close to the Northern boundary (which is a part of the Intermediate Zone). The average annual air temperature ranges from 26.2-29.7 ^{o}C. The average annual minimum and maximum temperature varies from 22.2-26.7^{o}C and 29.9-32.7^{o}C, respectively. The period between November to January and April to June are considered as the coolest and hottest periods of the region (DCS, 2012). The mean annual rainfall ranges from 1,500 to over 4,500 mm. The coastal belt and Gampaha district receive relatively low rainfall compared to Kalutara and Colombo districts. Over 70% of rainfall is received from the South-West Monsoon and Second Inter Monsoon. The Western Region is usually wet and humid, where the mean monthly day time and night time relative humidity of the Region ranges from 68-77% and 83-91%, respectively.

Topography and Geology

The topography of the landscape is generally flat in the coastal areas, with a rolling and undulating terrain towards the South-Eastern part of the Region, where the altitude increases up to about 100 m.The geology of the Region is dominated by Precambrian rocks of the South-Western group, consisting of Schists, Gneisses, and Granulites of metasedimentary origin, as well as Migmatite and granitic gneisses. Red-yellow Podzolic soils are the main soil type in the Western Region, with sub-groups. Soil in the Colombo and Gampaha districts include the sub-group with soft or hard laterite rolling and undulating terrain, which also occurs to a lesser extent in the Kalutara district. The ill-drained lands in the lower coastal plain of the region include bog and half-bog soils with flat terrain (i.e. Muthurajawela and Attidiya marshes). The beach areas from Negombo to Mount Lavinia consist of a narrow stretch of Latesols and Regosols on old red and yellow sands. Narrow strips of alluvial soils occur along the floodplains of Kelani River, Dandugam Oya and Kalu River.

Hydrology

Out of the total extent of Western Region, 91 km^2 (2.5%) is occupied by inland waterbodies. Out of 103 river basins and 36 major river basins of Sri Lanka, five major river basins, namely Kalu and Kelani river basins, Attanagalu Oya and Maha Oya river basins and Bentota Ganga river basin are located in the Western Region.

Land use

The land use system of the region is dominated by home gardens followed by rubber plantations, paddy lands, coconut plantations and natural forests. In Gampaha District, the dominant form of land use is home gardening followed by coconut plantations, paddy farming and rubber plantations.

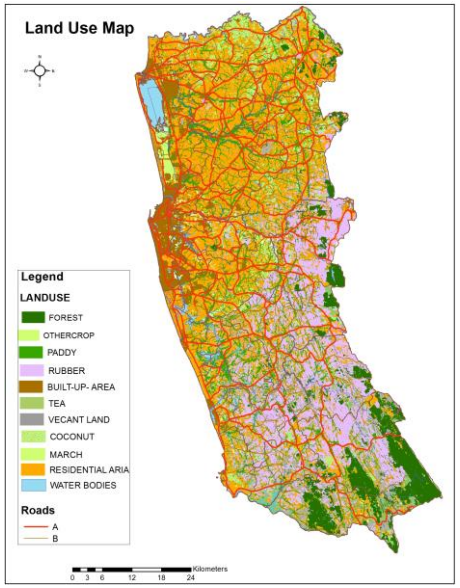


Figure 2.5 Land Use Plan

Gampaha District has the lowest extent of natural forests in the region. In Colombo district, rubber plantations are the dominant form of land use followed by home gardens, paddy farming, built up lands and coconut plantations. In Kalutara District, land use pattern is dominated by rubber plantations followed by home gardens, paddy farming and natural forests. (Figure 2.5)

Natural Assets

The Natural Assets and environmentally sensitive areas in the Western Region including rivers, streams, tributaries, lakes, lagoons, reservoirs, manmade tanks, freshwater swamps, freshwater marshes, paddy fields, mangroves, sandstone reefs, National parks, sanctuaries, conservation and reserved forests, and proposed forest reserves and Environmental Protection Areas (EPA's).

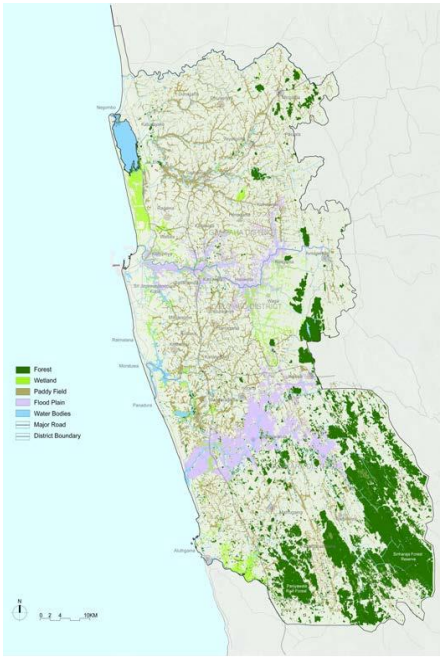


Figure 2.6 Natural Assets of Western Region

Even though the natural habitat coverage of the Western Region is extremely low compared to the other eight Regions, it is one of the richest Regions in terms of species diversity, especially threatened, endemic and restricted range species. Nearly 50%or more of the total number of species of many taxonomic groups (especially birds) is recorded from the Western Region. However, it should be noted that more than 75% of the natural forest patches in the Western Region have not been inventoried properly and therefore the representation of species in the region is likely to be much higher than what is reported presently. (Figure 2.6)

Environmental Sensitive Areas already under Legal protection

Some of the areas in the Western Region are legally protected under the Forest Ordinance, Fauna and Flora Protection Ordinance and National Environmental Act. (Fig 2.7). There are 21 already declared Forest Reserves and 41 proposed Forest Reserves within the Western Region. In addition, there are 4 Sanctuaries and one National Park, namely Bellanvila Attidiya, Muthrajawela, Maimbulkanda-Nittambuwa, Sri Jayewardanepura Kotte Sanctuary and Horagolla National Park declared under the Fauna and Flora Protection Ordinance.

In addition to the above, several environmentally sensitive areas have been declared as Environment Protection Areas under the National Environmental Act. (Fig 2.8). These include Muthurajawela Buffer Zone, Thalangama Tank, Walauwatta Wathurana, Bolgoda North and South, Dedigama Kanda. It is imperative that these protected areas continue to be protected in the future with strict implementation of the respective laws in order to ensure that proposed development in the region, does not lead to incursions into these protected areas or impact adversely on them in any way.

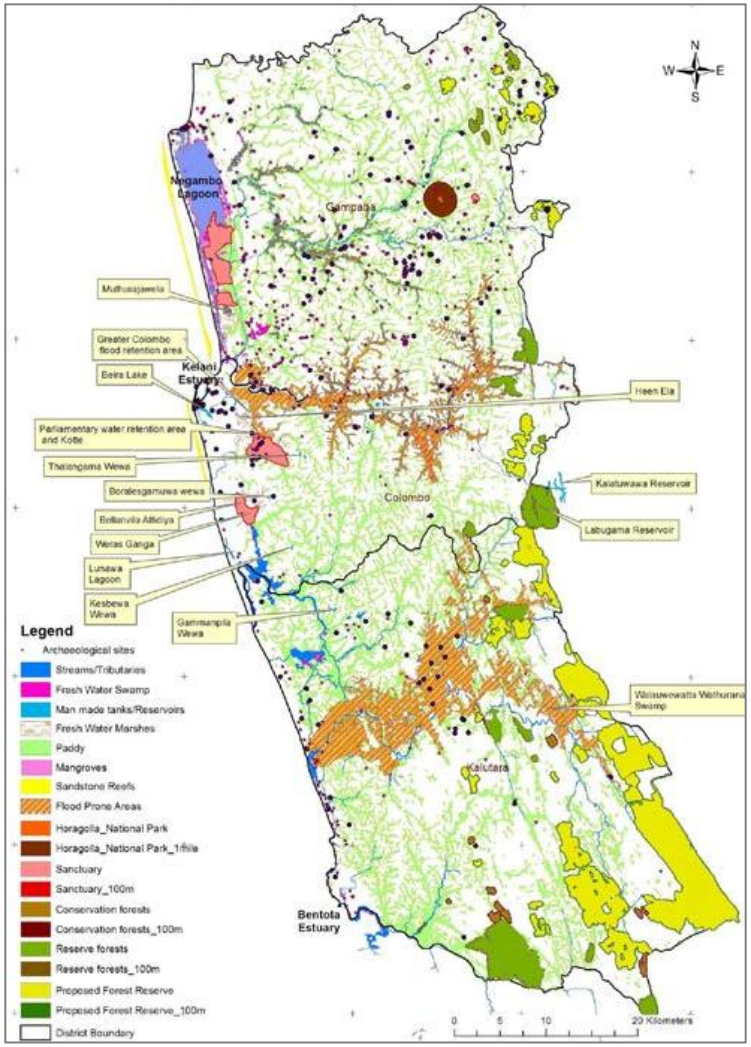


Fig. 2.7 Environmental Sensitive Areas of Western Region

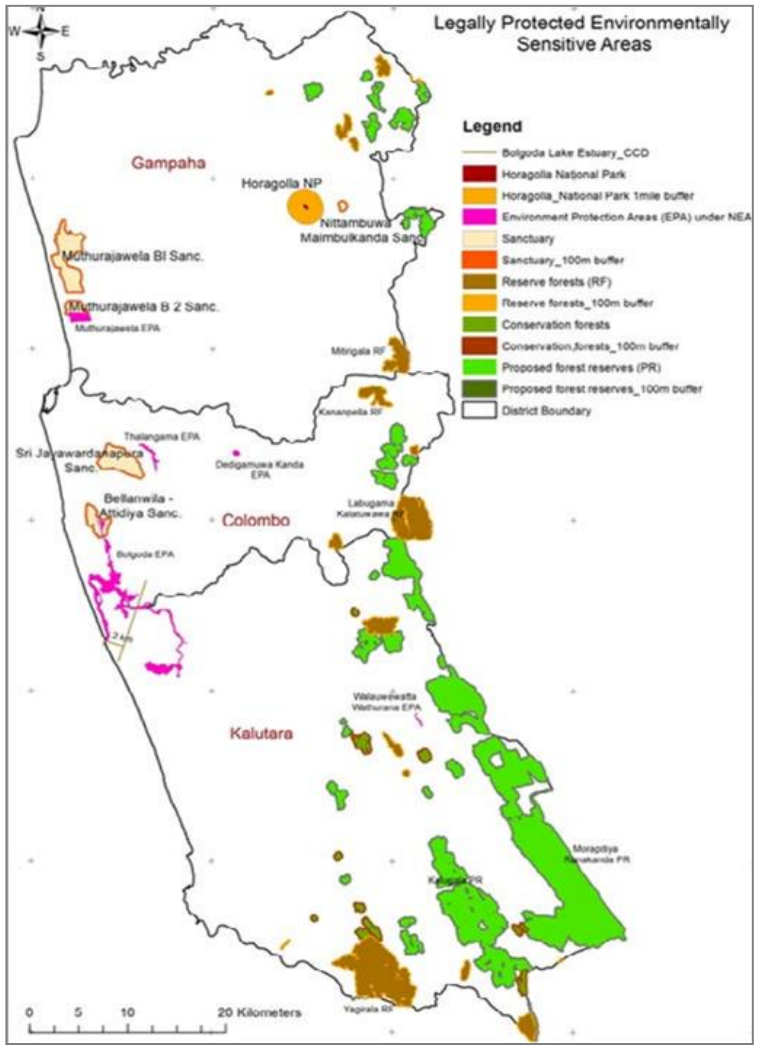


Fig. 2.8Legally Protected Environmental Sensitive Areas

2.4 Archeological Sites and Monuments

There are as many as 157 archaeological sites scattered across many villages in the Gampaha district, 92 sites in Colombo district and 42 in Kaluthra district , that have been identified and mapped by the Department of Archaeology as depicted in the map.

There are however many serious threats to these sites such as looting and vandalism, treasure hunting, neglect, improper maintenance, encroachment and pressures due to urbanization. There are also potential threats to these sites through natural disasters such as floods, earthquakes, cyclones etc.

It is strongly recommended that the inventorisation and documentation of the archaeological sites within the Western Region is completed along with photography and GIS maps, as early as possible. It is also proposed that site management plans are prepared and implemented for the significant sites and that periodic monitoring of the sites are carried out by the Department of Archaeology. Adequate funds should be provided to the Department of Archaeology for this purpose.

2.5 SWOT Analysis

Western Region is endowed with natural resources, fertile land, abundant of water and attractive coastal areas. Experiencing a healthy economic growth in the past 10 years, Western Region is on the path of progress and development. However, rapid economic growth has brought employment and wealth, but also urban and environmental issues, such as traffic jams, pollution, unmanaged garbage, etc. Similarly the region has potentials to grow and opportunities to overcome issues and threats.

Considering the issues, constraints, opportunities and threats, the SWOT analysis is undertaken to improve the region for future growth and development.

Strengths

- Absolutely peaceful environment with guaranteed security - No threats of terrorism
- Strategic geographic location in international shipping and aviation routes
- Strong regional linkages (External & Internal)
- 100% coverage of reliable electricity, only south Asian Country with 24 X 7 electricity
- Substantial coverage of land & mobile telecommunication
- Substantial coverage of high speed broad-band connectivity
- Availability of developable lands
- Colombo is a major port of call for more than 30 main lines including almost all the top container carriers and more than15 feeder carriers.
- Location of main business centers Banks and financial hub of the Country
- Location of an International and domestic airports with expansion potentials
- Relatively high per capita income of citizens
- Educated labor force, talented youth and high percentage of literacy rate
- Archeological and cultural landscape / large number of archeological sites to be preserved and potential to make tourist attraction
- Location of world renowned universities & schools
- Location of world class hospitals and health institutions
- Social infrastructure is fairly well distributed according to the population distribution
- Social harmony and integration potentialities with less discrimination
- Relatively flat terrain.
- Availability of fertile and cultivable land-masses
- High Density built-up area
- Five important rivers and valuable waterbodies flowing through the region
- Conducive climatic conditions
- Rich Biodiversity area and connection to Sinharaja tropical rain forest(world man and biosphere site)
- Availability of extensive bio diversity and natural resources. Forest water bodies, waterfalls, lagoons, bays, wetlands, mangroves and marine resources are located within the region.

- Location of designated ecosystems and sanctuaries.
- Diversified agriculture (plantation, Spices, vegetables, export crops etc.)

Weaknesses

- Lack of an appropriate land policy
- Ad-hoc land development
- Mono centric urban spatial structure
- Use Airports for military purposes
- Underutilized bandwidth of data connection
- Poor public transport system
- Increase of private vehicles on roads
- Low attention on tourism and fishing sectors
- Tourism and infrastructure development is not compatible
- Siting of industries in ad-hoc manner
- Rigid policies and rules
- Lack of skilled laborers/ skilled labor migration/brain drain
- Underutilized economic infrastructure (Port and Airport)
- High land prices due to govt. institutions interventions
- Abstraction of ground water
- Low-lying areas under seasonal flooding
- Lack of proper drainage system and flooding in the cities
- Land fragmentation
- Encroachments of the environmentally sensitive areas
- Political interference on encroachments
- Existence of polluting industries.
- Polluted rivers and water bodies
- Traffic congestion during peak hours and increase in air pollution

Opportunities

- IT/BPO Software Product Engineering and Financial Services outsourcing
- Colombo as shipping & Naval hub
- Construction of a city around the Airport (Airport City)
- Nonpolluting value added Industrial Development
- Encourage migration of population into the Province
- Export Agriculture and horticulture
- Development of compact city development
- Development of Cruse tourism, Eco tourism, Cultural and leisure tourism
- Potential for Export market oriented industries and value added process
- Availability of international shopping malls

Threats

- Construction of new Ports in India
- Competition with neighboring countries
- No continuation of national policies
- Aging Population – Diminishing demographic division

- No legally established system for national level policy preparation and institutionalization/National think tank system
- Poor Law enforcement
- Local professional are not appraised in development efforts
- Professionals tempted to migrate out of country

- Deliberate drive for Social unrest
- Crimes
- Politically motivated development efforts
- Land speculation

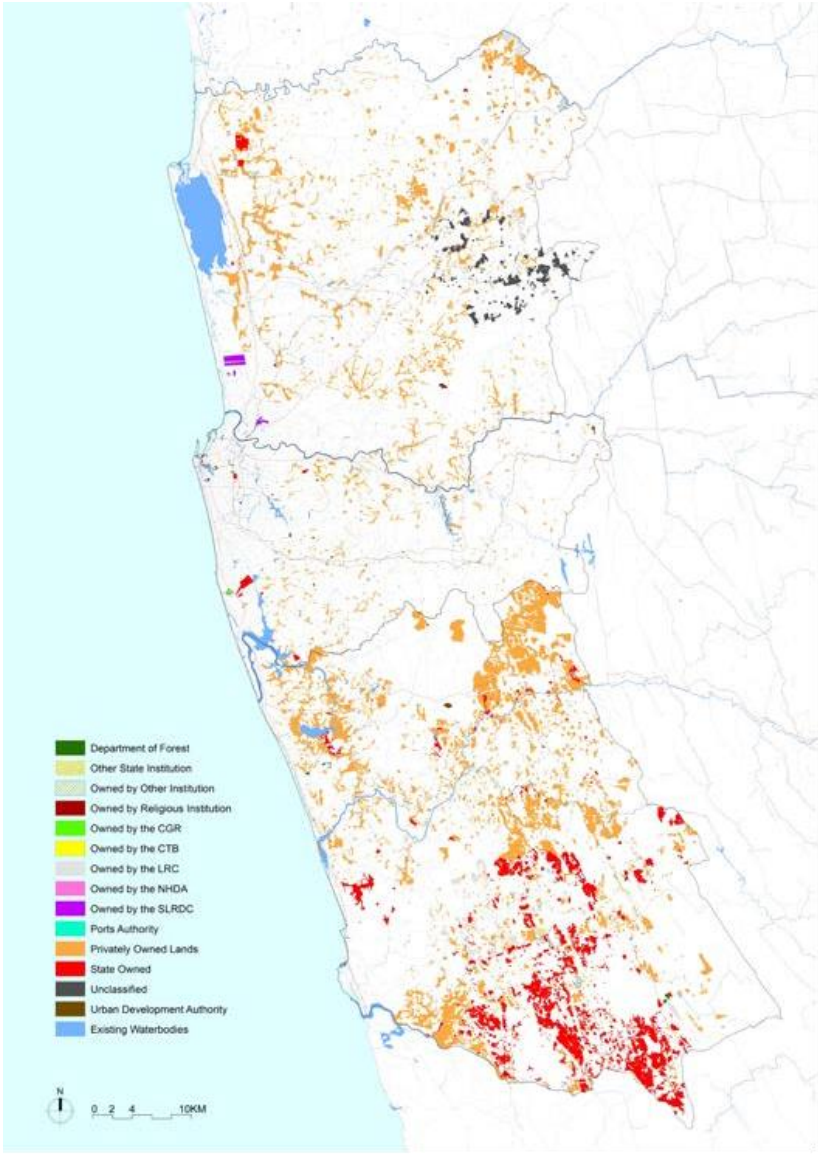


Fig.2.9 Existing Opportunities and Land Ownership in Western Region

CHAPTER 3: DIMENSIONS OF GROWTH

3.1 Economic and Employment Projection

The economy of Sri Lanka and Western Region has grown steadily since 2004 and it is projected to grow more rapidly provided that the peace and stability are maintained. With a GDP/capita approaching 4000 USD, Sri Lanka is considered a middle income country.

In 2014, the Sri Lankan economy reached an annual real GDP growth of 4.5 per cent, while the nominal GDP recorded a growth of 7.3 per cent to Rs. 10,292 billion.

Considering the high growth momentum, the GDP for Western Region is projected to reach over 230 billion USD by 2030. By 2020, the government targets the per capita income in Sri Lanka to triple to around 12,000 USD. This is assuming an average annual growth rate of 7-8%.The economic development in the next 15 years is crucial as the country has to move from labour intensive to skill intensive industries and to a knowledge based economy.

Positioned as the economic hub of the southern part of the Indian Continent, a few high values add economic sectors have been identified as the key economic drivers in the next 20 – 30 years, including:

- Information Technology, Science, Bio- Medical sector
- Port, airport, logistic and other transport related services
- Financial and services sector
- Tourism, including the MICE tourism sectors
- General manufacturing

While the project to be undertaken during the next five years are expected to generate approximately 500,000 jobs, the overall economic activities that will develop in the region are expected to generate employment opportunities in skilled and unskilled categories to a total of additional 2 million people by 2030. The unemployment rate is projected to decrease from 2.1% to about 0.9% by 2030. Figure 3.1 depicts the GDP growth of country & Western Region from 2014 to 2030.

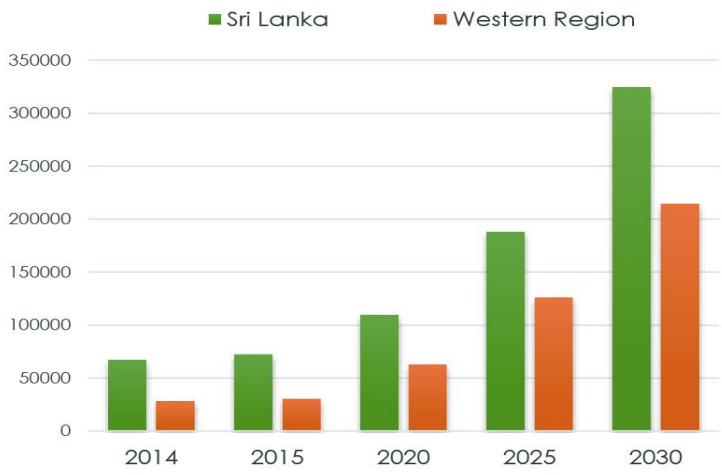


Fig.3.1 Projected GDP (US $ Millions) 2014 – 2030

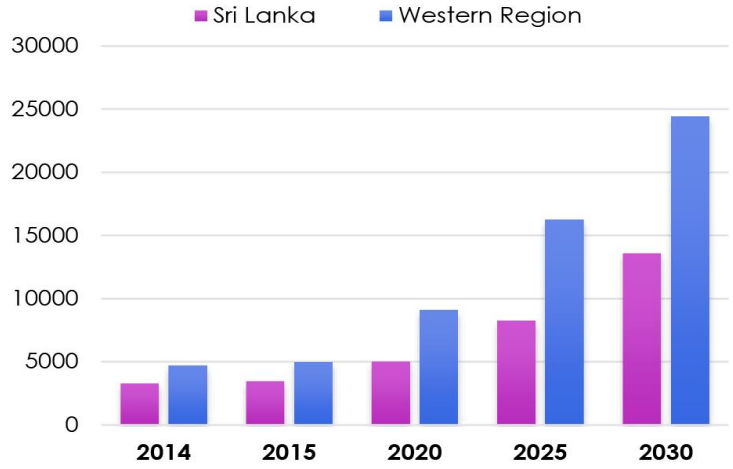


Fig.3.2 Projected Per Capita Income (US $) 2014 – 2030

3.2 Economic Forecast

While the economic growth strategies to be enabled to by the megapolis will have as their prime focus the achievement of the status of a high income country by 2030, in the meantime, drastic reductions in poverty and unemployment levels are envisaged, also ensuring housing for all.

Four basic objectives were used in developing the Economic Model namely,

- To assess the level of per capita income to be realized by 2030 in order to achieve the per capita income of a high income country, poverty and unemployment rates less than 1%, and housing for all,
- To estimate the level of GDP and per capita in Western Region Megapolis with the objective of meeting the national target by 2030;
- To estimate the level of investment that requires to achieve the GDP and per capita targets by 2030; and
- To identify the potential investment areas and projects achieving the overall objectives of Megapolis Development plan.

low-income economies	$1,045 or less
Lower-middle-income economies	more than $1,045 but less than $4,125
upper-middle-income economies	more than $4,125 but less than $12,736
high-income economies	$12,736 or more

Classification of Economies World Bank- 2015

The table above gives the classification of economies based on gross national income made by the world bank in July 2015,according to which a high income country is defined as a country with a per capita GNI above $ 12,736 in terms of 2015 figures.

While a significant increase is expected in investment as a percentage of GDP, the major impetus for the growth of economy is expected to be achieved mainly by way of improving the efficiency of economic activity by consistent and continual action to maintain the incremental capital output ratio at optimum levels at all stages of growth. The major proportion of investment is expected to come from foreign sources.

Achieving high income country status - GDP Growth rate computation

National Context		2014	2015	2020	2025	2030
Nominal GDP			11,092	20,469	37,774	69,709
Real growth			5.5	7.7	7.7	7.7
GDP per capita			3,895	5,635	8,443	12,735
Western contribution						
Popualation	Million	6.1	6.2	6.7	7.3	8.0
Western province share	Percent of total	42.2	42.3	43.2	44.1	45.0
Western province share	LKR billion		4,697	8,845	16,657	31,369
Per capita income	LKR billion		761,923	1,315,463	2,271,153	3,921,157
Per capita income	USD		5,542	7,661	10,871	15,427

A public – private partnership strategy will be the main focus of development approach followed in executing the Western Megapolis. While roles of the provision of essential infrastructure, overall planning and implementation, and monitoring of implementation performance will be the main public sector responsibilities, mobilization of investment funds, direct responsibility of investment based on high tech technologies and, production and export will be the responsibilities of private sector.

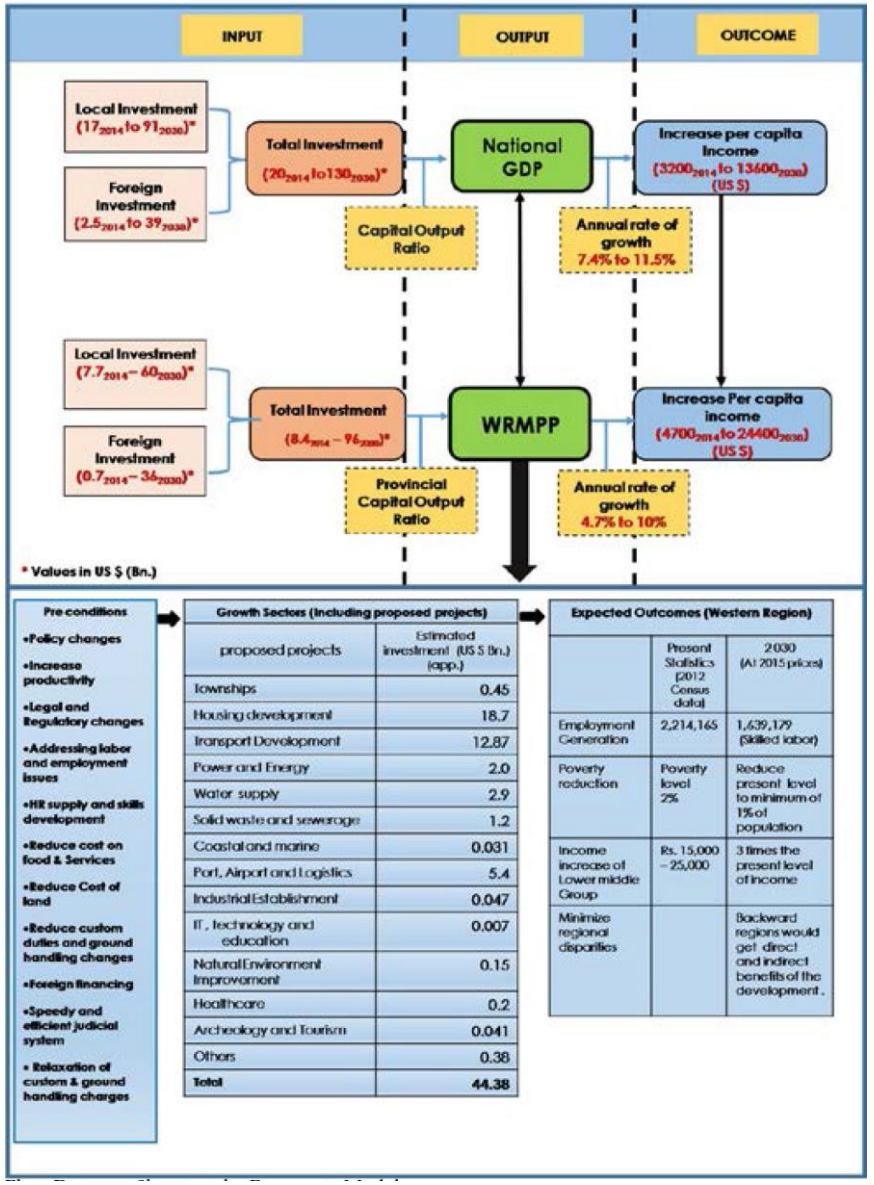


Fig. 3.3: Diagram showing the Economic Model

3.3 Demographic Projection and Distribution

The existing population of the Western Region is around 5.8 million, which represents 29% of the Sri Lanka's total population. The Western Region is the most populous province in the country.

While the demographic growth were not as fast as projected before, an estimated maximum population of around 9 million can be expected within the Western Region by 2040 as a result of the fast economic development envisioned in the next decades.

The demographic projection is presented in figure 3.3. The projection indicates that additional 3 million people would be added to the Western Region over the next 15-25 years with an annual growth rate of around 2.3%. This is to be viewed against the limited extent of only 32,000 acres of land available for accommodating nearly 3 million increases in population by 2030.

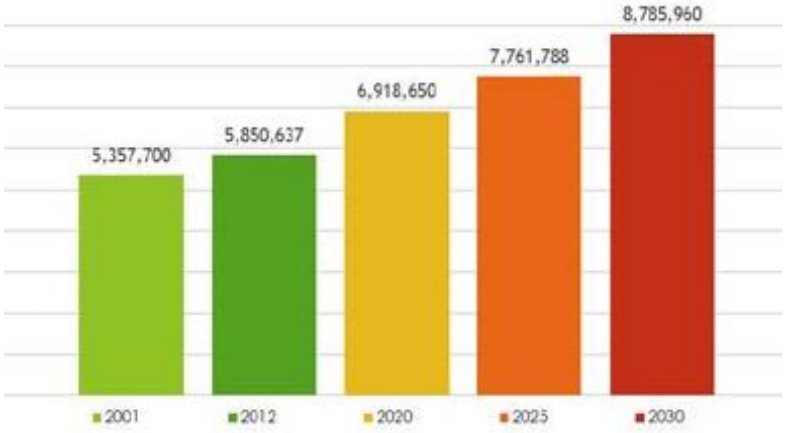


Fig.3.4 Projected Population Growth (2012-2030)

A higher number of new population is expected to reside in Gampaha District where employment opportunities are very high in the logistics and manufacturing sectors. Larger addition of population is also expected in the Colombo District due to the higher number of employment in the services and technology sectors and the densification of development in Colombo City.

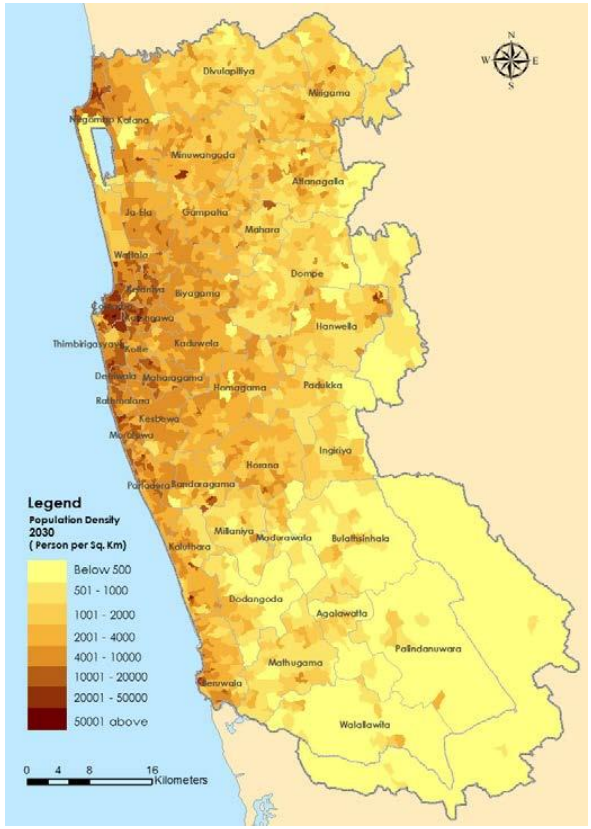


Fig. 3.5 Projected Population Density of Western Region 2030

3.4 Employment and Population Distribution

In the past 10 years, the population growth in Western Region was marginal but the level of urbanization was considerably high, especially in Gampaha District. This is probably due to land availability and its proximity to employment centres, such as the one in Colombo city, the airport, the industries and the port. To date the population in Gampaha District is almost as high as the Colombo District and in case the trend continues, Gampaha District's population may surpass Colombo District in terms of future population.

In the future, however, as Sri Lanka is transforming from skill-based economy into knowledge-based economy, more jobs will be created in the services and financial sectors as well as in the technological sectors. These types of employment will likely be created in Colombo City and its fringe areas and this will tilt the balance again in favour of Colombo District to have the highest population in Western Region.

The population in Gampaha District on the other hand will also grow due to new employments created in the airport, port, logistics and manufacturing sectors.

The projected employment and population distribution in Western Region is as shown in the following table 3.3.

Planning Area	Population 2030	Employment 2030
CBD	1,442,657	581,818
Colombo Fringe	1,383,346	529,911
Katunayake Aero City	892,959	374,087
Mirigama Industrial City	264,277	110,539
Horana Industrial City	381,137	156,470
Baduraliya Forest City	458,885	180,053
Gampaha Residential Zone	1,185,259	461,156
Malabe Knowledge City	508,185	195,622
Logistics Corridor	617,249	244,806
Muthurajawela Tourism Zone	508,271	213,865
Avissawella Plantation City	407,137	167,168
Southern Tourism Corridor	736,608	284,610
Western Region	**8,785,970**	**3,500,105**

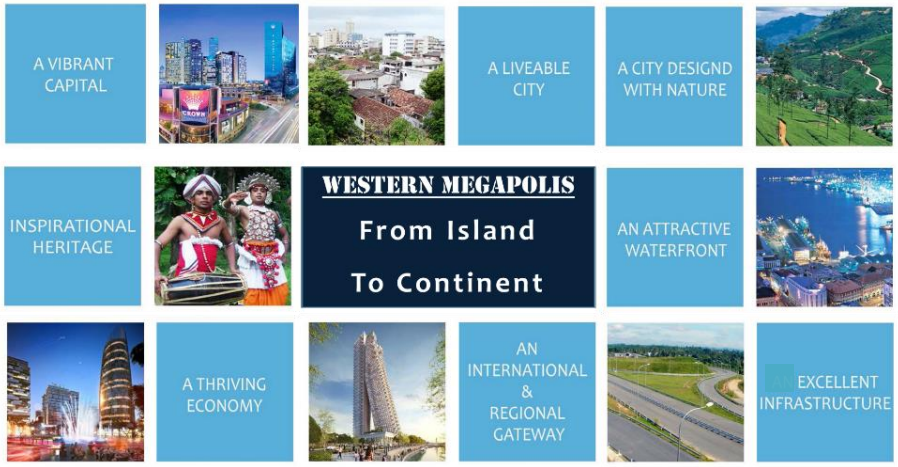
Table 3.6 Projected Population & Employment of Western Region 2030

CHAPTER 4: WESTERN MEGAPOLIS - THE STRATEGIC FRAMEWORK

4.1 Guiding Philosophy: The Four Pillars

The overall development philosophy guiding the conceptualization, planning, and implementation of all specific objectives, strategies, projects and programmes pertaining to Western Megapolis is based on the **Four Fundamental Pillars**,

- Economic Growth and Prosperity
- Social Equity and Harmony
- Environmental Sustainability and
- Individual Happiness



The overarching vision of reaching higher echelons of development along these four dimensions is symbolized by the tagline;

"From Island to Continent"

- A challenging target, yet achievable through pragmatic strategy and cohesive action.

4.2 Goals and Directions

Goal 01

Creating jobs and investment :

Create a dynamic regional spatial structure that promotes economic productivity, attracts investments, enhances business opportunities and creates jobs.

Directions

- To achieve a Per Capita GDP level of a 'High Income Developed Country' by year 2030.
- To restructure the regional economy to achieve an average annual real GDP growth rate of 8 % in line with natural resources and natural assets.

- To reduce the unemployment rate from 4% to 2% by 2020, and maintain the same up to 2035 by creating approximately 2.1 million new employment opportunities.

- To promote high economic growth based on port, airport, logistics and tourism HUBs

- To increase the GDP contribution of SME from 50% to 60% within the WR

- To enable structural transformation of the economy such that

  ✓ Manufacturing and the Tradable high-tech services with export potential constitute the major proportion of the GDP,

  ✓ Exports exceed 30% of GDP, and

- To promote value added export oriented agriculture in sustainable manner in order to encourage SME entrepreneurs in the eastern segment of WR.

- To improve the socio-economic conditions in the region while protecting the natural environment, including the ecological sensitive areas and marine & coastal ecosystems

- To create an attractive and conducive economic environment for direct foreign and private sector investment

- To increase service sector and industrial sector contributions to GDP respectively by 60% and 42% maintain by 2030

- To maintain the agriculture sector contributions of 8% to GDP by 2030 respectively

- To reduce the percentage of households below the poverty line from 2.2% to 1%by the end of the plan period

- To promote WR as high-end tourist destination and increase tourist arrivals to 4,500,000 by 2035

- Achieving a country ranking of 40 or better in both Knowledge Economy Index (KEI) and Global Innovation Index by 2030 (from current rankings of around 100)

- To achieve self-sufficiency in Energy, Food and Pharmaceuticals by 2030, and to strive to achieve 100% Green Energy beyond 2030.

Goal 02: A resilient region:

A sustainable and resilient region that protects the natural environment and creates a balanced approach to the use of land and its natural resources

Directions

- To encourage sustainable use of natural resources especially forestry and coastal resources

- To safeguard the fragile ecosystems such as lagoon, wetlands, remain segment of tropical rain forests of the region

- To assure minimal environmental impacts during the implementation of the development projects
- To promote sustainable urban environmental management in the proposes development areas
- To develop eco-tourism and agro tourism opportunities in forestry reserves
- To ensure Environmental Sustainability and Disaster Resilience, Preserving natural eco-systems, Preventing pollution of air, water and soil beyond permissible safety limits, and Making the Megapolis Resilient to Climate Change and Natural Disasters

Goal 3: Efficiently Connected

Efficient and integrated connectivity and mobility systems that facilitates the connectivity and movement of people and goods

enhance the functional efficiency and the productivity of the region

- To develop integrated connectivity system to strength the intra and inter regional connectivity within the Western Region and with the rest of the country
- To optimize the functional efficiency in the proposed urban structure with integration of traffic & land use

Goal 4: Smart Livable Places

Accommodating growth in modern smart compact polycentric urban villages

Directions

- To Create healthy and active livable neighborhoods and maintain identities of settlements
- To provide a diversity of housing in defined locations that cater for different households and are close to jobs and services
- To fulfill the present demand for housing in the designated areas for human settlements in the proposed mega polis plan
- To develop housing development in harmony with the Environment
- To develop Safe, Healthy and livable Neighborhoods in designated SMART cities
- To promote sustainable neighborhoods that have mixed- income housing, jobs, amenities, services and transit
- To achieve 'Housing for All' by 2030 with Water, Sanitation, Electricity, Waste Management and other urban services and amenities

- To make the Megapolis one of the top 10 most livable cities in Asia, Attracting entrepreneurs and professionals, reversing brain-drain, and retaining potential migrants within the country, building upon the pre-existing conditions of absolute peace and guaranteed security.

- To enable a high degree of individual happiness among citizens,

  - ✓ Strengthening unity and harmony among different ethnic and religious groups preserving all conducive forms of diversity, and

  - ✓ Creating an environment conducive for spiritual development

Goal 5: **Value added sea resources**

Protect and sustain the marine waters and its resources in ecosystem-based manner

Directions

- To develop marine waters and sea front to attract tourist for water based recreation activities

- To strengthen the fisheries infrastructure to increase the contribution to the GDP through a sustainable and responsible fisheries industry

- To explore mineral resources for commercial purposes.

- To explore shipwrecks in the western coast and facilitate interested persons, such as divers, treasure hunters, historians and tourists to visit such places

Goal 6: **Reliable and Efficient Services delivery**

An integrated reliable and efficient regional social and physical infrastructure system

- To upgrade and improve the health infrastructure to promote high quality health care at all levels with easy access to people

- To make people more health conscious and enable them to adopt healthier life styles

- To develop the WR as internationally reputed education and knowledge hub in Asia

- To provide required educational infrastructure to the people of WR in order to increase the level and quality of education

- To develop human resources to meet the future skilled labor requirements for the development of the province and the social development of the younger generation to facilitate the formation of a secure civil society

- To revitalize all tertiary and technical/vocational education system, both formal and non-formal, in the WR to suit the future labor needs arising from the envisage mega development

- To provide sufficient and safe drinking water to 85% of the households of WR by 2020 and to 100% by 2035

- To provide potable water supply to 100% of the urban population

- To provide water for industries and other non-residential activities

- To provide adequate opportunities for primary, secondary, tertiary vocational and university education in line with the needs of economic transformation

- To provide adequate sanitation facilities to 75% of the households in the WR by 2020 and to 100% by 2035

- To provide efficient and reliable power and energy supply in order to support the proposed socio economic development programs in the WR

- To encourage the use of the solar power for home lighting.

Goal 7: Better Governance & Regulated Development

Achieve outcome-based delivery system through better governance, planning, regulation and funding mechanisms

Directions

- To create the new Authority with powers to implement the plan and its projects and monitor implementation.

- To provide rational zoning and building regulations in order to support the envisaged socio economic development in the WR.

- To setup a transparent and public access mechanism for implementation of regulations

- To establish and institutionalize the digital infrastructure necessary for a well interconnected, well instrumented and intelligent smart city enabling transformation of the national economy into a predominantly knowledge-based innovation-driven economy

4.3 The 10 Mega Projects

There are over 150 different development projects already identified for being implemented under the Western Megapolis, and naturally the number is bound to grow and the projects bound to evolve, given that this mega development initiative is evolutionary by its very nature. Indeed, avoiding over-planning and leaving the desired flexibility for organic evolution of the detailed plans and their implementation within the master spatial plan has been a conscious guiding principle adopted throughout the process of developing the master plan.

The Ten Mega Projects identified below represents grouping of the majority of the development activities identified in the planning process, based on a mainly functional and partly geographic non-exhaustive categorization. (The complete list of development projects identified under each geographic area is given in Appendix I.). While the Mega Projects 1-3 represent major infrastructure development projects, those from 6-10 represent different thematic projects and their combinations.

1. Transport, Energy and Water
2. Housing and Relocation of Administration
3. Environment and Waste Management
4. The Aero Maritime Trade Hub
5. 'The High Rise' - Central Business District
6. Industrial and Tourist Cities - Mirigama, Horana, Negombo & Aluthgama
7. Science and Technology City
8. 'Eco Habitat' and Plantation City
9. 'Smart Nation'- The Smart City Development Project
10. 'Tranquility' – The Spiritual Development Facilitation

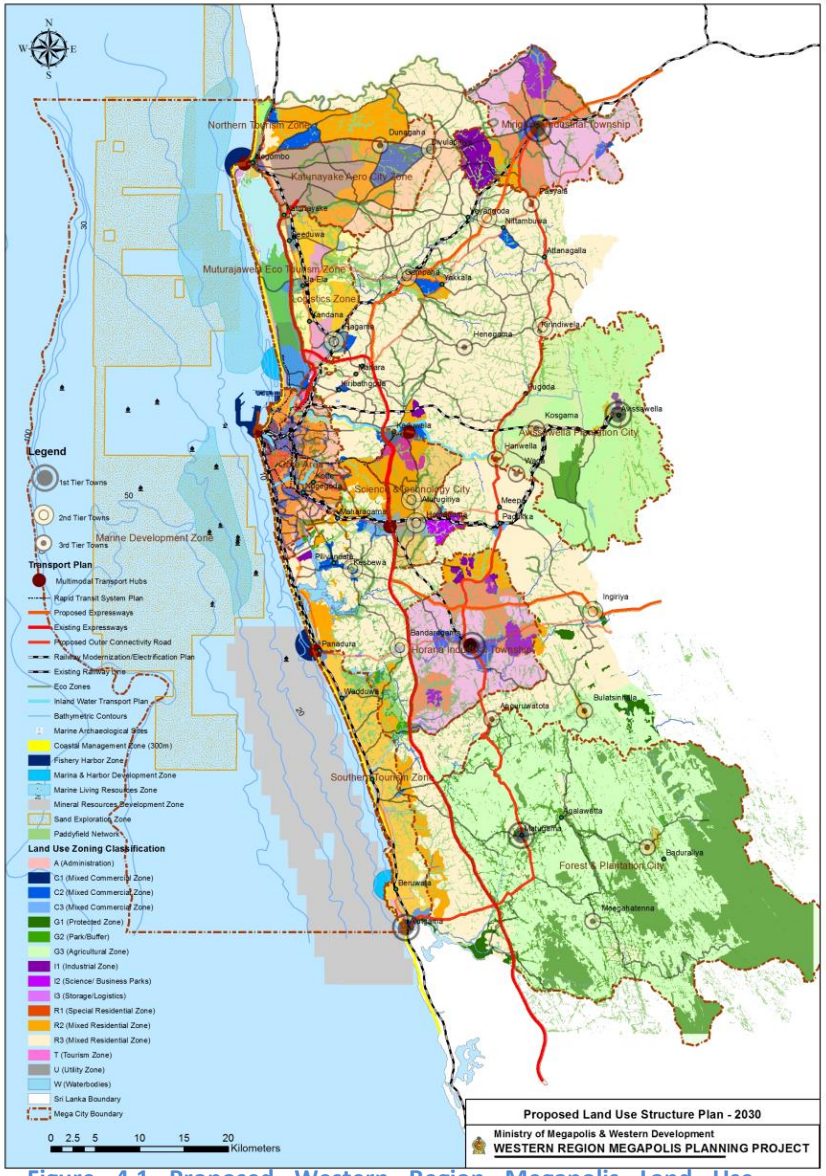


Figure 4.1 Proposed Western Region Megapolis Land Use Structure Plan 2030

Chapter 5: Transport, Energy and Water

Main Scope: *Infrastructure Provision: Transport, Energy, Water & Sewerage (includes implementation and delivery through PPPs and Private)*

Jobs expected: *61,000*

5.1 TRANSPORT

The Transport System of the country, particularly what is currently operating in the Western Region, calls for major strategic interventions not only to efficiently drive the growth of national economy, but also to avoid retardation of the whole economy due to fast intensifying congestion on the roads.

Currently the traffic congestion has been a serious issue on the road network in the City of Colombo and peripheral areas. The Traffic congestion has brought huge loss to the increasing vehicle operating cost as well as travel time cost.

The economic cost of fuel and time currently spent by Sri Lankans on the roads is Rs.1 billion per day. A person in the Colombo Metropolitan Region (CMR) travels 12 km a day on average between his home and place of occupation, whereas ideally this should be less than 5 km. Average speed by car or three-wheeler is 16 km/h, while the average speed of a bus within the region is 8 km/h per hour – less than half the desired speed of 20km/h, expected under an efficient transport system. More importantly, the cost of providing mobility as a percentage of GDP, which is already in the alarming 'orange zone' at 11.3%, will rise to 24.7% in the dangerous 'red zone', with dire implications for the economy, whereas this should not exceed 10%.

When planning for a transportation system to serve the existing and future townships and growth centers, it is vital to take into consideration the requirements of all the socioeconomic classes. The system must address both the local circulation network within urban areas and the inter-urban transportation network outside urban areas. It must also be able to cater to existing transportation needs of the community while having the flexibility, alternatives and adaptability to future changes.

The Plan will provide efficient connectivity system for its people to have easy access to facilities and at the same time avoid overcrowding at the Colombo core area. Employment opportunities in manufacturing and service sectors will be distributed to proposed growth areas or townships to ensure that there will be jobs available near home. It is anticipated that well-planned essential facilities such as health, education and basic recreational facilities like public spaces; parks, public pool and sport facilities will be provided in easily accessible distances.

In this context, transportation sector plays a key role to support the envisaged rapid development in the Western Region. The need to take an integrated approach to plan the road development, public transport services and rail transport system as a part of the Megapolis planning process have been well recognized as essential to ensure the efficient connectivity and mobility systems for the movement of people and goods within the region and the rest of the country.

Transport Issues in Colombo Metropolitan Area

JICA ComTrans Master Plan Study undertaken by JICA in 2013/2014 formulated a comprehensive urban transport master plan for the Colombo Metropolitan Region and selected six transport corridors to implement projects in short-term, medium-term and long-term. The Transport issue in the Western Region has been analyzed comprehensively in the said project. This Megapolis plan acknowledges the findings given in the study and use the same information for the preparation of transport plan for Western Region Megapolis.

Problems Associated with the Railway system

- Insufficient Linkage of the Network
- Lack of Feeder Service for Railways
- Insufficient Integration among Public Transport
- Lack of Railway Access to the International Airport
- Slow Operational Speed of Trains
- Deteriorated Rolling Stock, Track and Signalling Systems
- Insufficient Ralway Line Capacity
- Insufficient Revenue of Sri Lanka Railways
- Insufficient Expenditure for Maintenance of Railway system
- Low Level of Service of Kelani Valley Line

Problems in Bus Transport and Other Road-Based Public Transport

- Low Bus Operation Speed due to Traffic Congestion on Roads
- Pettah-Centred Bus Network
- Lack of Integration with Railways and Other Bus Terminals
- Low Service Level of Bus Operation
- Difficulty in Improvement of SLTB's Bus Service
- Inconvenient Bus Operation for Passengers due to Bus Rental System of Private Bus
- Operation
- Difficult Coordination between Public and Private Bus Operations
- Insufficient Support for Bus Fare Discount for the Transport Poor
- Insufficient Management on Bus Operation
- Market-Driven Regulatory Scheme of Road-Based Public Transport Modes

Problems on Road Network

- Insufficient Road Network
- Lack of Pedestrian Space
- Lack of Road Network Master Plan for the CMA
- Lack of Road Design Standards for Urban Roads
- Low Accessibility of the Existing Expressway Network
- Need to Enhance Access to Colombo Port for Cargo Transport
- Lack of Linkage of Expressway Network

Problems on Traffic Control and Traffic Management

- Traffic Congestion at Intersections
- Reduction of Traffic Capacity due to On-street Parking
- Traffic Accidents

Number of attempts has been made for better understanding of urban transport patterns in Colombo Metropolitan area, with the view to find solutions. Any transportation master plan needs urban structure plan to forecast the transportation trends for the future. Following two recent master plan studies are considered as significant

in proposing a comprehensive transport plan for the Colombo Metropolitan Region (CMR).

1. JICA ComTrans Master Plan Study undertaken by JICA in 2013/2014 formulated a comprehensive urban transport master plan for the Colombo Metropolitan Region and selected six transport corridors to implement projects in short-term, medium-term and long-term.
2. The Strategic Plan for Traffic Management in Colombo Metropolitan Region (Master Plan Review) by Ministry of Transport in 2015 prepared a transport master plan covering next 20 years up to 2035, which includes reviewing the master plan proposed by the ComTrans study.

Department of National Planning has made an initiative by drafting a policy paper on Urban Transport Strategy in Colombo by 2020/2035 in order to Promote Inclusive and Sustainable Urban Mobility in Colombo. The draft policy paper has recognized that the JICA study has identified a number of public transport related issues in CMA and forms the basis of the said report and a basis for the prioritizing the investments. However both of the above transport plans have used the 1998 CMRSP structure plan with updates to accommodate potential growth centres which is contrastingly different from the proposed Megapolis Structure Plan. The JICA ComTrans was planned with a population forecast of 7.8 Million people in 2035 while The Megapolis Structure Plan has a population forecast of 9.2 million by 2035.

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The Figure 5. 1 shows the difference of 2035 population between the Megapolis Plan and ComTrans Plan at Transport Analysis Zones (TAZ). The blue coloured areas have a higher population and green coloured areas have a lower population in Megapolis Structure Plan in contrast to ComTrans Plan. These show a forecasted population difference up to 100% in the Megapolis Structure Plan in areas such as Divulapitiya and Mirigama. A similar variation is forecasted for employment for the Megapolis Plan. Higher population centres are expected to generate more trips than the previous studies forecasted, while the higher employment centres are expected to attract the trips generated from the population centres. These changes in population and employment in Megapolis Plan is expected to change the trip patterns within the region.

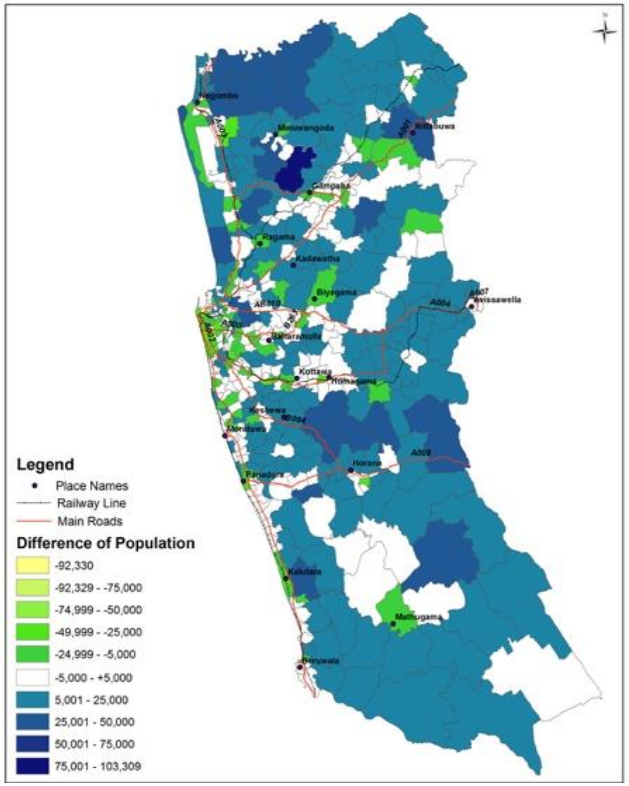
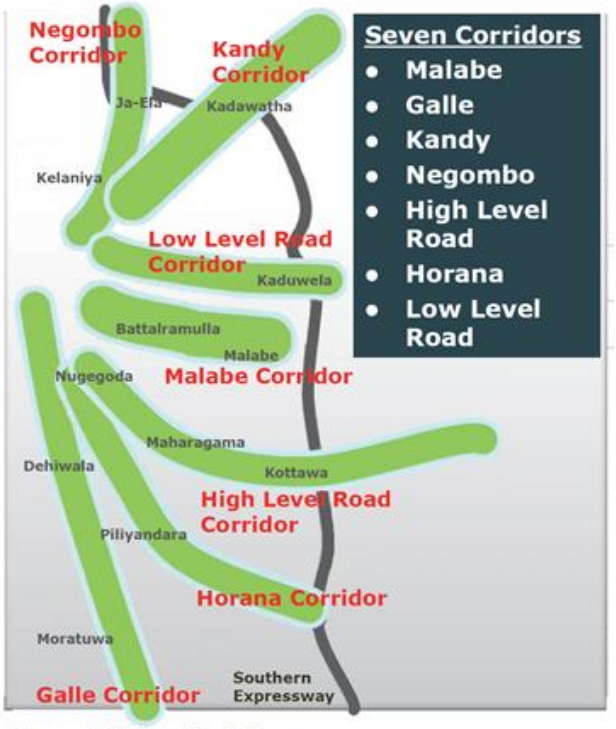


Figure 5. 1: Difference of 2035 population between the Megapolis Plan and ComTrans Plan by TAZ



Source: CoMTrans Study Team

Figure 5. 1: Transport corridor in Western Region

There are seven transport corridors as shown in Figure5. 2 that are radial connections to the CBD from major urban centres of CMA. The practice had been providing solution for each corridor; however people not necessarily travel just on corridors but between corridors as well. The Origin Destination (OD) desire lines as shown in Figure 5.3 shows the pattern of trips within region forecasted for 2035. This explains where people would like to travel from their trip origin. The Desire lines explain that people do not necessarily travel on corridors and actually travel between corridors as well. Therefore the technology that is selected to provide a solution to only one corridor will not be sufficient as people consider the total trip when they make a choice of selecting public transport versus private. The connections between corridors are vital to achieve the planned mode shift.

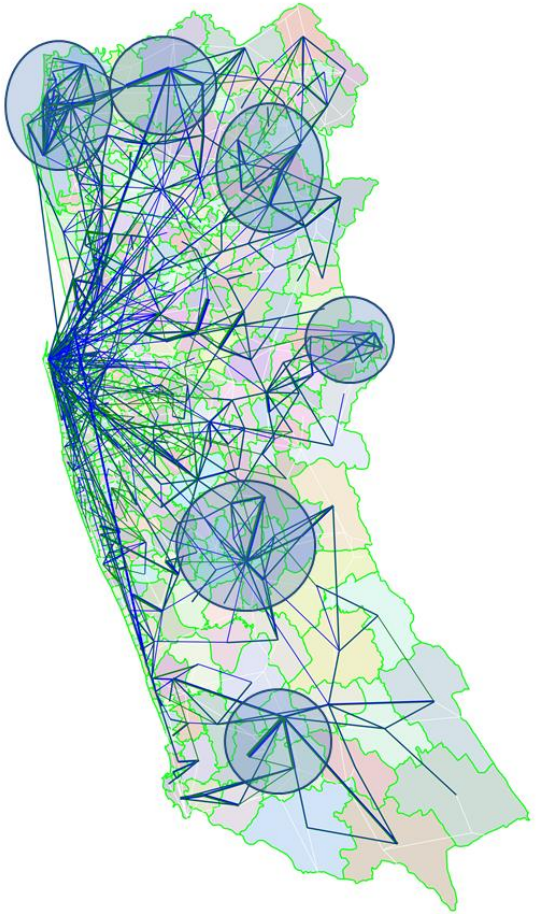


Figure 5.3: Desire Lines for 2035 Trips between TAZ

The desire lines shows that a concentration of trips towards Colombo CBD with a cluster of lines merging to CBD. However, it also shows patterns of short trips around Mega cities shown in circles in line with the envisaged structure plan of providing employment and necessary services around the city itself.

Table 5. 1: Daily Passenger Flows at the CMC Boundary – Both Directions

	Number of Passengers Entering CMC	
	2013 (ComTrans Study)	2035 (Megapolis Study)
Corridors		
Negambo Rd	245,880	761,493
Kandy Rd	437,120	966,101
Low Level Rd	150,000	201,779
Malabe Rd	348,000	656,040
High Level Rd	174,000	397,561
Horana Rd	130,000	448,505
Galle Rd	298,000	447,518
Non Corridors		
Kolonnawa Rd (B096)	89,335	136,057
Kirimandala Mw	27,051	30,933
Narahenpita Rd	47,623	135,596
Polhengoda Rd	14,857	40,700

Table 5.1 shows the number of daily passengers entering the CMC boundary. The 2013 numbers are based on ComTrans Study while the 2035 projected values are based on Megapolis Transport Plan forecasted values. It shows that the passenger trips will double by 2035.

It was highlighted in both JAICA study and the subsequent master plan review that public transport improvements are required and should be the priority. The Megapolis Transport Plan also share the same view of improvement to public transport. There are different urban transport technologies available to provide solution for the current transport problems.

As depicted in Figure 5.4, the identified technologies can be categorized based on cost of the technology in million US$ per kilometre and the capacity of the technology based on passengers per hour per direction (PPHPD) for a single lane/track. While the cost plays a role in economics of the intervention, the capacity plays a role in the sustainability of the intervention. An intervention with under capacity to cater for the project planning horizon is detrimental similar to intervention with a high costs. It is vital that technologies that can cater for the total project duration is selected. The figure shows the 2015 passenger per hour per direction for selected corridors which shows that some of the technologies are almost at capacity even at current stage and some are beyond providing a solution for these corridors. Trams shown in light green in the figure which has about 5000 PPHPD is beyond providing any solution for the current problem even at 2015.

Technologies such as BRT are almost at capacity Galle Road and Negombo corridor at 2015 if only one lane of BRT is provided per direction while beyond the for Kandy and Malabe corridors, while elevated or underground Metro have a huge costs associated with the technology although they can provide a high capacity. A solution might be providing two technologies to supply for the demand of

each corridor as indicated on Figure 5.4 which are over the capacity for individual technology. However the potential of providing a solution with one technology has to be considered as a priori. Therefore the Megapolis transport plan focus on providing a solution with improved and modernized railway along with Rapid Transit Systems (RTS) such as Light Rapid Transit (LRT) and Monorail along with new transport modes such as inland water transport.

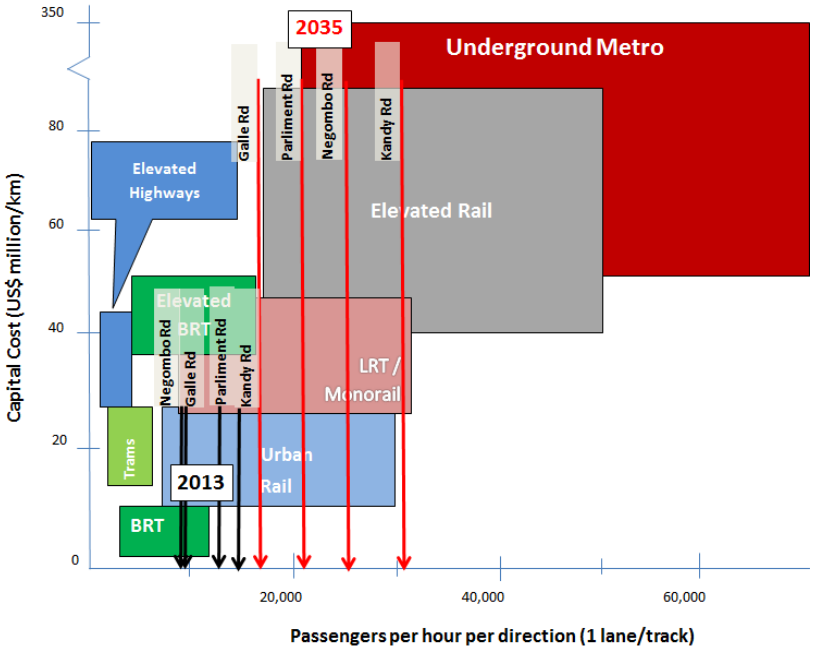


Figure 5. 4: Modern Technologies and its Capacities

SUB SECTOR APPROACH FOR INTERVENTIONS

It is planned to intervene at the following subsector level with the view to address the transport issues that are identified under JICA study and the Megapolis Development within the region. Proposals are identified under the following transport sub sectors.

1. Transport Demand Management (TDM)
2. Public Transport Improvement
3. Road Infrastructure Development
4. Environmental Sustainability

PROPOSED INTERVENTIONS

1. Transport Demand Management (TDM)

Transport Demand Management plays a major role in design and operations of sustainable transport systems. Identifying the travel demand, trip purposes, travel times and travel modes it is required to define TDM strategies for the system. The areas of interventions are such as service designs, enforcement, control and land use planning. Ultimate goals of TDM should make the travel options more affordable, reliable and convenient to the travellers. Several measures that can be introduced under the Western Region Development plan are given below.

- Flexible Work Hours
- Vehicular Parking Management
- Intersection Control
- Traffic Flow Management
- Road pricing of entry roads to Core Area

1. Flexible work hours:

Flexible working hours can be introduced in public and private institutions to spread peak load of the traffic flow. Employees can adjust their working time without any negative effect to the working process of the institutes.

Actions to be taken:

Develop a policy plan to promote flexible work hours and staggering work hours in selected institutes.

Benefits:

- Reduce traffic volume & congestion during peak times by shifting driver commuters to less congested hours and spreading the peak period.
- Flexible work hours allow workers to determine their own schedule times and planned their work hours.
- Office working times can be rearranged letting the employee to decide their working time.
- Increase the time period the public services are available.
- Improve passenger and rider satisfaction.
- Improve air quality in urban and suburban areas.
- Flexible schedule hours increase productivity of the employee and reduce cost of overtime and sick leave for institutes.
- Reduced road and parking lot congestion minimized wasted time on roads and frustration.
- Will reduce the heavy peak hours and traffic congestion during the peak period.

2. Vehicular Parking Management:

The aim of parking management is to reduce vehicle trips by controlling on street parking, and make it more expensive, on the assumption that people will change modes or carpool etc.

Actions to be taken,

- Develop a Pricing mechanism for Parking
- Implement 'parking metering system' to Colombo district as a preliminary stage
- Time limited parking enforced at identified roadside parking lots (e.g. 30 min Maximum)
- Provide overflow parking facility for long distance private buses
- Outsource the Towing of unauthorized parking

Benefits

- Reducing on street parking demand.
- Can eliminate illegal parking on roads
- Provision of off street parking will help to improve the capacity on roads
- Provision of on-street parking for short time periods at identified locations.
- Shifting from free parking to cost-recovery parking will result in automobile commuter trip reduction.
- Minimize the impacts of parking on impervious surfaces.
- Reducing the requirements for parking spaces will equal a significant reduction in public expenditures; charging for the cost of parking would help reduce parking congestion.

3. Intersection Control:

Intersection control will improve the turning movement capacity and the efficiency. This will help to initiate signal synchronization of the area as well.

Actions to be taken

- Minor improvements to signalized intersections (capacity improvements) and signal timing updates
- Upgrading signal lights system along with traffic flow detection. Develop Specifications for all signal lights.
- New traffic signals to major intersections
- Installation of Traffic control centre with traffic flow detection (CCTV, Magnetic loop, Infar red) and real time traffic management
- Synchronize signal lights along main corridors

Benefits

- Reduce the delay to through traffic, and right turning movements and increase capacity of intersection
- Reduce the number of conflict points and coordination of intersection flows.

- Infrastructure equipment for public transit priority
- Increase safety and efficiency of vehicle, bicycle and pedestrian
- Reduce the frequency of sever crashes.
- Reduction in delay in turning movements
- Improve the capacity of the intersections.
- Reducing vehicle emissions
- Provide priority for public transport

4. Traffic Flow Management:

Traffic flow management will enhance the mobility on corridors, reduction of congestion, improvement in road safety and reduction of delay on roads. Demarcation of separate bus lane and other separate lanes for different user groups such as bicycle traffic flow can be improved drastically.

Actions to be taken

- Converting two-way streets to one-way operation where technically feasible
- Roadway and intersection widening and reconstructions
- Priority for HOV (high occupancy vehicles)
- Relocation of bus stops/pedestrian crossings to minimize unnecessary conflicts and delays
- Reductions of Traffic Density closer to Schools

Benefits

- Reduce travel times of riders, energy consumption and improve the quality of ride.
- Deliver rapid, tangible and cost effective improvements targeting travel time variability and the most extreme congestion incidents.
- Control traffic behavior as it approaches the physical capacity of the road system.
- Control of vehicle entry and circulation and pedestrian activity on roads
- Improved travel speeds, increase system reliability and mitigate the impact of congestion.
- Comfortable trips which are free of stresses.
- Economic benefits to the country due to reduction of road congestion, fuel consumption and travel time.

2. Public Transport Improvements

Public transport system development is the core intervention that is required to reduce road congestion and environmental pollution. Reliable public transport system enhances the safety and the comfort of the rider while an efficient transport system will reduce the stresses of commuters and the road rage. Thereby, productivity of employees can be increase drastically.

1. **Restructure of Public Bus Service:** Some of the existing bus routes do not cover important areas and some areas do not have adequate bus services. Bus route network has not been revised for about forty years.

2. **Modernize and improving the quality of buses and services:** This will improve public transport by attracting some

motorists back to public transport system as a result of priority to the buses and public transport system.

3. **Improvement of office and school services:** Majority of school children are coming by private vehicles and that needs to reduce by introducing school to home based bus service. Further improved office transport services can attract part of motorist to office transport services introducing higher quality, comfortable office service.

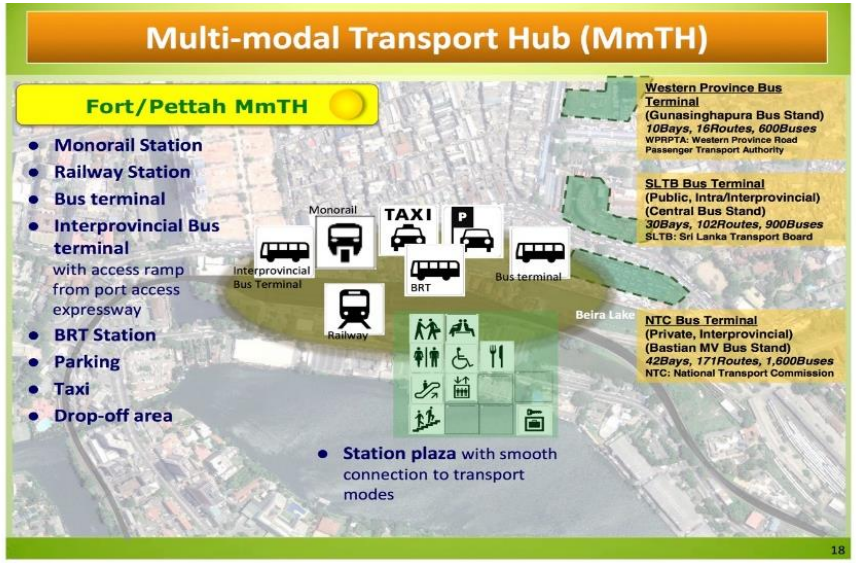
4. **Regulate and Improve Taxi Services:** Taxies are a part of a functioning community and it provides door to door service to the general public. Numbers of taxies operating on roads are increasing any control and it had led to many social and traffic issues in the country.

5. **Develop Multimodal Transport Hub:** Multi-modal transport hubs will be a key component to connect all major public transport modes in a central place of a City. Therefore, the "Multi-Modal Centre" is proposed to divert a part of the transport hub function to the suburbs of the Colombo Metropolitan Area. The Multi-modal centres (MMC) function as the transit facilities for passengers from feeder buses and inter-provincial buses at the edge of the urban area to the city centre by other modes. Five multi-modal centres on major corridors are proposed to serve passengers by corridor.

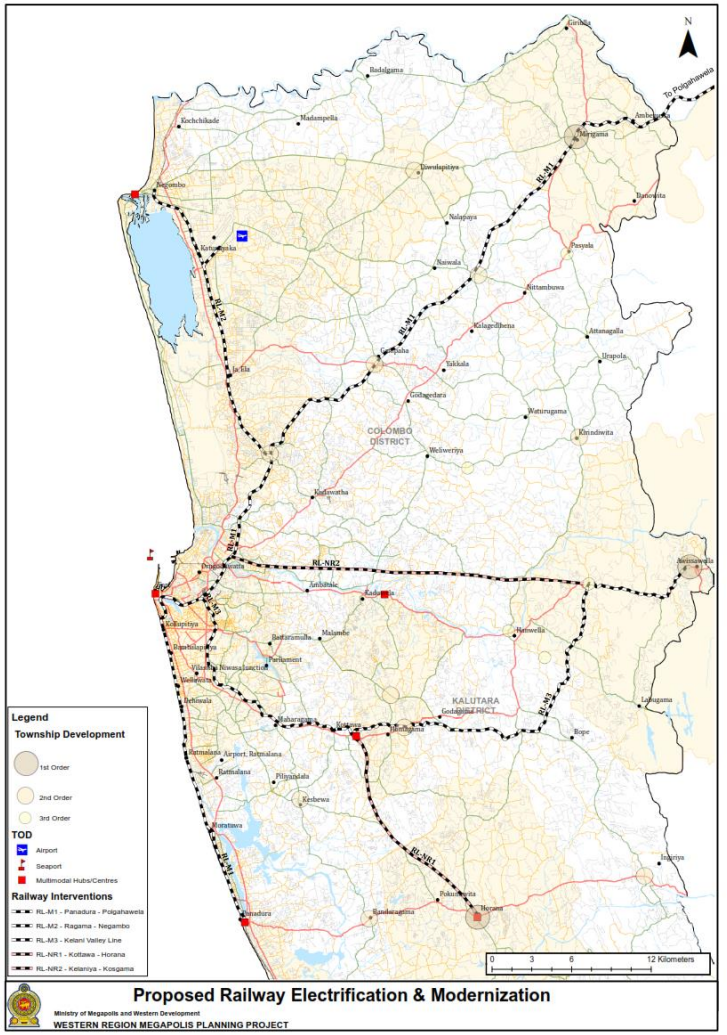
6. **Railway Electrification & Modernization:** Modernize the railway with electrification new rolling stock that has faster acceleration and deceleration. The modern system with track improvements, station upgrades and signal system upgrades to attract more ridership for railway.

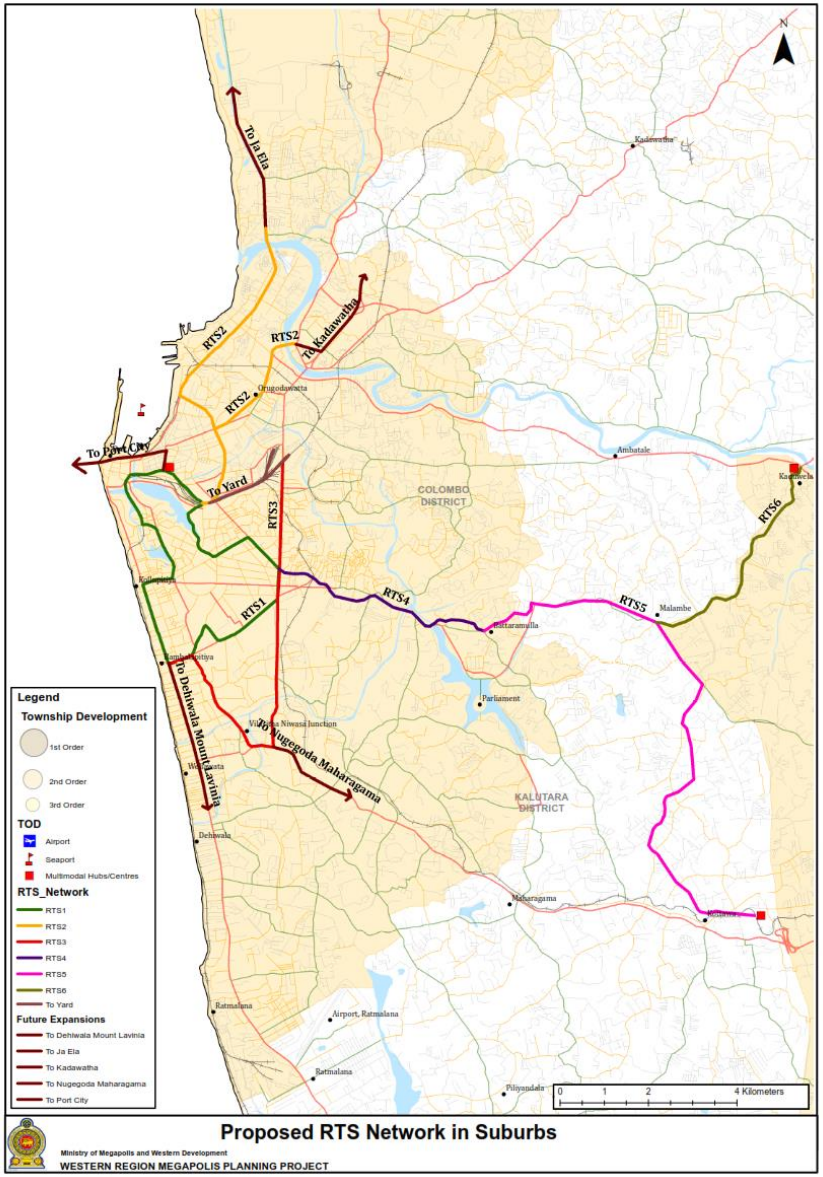
7. **New Rapid Transits System:** New lines for highly demanded areas. Current railway network is in a radial pattern which is not an ideal network for passenger transport. New line to be included to improve the connectivity of railway system.

8. **Introducing New Water Transit System:** Use of inland waterways so that the total travel time can be reduced drastically. This transit system can be used for Eco tourism at night and off peak periods.




Multi Modal
Transport Hubs
To Kurunegala
To Hatton
To Ratnapura
To Galle
To Matara
To Neluwa
COLOMBO DISTRICT
KALUTARA DISTRICT
Expressway
Major Arterial Road (4 Lane Road)
Class A Road
Class B Road
Existing Railway
Proposed Railway
RTS
Main Town
Water Bodies


Legend
Township Development
1st Order
2nd Order
3rd Order
TOD
Airport
Seaport
Multimodal Hubs/Centres
Railway Interventions
RL-M1 - Panadura - Polgahawela
RL-M2 - Ragama - Negambo
RL-M3 - Kelani Valley Line
RL-NR1 - Kottawa - Horana
RL-NR2 - Kelaniya - Kosgama
COLOMBO DISTRICT
KALUTARA DISTRICT
0 3 6 12 Kilometers
Proposed Railway Electrification & Modernization
Ministry of Megapolis and Western Development
WESTERN REGION MEGAPOLIS PLANNING PROJECT



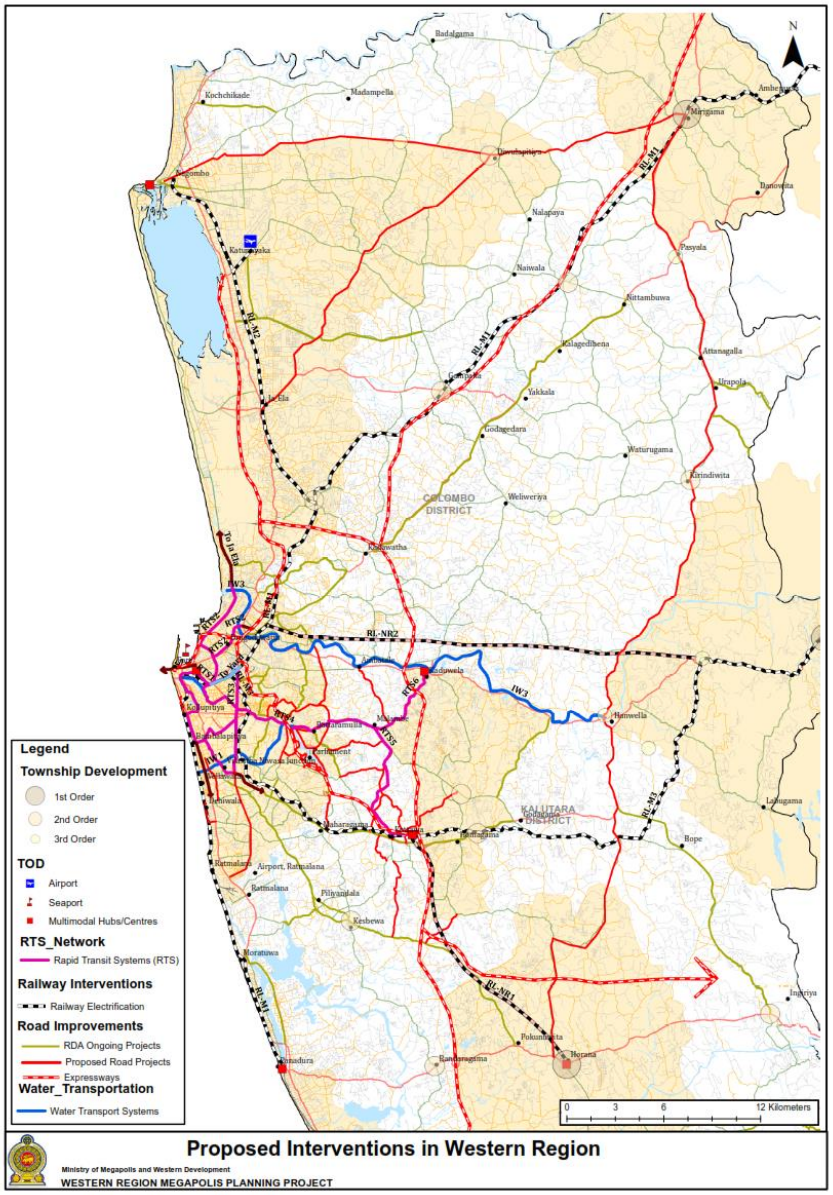
3. Roads Infrastructure Developments

1. **Capacity improvement by Development of road links:** Improve the existing roads by widening with required intersection improvements at Grade and Elevated.
2. **Improve the Capacity of Existing Expressway Network:** Vehicle operations on expressways are to be improved by changing the demand on expressways and improving the public transit operations.
3. **Improve Walkability:** Walking is an essential mode of transport. New and improved pedestrian facilities enable greater access and mobility within our communities. A pedestrian-friendly environment plays an important role in encouraging walking as a mode of travel, and this has proven health and environmental benefits.
4. **Reduce vehicle emission:** With the increase of air pollution in urban areas the requirement of controlling of vehicle emission has become an important requirement of the country
5. **Construction of new Expressways:** The proposed new expressways and major road upgrading projects of the Road Development Authority (RDA) are recognized and incorporated in the overall road network of the Western Region Plan in whole or with minor modification and re-alignment. The proposed new expressways/highways enables more inland connectivity and the expansion of existing expressway network.

Actions to be taken

- Construction of Ruwanpura Expressway
- Construction of Central expressway
- Construction of New Kelaniya Bridge and elevated road to Colombo Port & Fort area (CKE extension)

- Construction of Elevated urban Expressway from New Kelani Bridge to Battaramulla



4. Environmental Sustainability

Environmental sustainability is a very important factor to be considered in regional planning. Reduction of vehicle emissions, air pollution, and noise pollution will improve the health conditions of the public in a country

Encourage Bicycle Use: Usage of bicycles as a transport mode is very sustainable, reducing emission; reduce fuel cost and healthy mode of transport.

Actions to be taken

- Provide appropriate vegetation cover or paved area at either side of the roads
- Provide separate lane for bicycle/Motor Cycle use.
- In suburban to rural areas it can be checked that the center median can be converted into a bicycle path
- Canal banks can be converted Bicycle/Motor cycle lanes.

Benefits

- Promoting cycling and walking for transportation can benefit lower-income people by increasing public acceptance and support of non-motorized travel.
- Shifts from driving to cycling or walking can reduce traffic congestion, road and parking facility costs and environmental impacts, and increase community livability and improved public health.
- Reduce carbon Foot print.
- Can promote park and ride facilities at railway stations
- Saving of fuel

Electric vehicle rapid charging centers: 50 numbers of rapid charging stations

5.2 POWER SUPPLY PLAN

The people in Western Region have 100% access to electricity and the power is supplied from the national grid. There are few power plants within Western Region, that are mainly concentrated in Colombo Metropolitan, namely Kelanitissa, Sapugaskanda and Kerawalapitiya. The total generation capacity of the country as at 2014 is 3,932 MW with the maximum demand of 2,152 MW consuming energy of 12,357 GWh. The 2014 demand and energy in Western Region was around 1,165 MW was 4,822 GWh.

The existing power supply can able to meet the demand. However, it will not be sufficient to cater for the 2030 power demand which is estimated to be 5,893 MW consuming 27,581 GWh of energy. Power plant addition along with growing demand is addressed in Long Term Generation Expansion Plan 2013-2032. The accelerated development in Western Region cause the major part of additional power requirement within the region.

- Despite the 100% service coverage, the following issues continue in power sector.
- Difficulty to secure funding for major power supply projects.
- Cost of electricity not being an incentive for investments.

Difficulty to secure right-of-way for transmission lines and land for substations for the growing demand, especially in Colombo Metropolitan.

Colombo Metropolitan has to consider laying their medium voltage power lines underground or use insulated conductors within its built-up areas, as clearances may not be available for the future transport corridors embedded with other services.

Power supply plan will be ascertained for each of the planning areas, when the additional demand is announced to support the future developments in the Western Region. The power supply authorities in Western Region need to coordinate with Megapolis development plans to ensure sufficient and reliable power supply.

The following future power supply sources are considered for meeting the growing demand.

- The 2nd coal power station in Trincomalee
- Natural Gas explored around Mannar and LNG/CNG
- 600 MW NG Combined cycle plant at Kerawalapitiya
- Solar Power
- Wind Power
- Waste to heat energy using MSW

Natural Gas Industry

The success of the Gas Exploration was confirmed with Cairn India exploration finding gas in October 2011 in one of the wells dug in Dorodo & Baracuda. The available gas reserves are estimated to be adequate for running the petroleum based thermal power stations in the Western shore for more than 30 years. Sri Lanka stepping into

gas exploration will cut down the dependency on petroleum exports, enable the LNG hub required in the region in country and creation of highly paid jobs.

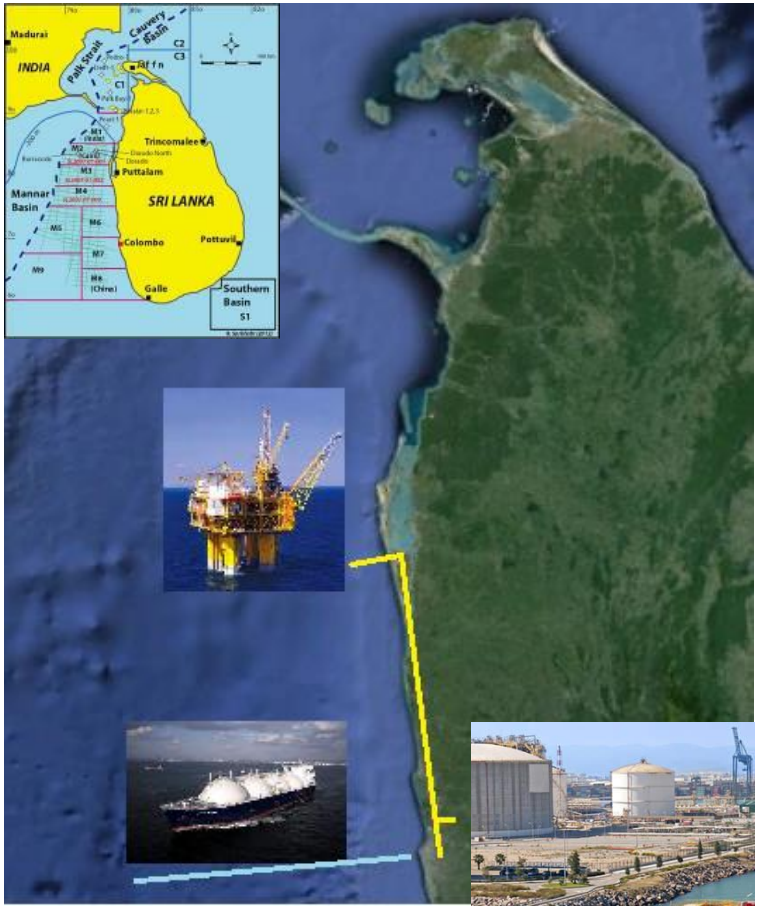
LNG operations will be set up around Colombo Ports as the second stage and the cooling energy through the CHP will be used for city cooling. The estimated number of jobs created by this field is over 15,000.

Solar Power

Sri Lanka is rich with solar radiation throughout the year. WR is somewhat hampered with year round clouds plus rains and land cost contributes making large scale solar parks not favorable. However solar energy source is allowed through net metering hence internal consumption using solar energy, backed by the national grid is possible. The roof top which does not add land cost for solar projects will help commercial or industrial establishments to generate solar energy. A part of the additional power requirement in WR is expected from this source as well. Solar energy sector has potential to create 25,000 jobs through solar panel assembly plants, other than generating power.

Wind Power

Sri Lanka is rich with wind power especially in Nuwaraeliya plains and the Mannar basin. All along the WR shores the South-West monsoon provides a substantial potential for the small wind turbines to install. However, this industry has not yet awakened in Sri Lanka. The knowledge based approach and the market in Sri Lanka and the neighboring countries paves path for industries to manufacture small wind machines and the large wind blades.

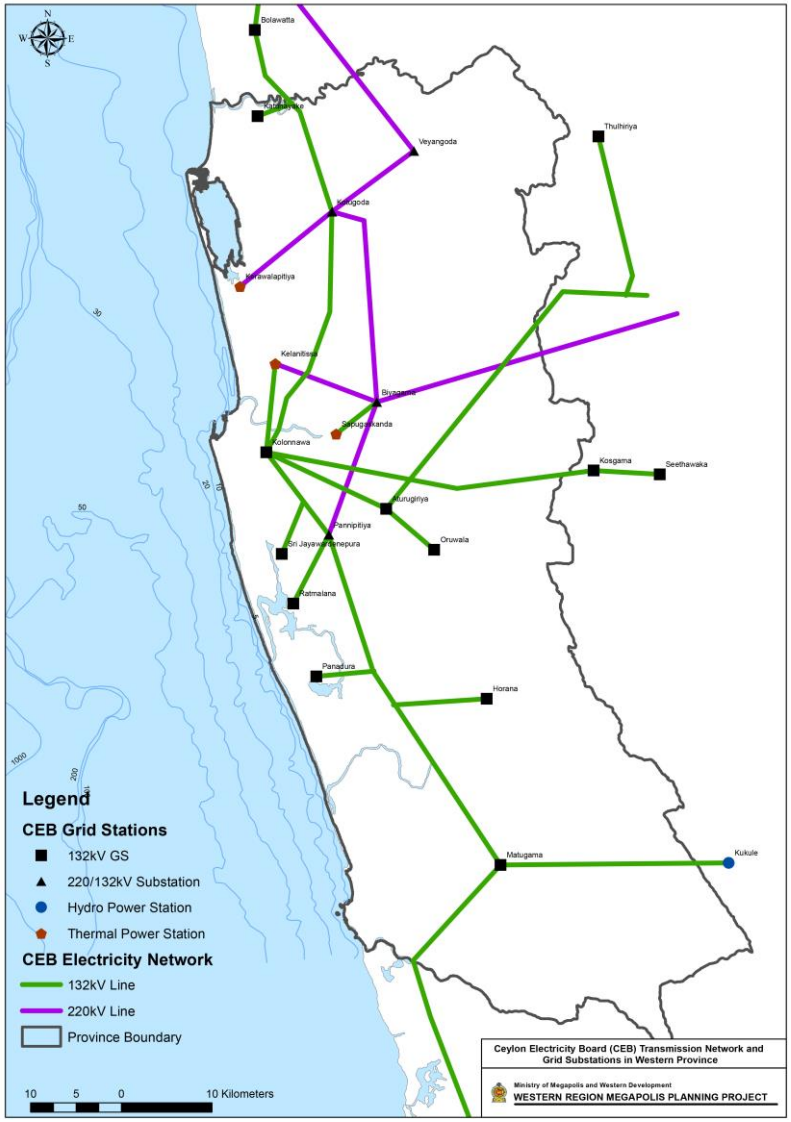


Waste to Energy

Waste to energy is not yet implemented but planned, in Western Region. The daily collection of MSW exceeds 1600 MT around CMR and a rapid growth is expected with the Megaplois Development. Part of the bio degradable waste will be converted to compost and high calorific valued waste is identified for Waste to energy plants. Waste to energy plants, which has a potential of about 30 MW net, are seriously considered within Western Region, as a measure of disposing Municipal Solid Waste as well.

Recommended Critical Projects

- Sapugaskanda Oil Refinery Expansion & Modernization
- Gas Exploration projects in Mannar basin and Western sea.
- Natural gas pipe network and gas distribution
- Oil and LNG Hub in Colombo
- CNG terminal for fueling vehicles.
- NG based 600MW combined cycled power generation in Kerawalapitiya and in reclaimed sea lands around Colombo
- Conversion of 450MW Petroleum based power plants to natural gas fuel.
- Combined Heat & Power project including city cooling
- Solar power panel assembly & solutions
- Small wind machine and large wind blade manufacturing
- Dendro plants in Plantation City
- Converting national electricity grid into a Smart Grid
- Conversion of overhead electricity distribution of Colombo suburbs to underground cable network.



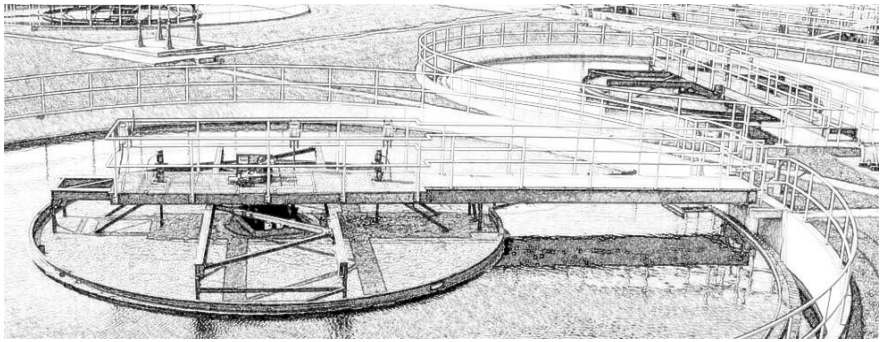
Proposed Power Supply Plan

5.3 WATER SUPPLY PLAN

Provision of potable and non-potable water is crucial to support Western Region's projected economic and population growth in 2032. Currently, 97.3% of the population in Western Region has access to safe water supply, with piped water supply service coverage of 57.5%.

Surface water is the main water supply source in the region. The major surface water resources are Kelani River, Kalu River, Labugama Reservoir and Kalatuwawa Reservoir. Groundwater is only used for small scale water supply scheme.

There are nineteen water treatment plant (WTP) in Western Region. Total production capacity is estimated to be 1,078,520 m3/day currently. Based on projected population of 7.5 million, water demand is expected to grow to 2,000,000 m3/day. Existing water supply system has to be augmented progressively to meet future demand.



In addition to water supply augmentation, the remaining key issues have been identified:

- Deteriorating raw water quality due to municipal and industrial waste water discharge, algae bloom, salinity intrusion;
- Low raw water supply during dry season;
- Several WTPs operating below their design capacity due to aging facility, insufficient land and fluctuating reservoir yield;
- High water loss in the water supply network; and
- Inadequate water storage.

Water Supply Plan

There are ongoing water supply rehabilitation projects in Greater Colombo & Colombo City, and WTP improvement projects in Labugama, Kalatuwawa and Kelani River Bank. These projects would benefit 950,000 people and supply additional 22,000 m^3/d.

Recommended Critical Projects

Western Province Water Supply Master Plan Update (JICA, 2013) has identified various projects that are divided into short-term, midterm and long term. The critical projects for immediate implementation are listed below:

1. Development of reservoir in Kelani River;
2. Weliwita Water Supply Project;
3. Kalu Ganga Water Supply Project – Phase II;
4. Kandana Phase II WTP Improvement;
5. Kethhena WTP Improvement;
6. Water loss reduction in high priority areas.

Prior to the implementation, it is important to establish service coverage of the existing WTP and update the water demand projection based on the policy plan and revised population projection. Sewerage projects have to be implemented concurrently to improve the existing surface water quality which would be fed to the WTPs.

5.4 SEWERAGE

Sewerage system with limited coverage is available within the City of Colombo, Ratmalana and Ja-Ela. The sewage is treated in the existing Waste Water Treatment Plants (WWTP) and discharged into the sea via the outfalls in Mutwal and Wellawata. The existing sewerage system was built 100 years ago by the British and faces recurrent collapse and blockages.

The remaining areas within Western Region have no public sewerage system. On-site sanitation such as septic tanks is commonly used in residential areas and institutions. In less developed areas, the sewage is discharged directly into the existing water bodies which lead to numerous problems due to contamination of ground water and surface water.

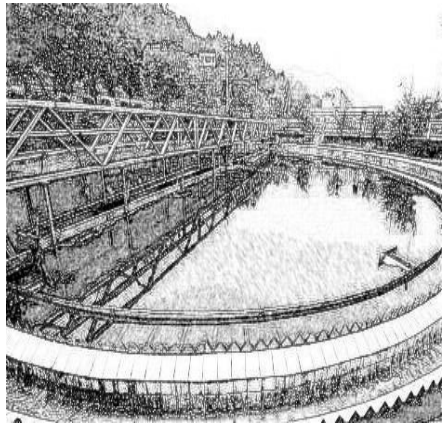
To achieve higher environmental standard and quality of life in Western Region in the future, there should not be any discharge of untreated sewage into the water bodies.

Sewerage Plan

Sewerage system has been proposed in the following areas: Negombo, Gampaha, Kelaniya, Sri Jayawardhanapura, Maharagama and Dehiwala. However, they only cover less than 10% of Western Region area.

Going forward, sewerage system must be planned for each of the planning areas to ensure full coverage within the Western Region in the future. The conventional development took place around the Colombo city which guarantees the availability of the sea for dumping. With the expansion of the WR to the country side and the

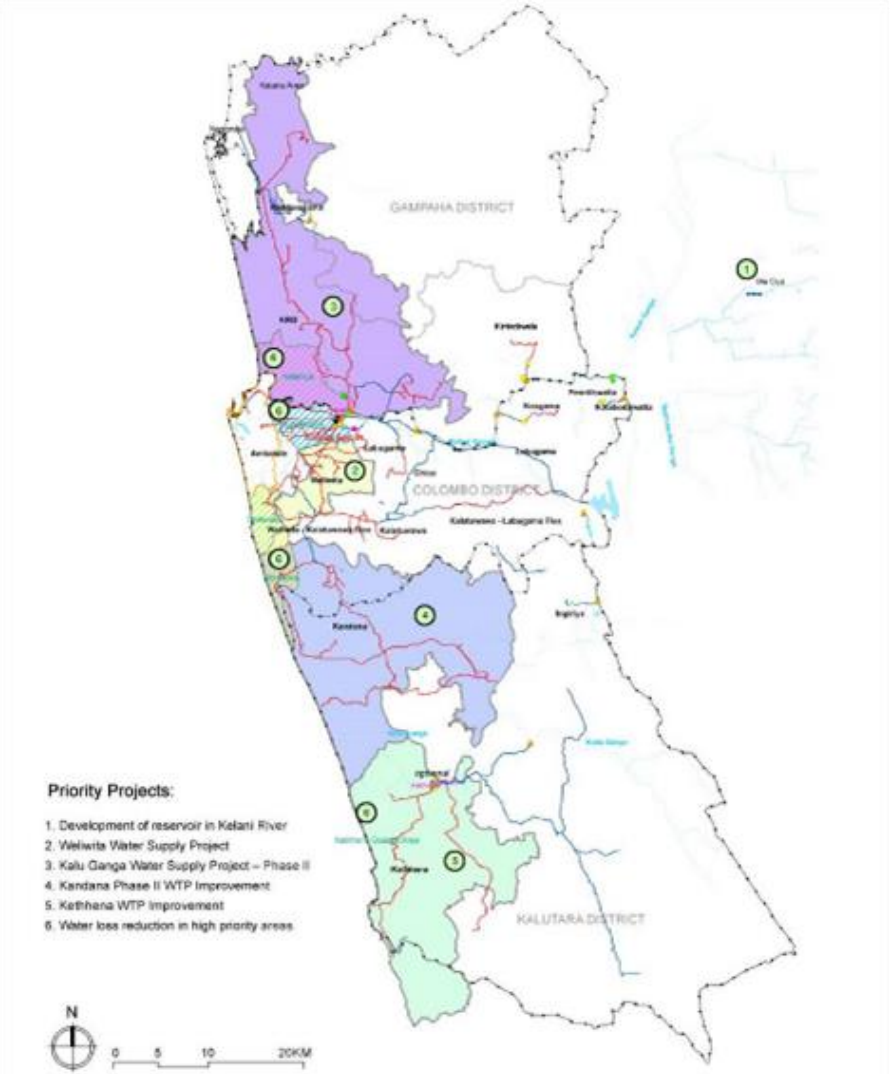
enhanced sewer, newer strategies need to be proposed. In order to create large housing complexes and industrial parks more cost effective solutions such as recycling of sewer to extract industrial water are encouraged.



Recommended Critical Projects

The planning approach for sewerage is to upgrade the existing sewerage network and expand the sewerage network in tandem with the proposed growth areas.

The priority is to upgrade the existing sewerage network in the City of Colombo which is in urgent need of rehabilitation. Proposed sewerage catchments and WWTP location plan for Western Region have been defined in the 2003 Master Plan by CESMA. However, it may have to be updated based on the revised policy plan and population distribution.



CHAPTER 6: HOUSING AND RELOCATION OF ADMINISTRATION

Area in focus: *Necklaces around the Colombo City*

Key objectives: *Releasing valuable land, evenly distributed city and solution for infrastructure, Regeneration of underserved*

6.1 HOUSING

Housing is one of the most important areas of social infrastructure that has a bearing on both economic and social development in the region. Inadequate public investment in housing over the last few decades have paid the way for greater involvement of private developers in housing construction as well as unregulated and unauthorized construction of housing units including squatting in many parts of the region, in particular, in and around Colombo. Poor and unregulated housing development poses a major public health challenge. While a more decentralized development pattern will reduce rural urban migration, development of housing in a more planned manner in peripheral urban centers could help avoid unplanned housing development in the region in the near future.

The nature and demand of housing varies across social strata. Whi8le on the one hand, higher income group's demand up market housing such as luxury apartments, condominium complexes, etc., the poor and marginalized cannot have access to land and housing in the open market. The development of social housing to meet the demand for accommodation from the lowest stratum of society is critically important to avoid quitting, unauthorized construction and homelessness everywhere, in particular urban centers. On the other hand, given the scarcity of land in the Western Region, emphasis has to be on building integrated housing settlements in both rural and urban areas where multistory, walk ups can provide descent accommodation to low income and marginalized groups. While the removal of unauthorized construction on public land and reservations cannot be avoided, the displaced need to be accommodated in well planned integrated settlements in different parts of the region. Creating income and other opportunities in peripheral areas as part of the Megapolis development plan can be expected to facilitate a more healthy distribution of population between urban and rural areas in the future, leading to a reduction of population pressure on already congested parts of the region.

Housing characteristics

The proportion of housing in the Western Region in 2012 was 28.1 % of the total in the country. The percentage increase in the housing stock between 1981 and 2001in the Western Region was 71 %. This included the increase of 200,000 and 210,000 in both Colombo and Gampaha. Districts, respectively.

During the intr-censal decade of 2001 – 2012, the total increase in the Western Region was 25 % with Gampaha and Kalutara districts recording an increase of 25.8 % or 122,827 units and 23 % or 56,587 respectively. The increase in Colombo district was only 19 %.

	Number	Percentage
Colombo District	562,550	10.80
Gampaha District	598,674	11.50
Kalutara District	302,371	5.81
Western Region	1,463,595	28.11
Sri Lanka	5,207,740	100.00

Table 6. 1: Occupied Housing Units of Western Region

Low Income Housing

Over fifty percent of the Colombo city population lives in shanties, slums or dilapidated old housing schemes, which occupied nine percent of the total land extent of the city. A survey which is being conducted at present by the Urban Development Authority has identified a total number of 68,812 families living in 1,499 community clusters (underserved settlements) which do not have a healthy environment for human habitation and access to basic infrastructure facilities such as clean water, electricity, sanitation etc. Relocation of these families in new housing schemes with acceptable standards will be one major step in the direction of transforming Colombo into a world recognized city with a clean and pleasing environment to cop up the city development plan objectives

Distribution Pattern of the Slums & Shanties within the CMC Area

- 68,000+ Slums & Shanties scattered within CMC area
- Mostly in Notheren Central & Eastern Areas in the City
- Lives in 1,499 Settlements

	Types of Settlement	Numbers	Precentsg
1	Slums	26,718	39
2	Shanties	14,532	21
3	Low Cost Flats	15,224	22
4	Relocated Houses	8,896	13
5	Old Dilapidated	2,753	4
6	Unplanned	692	1
	Total	68,815	100

Table 6.2: Types of Underserved Housing Units in the City of Colombo

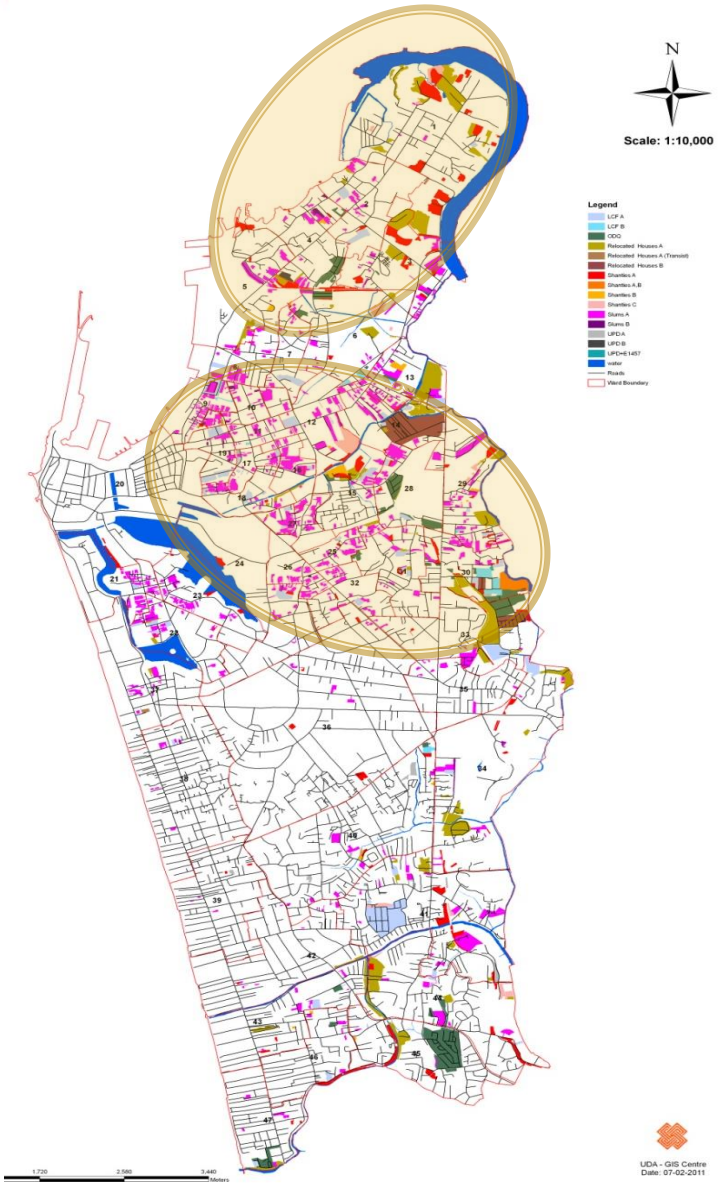


Figure 6.1 Underserved Housing sites City of Colombo

Under the low cost housing program, already a total of 17,408 housing units are under construction or completed. Of the above total 4,937 units have been completed and another 4,937 units are under construction in Phase l & another 7,719 units are under construction in Phase ll. The total estimated cost of construction of 68,815 units are given in Table 1, has been estimated as Rs. 500bn.

Middle Class Housing

The household income levels have increased almost 5 fold during the past decade. Today about 60 % of the country's households can considered as the 'middle class'. It amounts to about 3.2 million in the whole country, and about 940,000 households in the Western Region., as per the Household Income and Expenditure Survey of 2013. The richest and the middle class households at both at the national and region levels account for over 90 % of the National household income.

The mean monthly household income of Sri Lanka in 2014 was Rs. 45,578/=, but it was relatively higher at Rs. 64,152/= in the Western Region. Further, the mean monthly per capita income in 2013 was also high in the Western Region at Rs. 16,124/= as against Rs. 11,819/= for Sri Lanka. This amount has increased nearly 5 times during 2002 to 2013 period. This trend is expected to increase with the implementation of WRMP.

Housing Projections under WRMP

WRMP has prepared housing projections covering the period 2012 – 2020, 2020 – 2025 and 2025 – 2030 based on development scenarios prepared for the different zones in the project area. Accordingly, it is estimated that a total of 672,947 new housing units will be required to meet the demand emanating from natural population increase in the Western Region and expected migration as a result of economic and social development taking place in the region.

Similarly, the housing deficit during the second period 202 – 2025 has been estimated as 324,290 housing units and the projected deficit for the next period 2025 – 2030 is estimated at 375,030. Details of these estimated under different housing categories is presented in table 3.

Building housing apartments of different categories identified above and location of administration buildings is identified as a Mega Project. The housing is of mainly three categories; underserved Middle class and the Luxurious Housing. The underserved & Middle class housing schemes need to address the shortcomings happened in the past and the dwellers must feel the ownership of this transformation. With the transcending society their needs and aspirations should be designed to be fulfilled.

The underserved community regeneration programs are urgent; specially to release the economic corridors occupied by them. These housing complexes need to include following functionalities.

- ✓ Housing units, well separated privacy preserved buildings {tall structures may be needed to reduce the building footprints.}
- ✓ Ground level for parking & gathering
- ✓ Community hall for functions & events at cost
- ✓ One ward, OPD & clinics affiliated to nearest hospital
- ✓ Nearby School, Montessori school & day care centers which need to be used for adopting the new generation for an equitable society
- ✓ Shopping area for commodities
- ✓ Building area opened for investors to put up light industries and to continue their self-employment
- ✓ Areas for Leisure/ Recreation/ Play/ Green garden
- ✓ Transport Node and access ways with defined transport mode
- ✓ Waste Handling/ sorting unit
- ✓ Sewer handling system; as number of houses built in small area, where there is no pipe borne sewerage system, the sewer need to be treated or separate discharging water
- ✓ Communication points, Wi-Fi facilities

The Middle Class is expanding the society and mainly consist of public & private sector employees. With proper housing schemes & facilities the majority is expected to be these housing defining an equality within the society. Middle class housing complexes are advocated to have following features.

- ✓ Housing units, well separated privacy preserved buildings {tall structures may be needed to reduce the building footprints.}
- ✓ Ground level for parking & gathering
- ✓ Community hall for functions & events at cost
- ✓ One ward, OPD & clinics affiliated to nearest hospital
- ✓ Paying ward, OPD & consultations affiliated to a private hospital
- ✓ Nearby School, Montessori school & day care center
- ✓ Day care center for old & feeble
- ✓ Shopping area for commodities
- ✓ Building area opened for investors to put up light industries
- ✓ Areas for Leisure/ Recreation/ Play/ Green garden
- ✓ Transport Node and access ways with defined transport mode
- ✓ Waste Handling/ sorting unit
- ✓ Sewer handling system; as number of houses built in small area, where there is no pipe borne sewerage system, the sewer need to be treated or separate discharging water
- ✓ Communication points, Wi-Fi facilities

Some of the functions will generate jobs and income for dwellers. Hence lesser transport is needed and citizens will save time for their leisure.

Luxurious housing complexes caters for a different market segment and their needs should be addressed through following functionalities. These houses should be profitable ventures.

- ✓ Luxurious housing units, well separated privacy preserved buildings {tall structures will be needed} with panoramic views
- ✓ Drive in parking
- ✓ Halls for business meetings & other events
- ✓ Catering & dining places
- ✓ Paying ward, OPD & consultations affiliated to a private hospital
- ✓ Montessori school & day care center
- ✓ Day care center for old & feeble
- ✓ Shopping area for services & goods
- ✓ Areas for Leisure/ Recreation/ Play/ Green garden
- ✓ Extended recreational activities such as Boats, Kayaks, activities on water
- ✓ Transport Node and access ways with defined transport mode
- ✓ Waste Handling/ sorting unit
- ✓ Sewer handling system; as number of houses built in small area, where there is no pipe borne sewerage system, the sewer need to be treated or separate discharging water
- ✓ Wi Fi, satellite TV etc

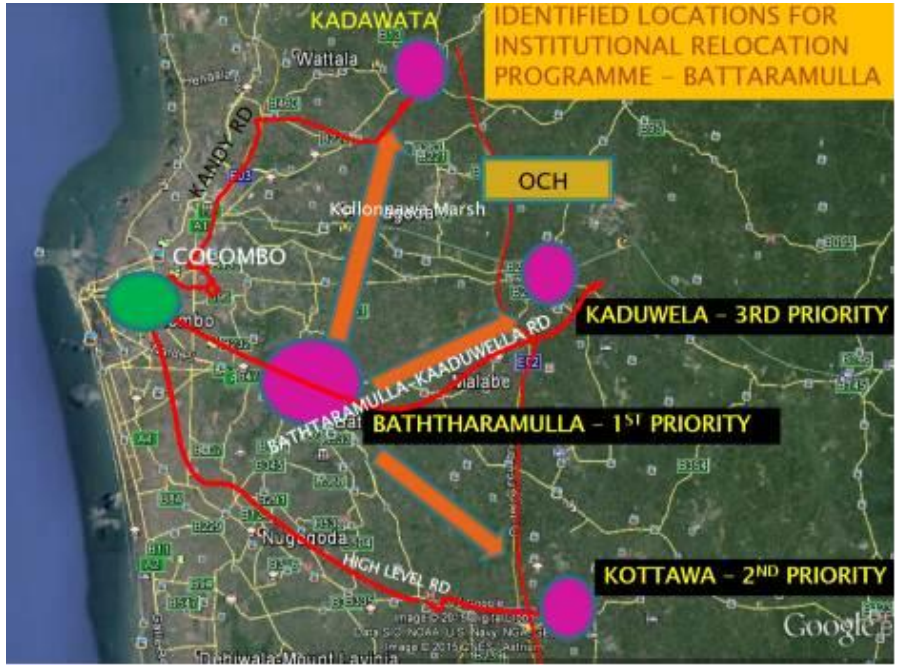
6.2 RELOCATION OF GOVERNMENT OFFICES

The objectives of the government office relocation are:

- Optimum utilization of the urban lands and concentrated infrastructure network.
- Containing the ever increasing infrastructure needs within present magnitude and improving the productivity.

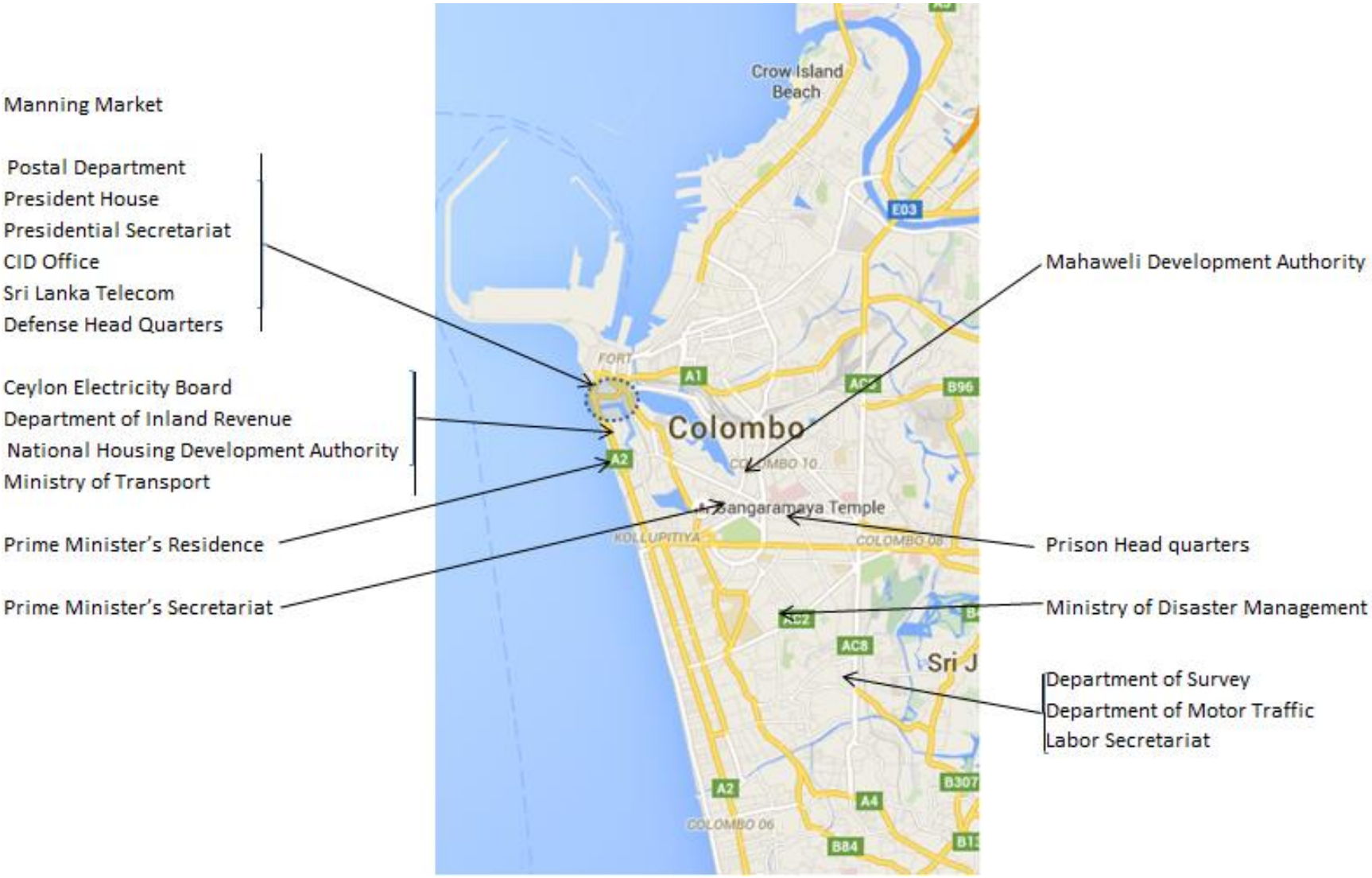
Within the city a large no of government offices and public areas are identified to be relocated.

Category	No.
Departments	50
Authorities & Boards	32
Ministries	31
Total	**113**



Selected Criteria for Relocation Program – Phase 1

- Distance from the city center (Core area)
- Number of employees
- Service provision to the public
- Utilization of the land
- Economic value of the location
- Present issues of the location



Identified Government Institutions for Relocation

6.3 'MAHAMAGA MITHURO' –FROM 'STREET TO HOME' – a PROJECT FOR REHABILITATION OF BEGGAR FOLK

The objective of this project is to rehabilitate beggar folk and effectively integrate them into the society. This program is designed to rehabilitate them by way of developing their skills in different sectors through education and vocational training and, effectively harness their inputs to the mainstream economy rather than allowing them to be dependent on others. In the meantime this initiative is also expected to facilitate the efforts for beautification of the city.

According to a survey conducted in the Municipal Council, Urban Council and Pradeshiya Sabha areas in Colombo district, approximately 405 begging people have identified. The ministry, with the help of other relevant ministries, departments and Non-Governmental Organizations; has attempted some solutions by forming committees for children and mothers and committees for people with mental disabilities.

According to the recommendations of above committees, it has been decided to direct the begging people to the existing rehabilitation center in Ridiyagama, Hambantota after repairing the available components and reconstructing the lacking facilities. And there is a proposal to construct new rehabilitation homes according to the demand for space with the amount of begging people. Two schools (nonfunctional) in Homagama area have already being identified to convert into hostels to accommodate street children and mothers after vesting the ownership of those lands with the ministry.

6.4 CARING FOR STRAY ANIMALS

The stray animals mostly stray dogs and cattle are also identified as a significant issue that adversely affects the visual attraction of the city.

According to a survey conducted in Municipal Councils, Urban Councils and Pradeshiya Sabha areas in Colombo district, approximately there are about 16509 dogs and 830 cattle which are straying in and around Colombo city.

Under the above project, a solution has an identified to give proper caring to those stray animals which also will also benefits Colombo City beautification project. The proposed caring methods are follows;

- Handing over the stray cattle to the persons who are willing to take care of them (eg. Temples – Buddhist and Hindu, farmers from other parts of the country etc)
- 'Adopt a dog concept' or center for dog caring with the help of NGO or any other suitable financing method

CHAPTER 7: ENVIRONMENT AND WASTE MANAGEMENT

Main Scope: *Conservation of wetland, flood control, storm water drainage, reducing mosquito breed, waste disposal using PPP as well*

Jobs expected: *12,200*

7.1 STORM WATER AND ENVIRONMENT

Environmental Management

To address the uncontrolled industries, new industrial estates are being proposed and a relocation process has to start stage by stage. Meanwhile to address the encroachment to the environmental areas, 3 categories of environmental sites are proposed:

Category 1: Where no development is permitted. These are areas such as Muthurajawela conservation zone, the protected forest etc.

Category 2: Where restricted development is permitted. These are the buffer zones to the Category 1 zone.

Category 3: Where development is permitted upon the compliance with the requirements. These are the wetland and the steep slope areas.

Apart from the above, attention is also given to the coastal zone. This is to ensure resilience in the event of Tsunami and the sea level rise. A 300 meter setback zone in coastal area is being studied.

Based on the above, apart from the incineration and landfill projects that are already on-going, a sea level rise mitigation study is also proposed.

Storm Water Plan

Western Region is bounded by Maha Oya in the north and Bentara Ganga in the South. There are three existing river basins that traverse westward, namely Attanagalu Oya, Kelani Ganga and Kalu Ganga. There are low lying areas within WR

which creates retention area for rain water collection and form eco systems in a wet land creating beauty.

The long time adopted development strategy is to drain the storm water to the sea. The developed areas being near sea this was possible. The existing storm water drainage network in the urbanized areas is 100 years old and often overloaded, resulting in localized flooding in low-lying areas. The other issues are identified as follows:

- Reduction of natural retention areas due to rapid urbanization;
- Illegal dumping of garbage and lack of maintenance, thus reducing the drain's capacity;
- Illegal discharge of untreated sewage; and
- Damage to the river banks due to sand mining.

With the densification of the Western Region, the amount of surface runoff is expected to increase due to loss of natural retention areas. Therefore, an integrated storm water management plan would be required to manage the surface runoff post development.

Storm Water Drainage Plan

With Megapolis expansion in to the eastern side draining to sea will be less effective and therefore preserving low lying lands as far possible and controlling river water levels by means of upstream reservoirs which helps the water requirement during dry season as well need to be pursued.

In the near term, the existing drainage networks within Western Region, especially within the Colombo Core must be re-habilitated to prevent flash flooding during the monsoon season. The critical drainage projects include the rehabilitation

of the existing drainage system within the Colombo Core. This should include the rehabilitation of the Mutwal Tunnel outlet. The Mutwal Tunnel outlet is the only outlet that discharges storm water from the Colombo North area canal system directly into the sea. The Colombo Metropolitan Region has to be prioritized as it is where most of the population, business activities and high-end development would be concentrated at.

The Study on Storm Water Drainage Plan for the Colombo Metropolitan Region (JICA, 2003) has identified retention areas and channels to be improved within Colombo Metropolitan Region. If these projects have not been implemented, the future land use plan has to reserve the necessary space for future implementation. Reassessment of the drainage catchments and retention areas in accordance with the revised policy plan may be necessary to find balance between keeping the natural retention areas and future development.

For the WR Megapolis area, a comprehensive drainage scheme must be developed and implemented in each of the planning areas with storm water detention ponds as part of the drainage requirements. Protection of the natural flood retention areas within the planning areas must be strictly enforced during the implementation of the master plan to prevent encroachment of future developments into these areas. Creation of larger ponds with water path connection among them to flush water collected in heavy rains is pursued adding beauty the environment and enabling mechanisms such as breeding fish to combat dengue and other mosquito associated epidemics.

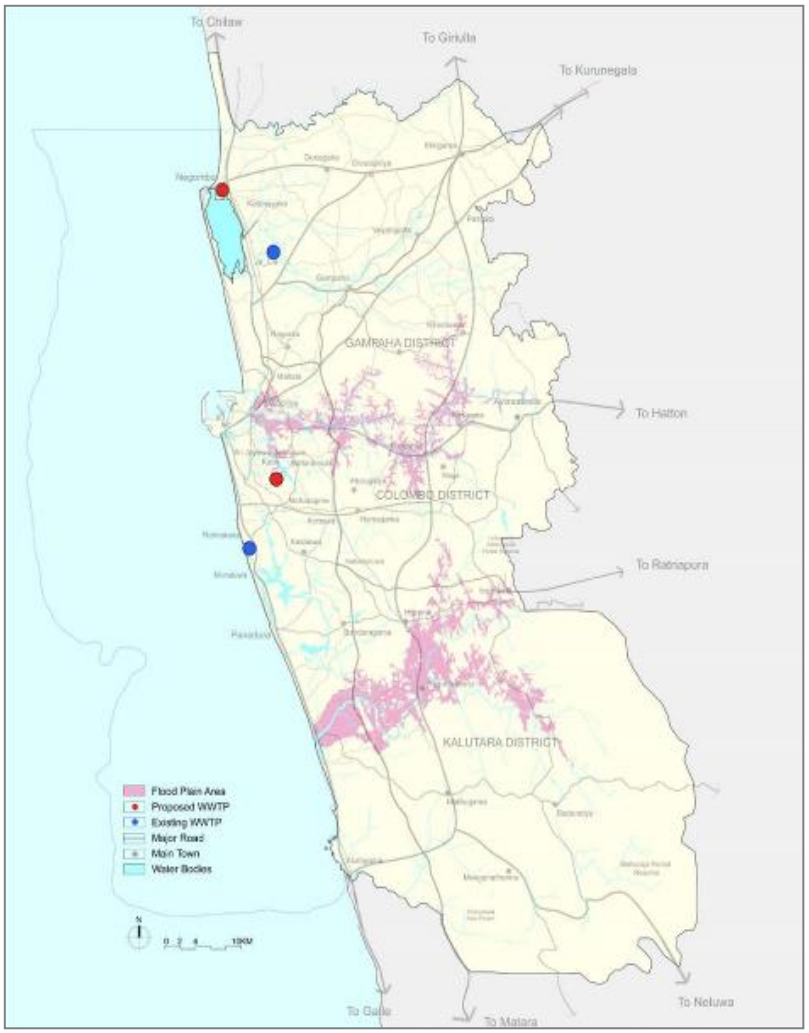


Fig. 7.1 Proposed Storm Water Drainage Plan

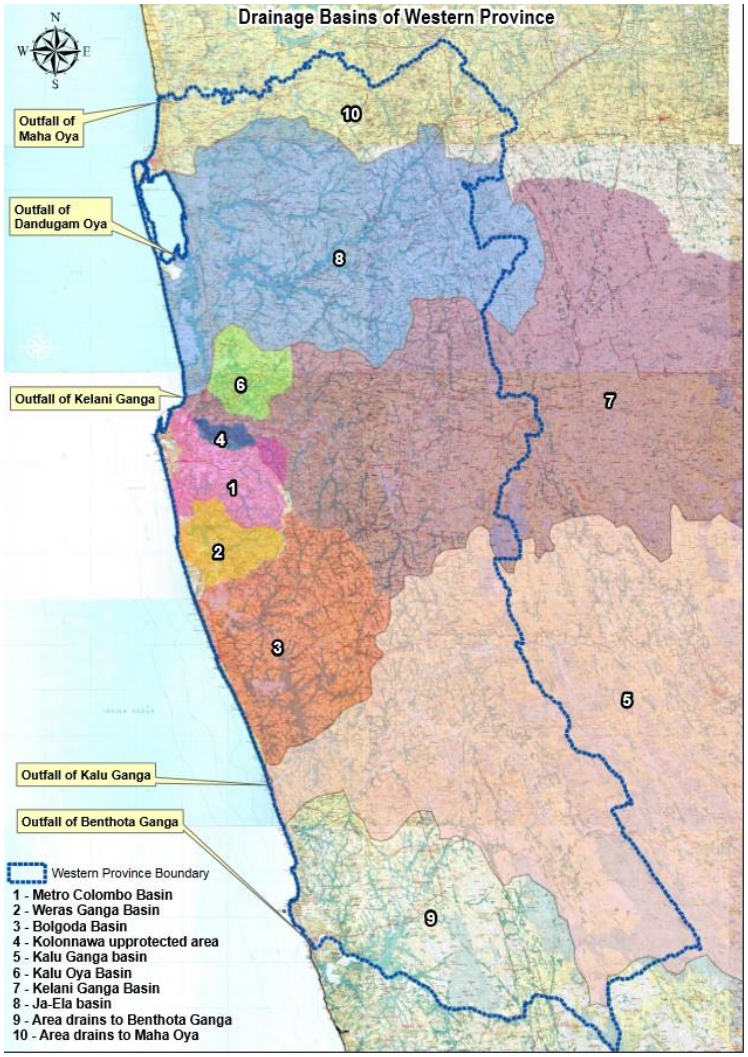


Fig 7.2 Catchment areas of sea outlets

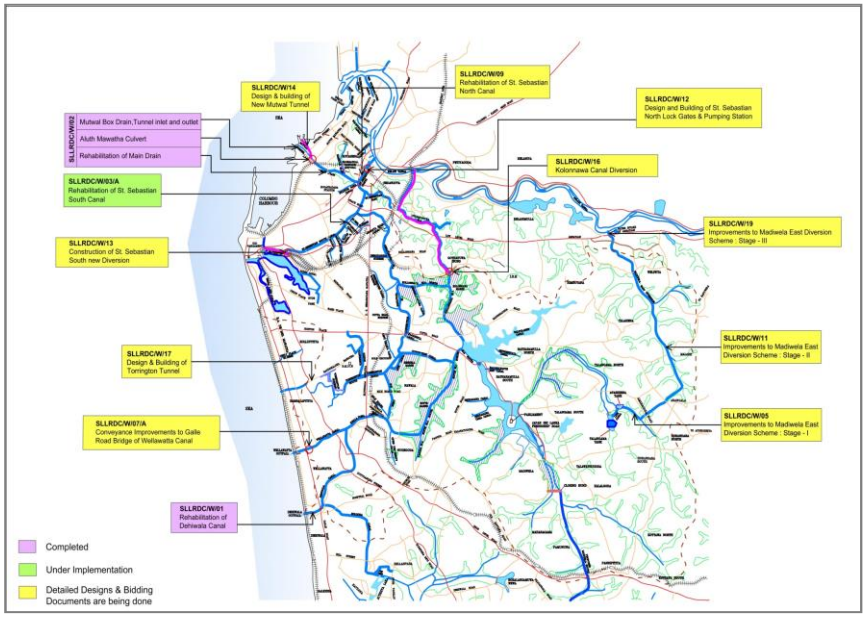


Fig 7.3 Detailed view of basin I

7.2 WASTE MANAGEMENT

Solid waste had become a serious problem in the western region and which is the most priority issue of most of Local authorities. Though most of Local Authorities had done the solid waste collection in the western region, serious issues had arisen when it manage. Central Environment Authority, National Solid Waste Management Support Center, Waste Management Authority of Western Province and relevant other institutions are implementing several actions to minimized these issues.

Solid Waste Generation & Collection

Household waste

The main sources of solid waste generations are households, markets and commercial establishments while industries, institutions and hospitals constitute the other sources. There are no accurate figures or records of Solid Waste generated or collected in the country, and the best estimate of total MSW generation in Sri Lanka is known to be around 6400 tons/day. Per capita per day disposal of waste on the average has been estimated as 0.85 kg in Colombo Municipal Council (CMC) area, 0.75 kg in other Municipal Council (MC) areas, 0.60 in Urban Council (UC) areas and 0.4 kg in Pradeshiya Sabha (PS) areas.

According to the 2012 Census, only about 20.4 % of MSW generated in the country is collected by garbage trucks, 44.7 % is buried or burned, 27.7% is dumped within premises and 5.2%

is composted. Only 0.9% of the MSW generated is thrown outside premises. It is estimated that Western region holds over 60% of total waste generation of the country, future waste management options are critical to evaluate. Solid waste consists typically of a very high percentage of perishable organic material (65–66% w/w), with very high moisture content (70-80%) and with an average calorific value of around 600–1000 kcal/kg.

Hazardous wastes

Wastes generated from industrial and hospital premises comprise both hazardous and non-hazardous wastes. CEA records indicate that a total of 11,589 industries generate hazardous wastes (HW) in the country, of which 45 % are located in Colombo, Gampaha and Kalutara Districts.

One private sector company has been given a license to collect, store, and blend and dispose HW in the cement kiln of Holsim Lanka Cement factory in Puttalam. The total amount of HW collected and disposed by this company, nearly 13,000 MT in 2013 is, however, very much less than the estimated amounts generated. On the other hand, non-hazardous industrial wastes collected by this company remains steady at around 50,000 tons per annum with paddy husk, saw dust, textile and polythene forming the bulk of the waste.

E-waste

Estimated amounts of e-waste generated and collected for recycling purposes are shown in Table 9. Several companies, including a leading cell phone company, have established e-waste recycling facilities, and they in partnership with other private companies collect e-waste, sort them in their facilities and export sorted waste to China and Malaysia for further processing. One of the leading CFL producers in the country recently launched a facility for recycling CFL and Fluorescent bulbs in the country. This recycling plant, the first in South Asia, is located at Pitipana in Homagama and has a capacity nearly three times the annual CFL bulb usage in Sri Lanka.

Table 8.2: e-Waste – Generation and Collection

e-Wastes Types	Generation Units	Collection Units	Gap Units
Personal Computers	53,146	15,944	37,202
Printers	19,509	5,852	13,657
Televisions	63,474	19,042	44,432
Mobile Phones	903,544	271,063	632,481
Refrigerators	39,009	11,702	27,307
Air Conditioners	7,092	2,127	4,965
Photocopying Machines	758	227	531
Washing Machines	11,107	3,332	7,775
Auto Batteries	89,928	26,978	62,950
CFL Bulbs	2,400,000	720,000	1,680,000

Source: Sri Lanka Emerging Wonder of Asia-Unstoppable Sri Lanka 2020, Public Investment Strategy 2014-2016, Dept. of National Planning, 2013

According to the WHO, 10-25% of the total Health Care Waste (HCW) falls into the hazardous category, which includes infectious waste, pathological waste, sharps, pharmaceutical waste, genotoxic waste, chemical waste, waste with high content of heavy metals, pressurized containers, and radioactive waste. In 2001 the overall production of hazardous HCW at the national level was estimated at 15 tons/day with Colombo being responsible for approximately 25% of the generation. This figure increased to 25 tons/day in 2012, based on the increase in the total bed strength in the state sector hospitals. Only few of the large hospitals located in the WR have installed incinerators to dispose hazardous HCW while the rest use a range of techniques to treat their waste including burning and burial, or send the waste to the respective LAs for disposal. Few hospitals use indirect steam sterilizers for waste treatment while some wastes are chemically disinfected using NaOCl. Where segregation of HCW does not take place, sharps and the rest of the clinical waste are mixed in the municipal waste stream. A total of 20 Metamizers (Steam sterilizers) and 5 Incinerators are now being established in State Hospitals nationwide to dispose clinical wastes. Two of the Metamizers will be located in the WR.

Current status of Solid Waste Management in Western Province

As Western region holds over 60% of total waste generation of the country, future waste management options are critical to evaluate.MSW generation and collection status of Western Region.

Table 7.2 MSW generation and collection status of Western Region

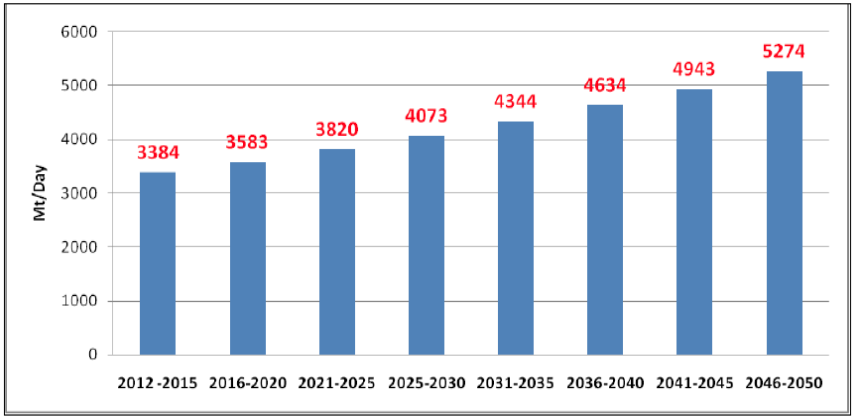
Municipal Solid Waste (MSW)	Sri Lanka	Western Province	Colombo District	Gampaha District	Kaluthara District
MSW Generation (MT)	6000-7000	**3000 – 3500 (60%)**	2000-2100	900 -1000	350-400
MSW Collection (MT)	3600 -4200	**2100 (60%)**	1450	450	170

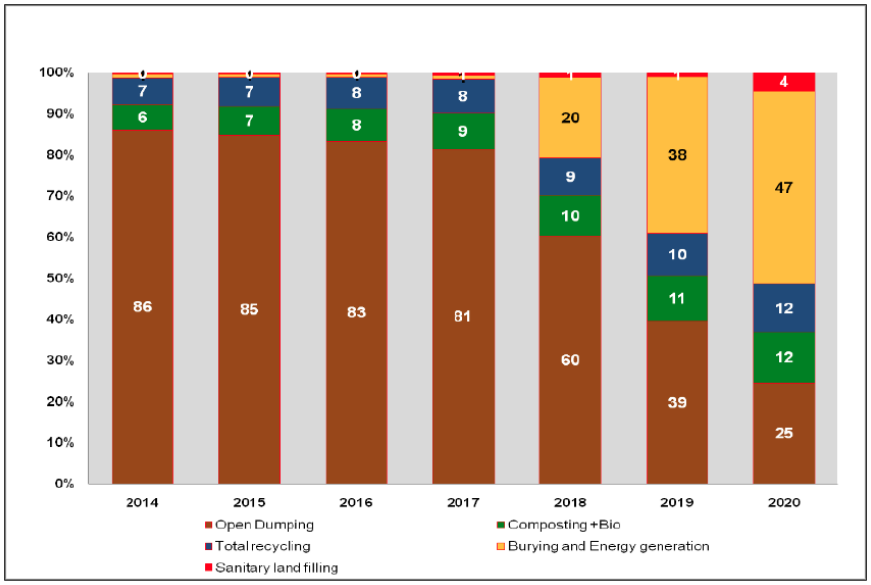
Source: Waste Management Authority-Western Province (WMA-WP)

Future Scenario of Waste generation

According to the WMA-WP projected waste generation is as follows.

Figure 7.1: Expected Waste Management scenario in WP





To solve the MSW management issue, Five year Action Plan identified by WMA is expected to reduce open dumping by 61%. There are 04 strategies in the provincial level has been identified by the Waste Management Authority (WMA) of Western Province.

1. Zonal Concept of Waste Management
2. Seven steps of Municipal Solid Waste Management
3. MSW Management Rules
4. Volume based Service Charge Systems for mixed Municipal Solid Waste

District	Project	Capacity Mt/Day	Present Progress	2012	2013	2014	2015	2016	2017	2018
Colombo	Karadiyana waste biological conversion project	50	Present operation capacity 30 Mt day, need to develop recycling plant							
		95	Bio methnization pant , Developer need to be identified							
	Karadiyana Waste to Energy Facility	1000	Developer has been identified, COD is late by two years							
	Kaduweala Bomiriya Waste to Energy Facility	500 -600	Developer has been identified, all applicable approval have been identified, Public protest, COD is late by two and half yers							
Gampaha	Dompe Sanitary Land fill	10	Conducted by the "PILISARU" project							
	Dikkovita Bio gas project	100	Present operational capacity 7Mt/Day							
			Developer need to identify							
	Gampaha Waste to Energy Fasility	450	Developer need to identify							
	Divulapitiya proposed sanitary Landfill	100	The land has been identified, acquisition of land is in progress							
Kaluthra	Pohorawatha Compost Project	35	Given by the "PILISARU" Under operation							
	Kaluthra proposed waste to energy facility	100	Investor has been identified , IEE is in progress . COD is late by two yera							
	Malamulla Sanitary landfill	20 -25	'PILISARU" Project, designing is in progress							

Figure 7.2: Mass Scale Solid Waste Management Programs

Open dumps in the Western Province

1. edawatta dump site
2. Manelgamuwa dump site
3. Ewerlwatta personal land
4. Dikkowita dump site
5. Kochchikade dump site
6. Dumpsite of Hunumulla
7. Aluthepola coconut land
8. Yatiyana mahayaya coconut land (private land)
9. Walihena rubber cultivated land (private land)
10. Niwala coconut cultivation (private land)
11. .Low land of welihena and Low land of Raddoluwa cemetery (private land)
12. Ambalanmulla dump site
13. Karadiyana
14. Seethawakapura compost plant (residues dump to the compost plant)
15. Maligawatta Government land
16. Dambuwatta dump site
17. Meerigama PS dump site
18. Adjoining land to the Bandaragama PS compost plant (residues dump to the compost plant)
19. Adjoining land to the Kaluthara Pohorawatta compost site
20. Darga town dumpsite (Behind the market)
21. Dosat Estate
22. Adjoining land to the Agalawatta compost plant
23. St.John Estate
24. Adjoining land to the Walallawita compost plant
25. Adjoining land to the Bulathsinhala compost plant

Recommended Actions to be taken

- **Waste-to-energy**

Waste-to-energy plants are ideal in Sri Lanka as its municipal solid waste consists of very high percentage of organic materials with high moisture content and caloric value. Sites that have been identified to build waste-to-energy plants include Karadiyana & Muthurajawela.

- **Composting**

Compos ng is also highly recommended in Western Region due to the presence of Planta on City and Forest City in Western Region. It could be built near either one of the City to minimise the transport of the compos ng ingredients and end products.

- **The sanitary land fills**

As for landfills, a major land ll site at Puttalam is being prepared. It will have large capacity to accommodate ash from the incineration plants and non-incinerable waste in the long term. The other three locations that are being considered are Dompe, Divulapiapitiya and Malamulla,

The sanitary land fill must be designed to meet high engineering standards and protect the environment. It has to be equipped with liner, leachate and land ll gas treatment system. The ash and non-incinerable waste shall be covered with soil once it reaches certain depth (approximately 5m - 10m) and properly turfed upon completion of land filling.

- **Closure of illegal dumping grounds**

In additional, rehabilitation on and proper closure of illegal dumping grounds needs to be implemented across the region to protect the environment. Waste recycling should be promoted to reduce the amount of waste to be disposed of in the land ll. The region should set an achievable recycling rate by 2030.

- **Community participation**

To improve the recycling rate, the following programmes could be proposed:

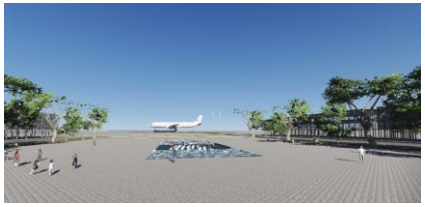
- Educate the public on 3Rs (Reduce, Reuse and Recycle) concept and strategies in schools and workplaces;
- Use gamification method such as point collections, challenges, competition, rewards within a smart phone application to engage and educate resident's on recycling matters;
- Provide recycling bin at community centres and residential clusters in the Urban areas;
- Develop door-to-door recyclable collection in the Urban area in order to make it convenient for the resident to participate in recycling program and eliminate the need to build many recycling drop off facility in the Planning Area;
- Develop Pay-As-You-Throw (PAYT) programs which charge residents based on the amount of the disposed solid waste;
- Manage waste collection system by collecting and recording the waste information at the weigh bridge station
- Formalise the existing waste pickers under a Community-based Organisation to keep track of the recycling rate;
- Develop a centralised resource recovery centre that will site a recycling centre, biomass and compos ng plant to streamline the waste sorting process.
- Provide incentives for industries to recycle their waste.

CHAPTER 8: THE AERO-MARITIME TRADE HUB

Main Scope: Airline, maritime, ports, logistics, marine & fisheries activities using PPP as well

Jobs expected: 70,000

The Aero Maritime Trade Hub will be developed as a unique Maritime, Aviation, Logistics and Trade Hub of Asia. It will be geographically bi-centric with the Maritime City centered on the Sea-Port of Colombo and the Aero City centered on the Bandaranaike International Airport, Katunayake, with the two city-centers connected by the proposed 'Port-to-Air Port' highway to be built through the 'Modera Bridge' across the Kelani River, extending to the Air Port Expressway. Both aero and maritime hubs will be efficiently connected to the 'Logistics Village' to be set up as part of the plan.



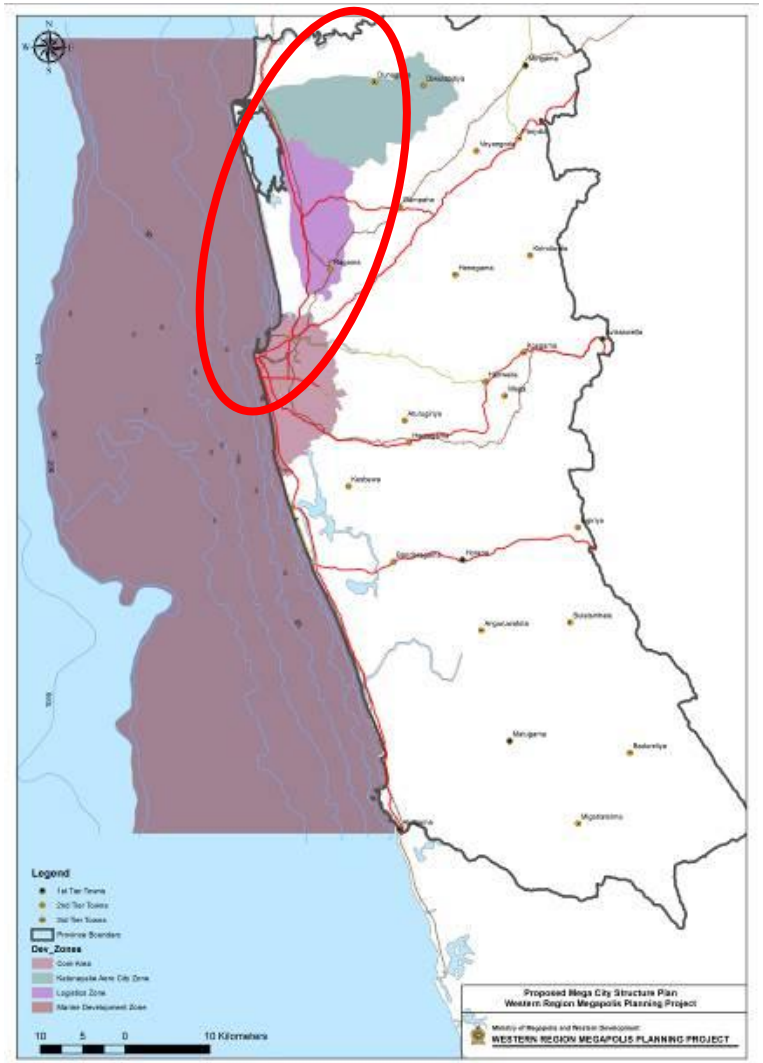


Fig. 8.1: Map showing the broad zoning areas of Aero Maritime Trade Hub

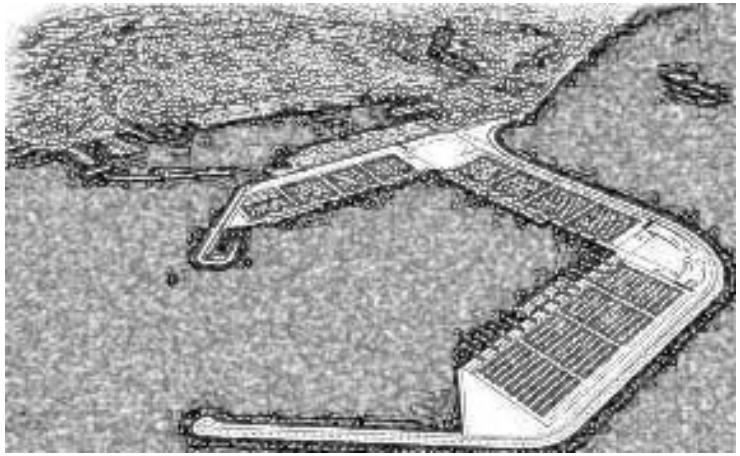
8.1 MARITIME CITY

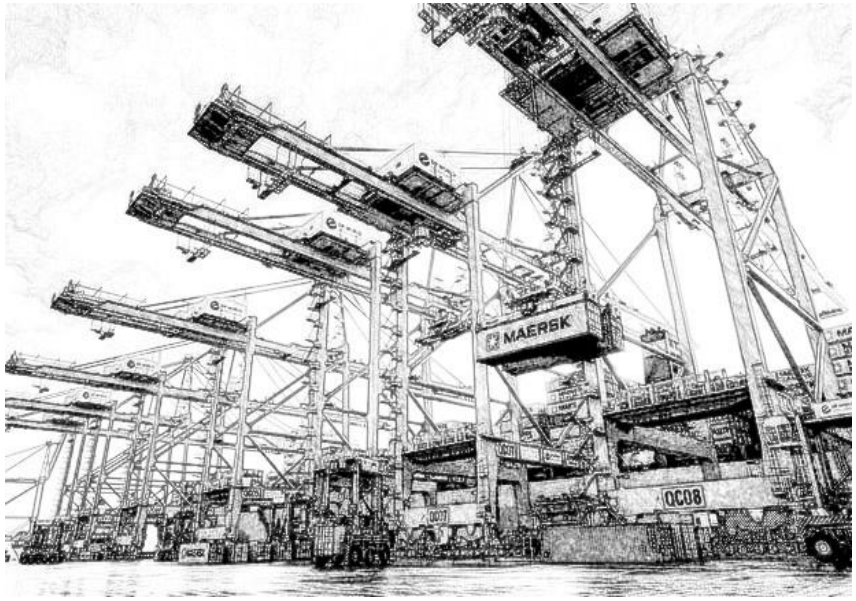
The Maritime City will include, as part of it, a Port City which is proposed to be built on reclaimed land adjoining the Sea-Port, and will, in addition, include,

- A Trading Hub for Tea
- A Trading Hub for Gems
- A Trading Hub for Minerals
- The **'Free Port' – North Harbour Project** to be implemented by **Sri Lanka Ports Authority**
- An Oil and Gas Exchange (the Gas Terminal will be fed by the Natural Gas Pipe Line originating from Mannar Basin and passing through Norochchole, while the Oil exchange will be fed by the Oil Refinery proposed to be set up in Hambantota)

The other development projects identified for establishment around the Maritime Hub include the following:

- Development of Marine Infrastructure in the Western Province in order to develop **Boat Building Industry, shipping related manufacturing process and R&D** and **Marine Tourism**
- Continental Shelf Mapping of Sri Lanka
- Extraction of Sea Sand
- Conservation plan to conserve marine and other under water wrecks
- Formation of recreational beach area along the shoreline south of Colombo (in the form of Perched Beaches)





8.2 PORT CITY

The Port City which is expected to be the most vibrant part of the Maritime City, will bring an exciting opportunity to innovate, design and develop a New World-Class City based on international experiences especially adapted to the Sri Lankan context and the site specific conditions. The new city will tap the intrinsic values of the region and environment to create a new ideal modern community for business, living and leisure. This will help attract companies and investors, to ensure it will become a beacon of excellence for Sri Lanka, representing an ambitious yet achievable vision.

The Port City will be guided by four core goals:

- Aspiration (a place of progress, prosperity and opportunity)
- Heritage (a place of character and culture)
- Recreation (a vibrant / youthful work and living playground)
- Gracious living (balancing functional and emotional needs)

The Port City is planned as vibrant, mixed- use district with waterfront promenade and a loop of attractions and vibrant public spaces; together with 24/7 activities based on sustainable development strategies. A circulation system that allows access to the waterfront is introduced to site by locating key public developments as a catalyst to become landmark sites.

To cater for good connectivity and seamless extension, the development parcels at Port City are planned based on a grid urban pattern which extends from the existing road network within the downtown area. This grid creates a flexible framework with a series of land parcels that can be combined or sub-divided to meet requirements or cater to changing demands and allow the phasing of developments.

The Port City will be Sri Lanka's most exciting and ambitious urban project designed to support continuing growth as a major business and financial hub in South Asia. It will raise the international profile of Sri Lanka while spurring growth.

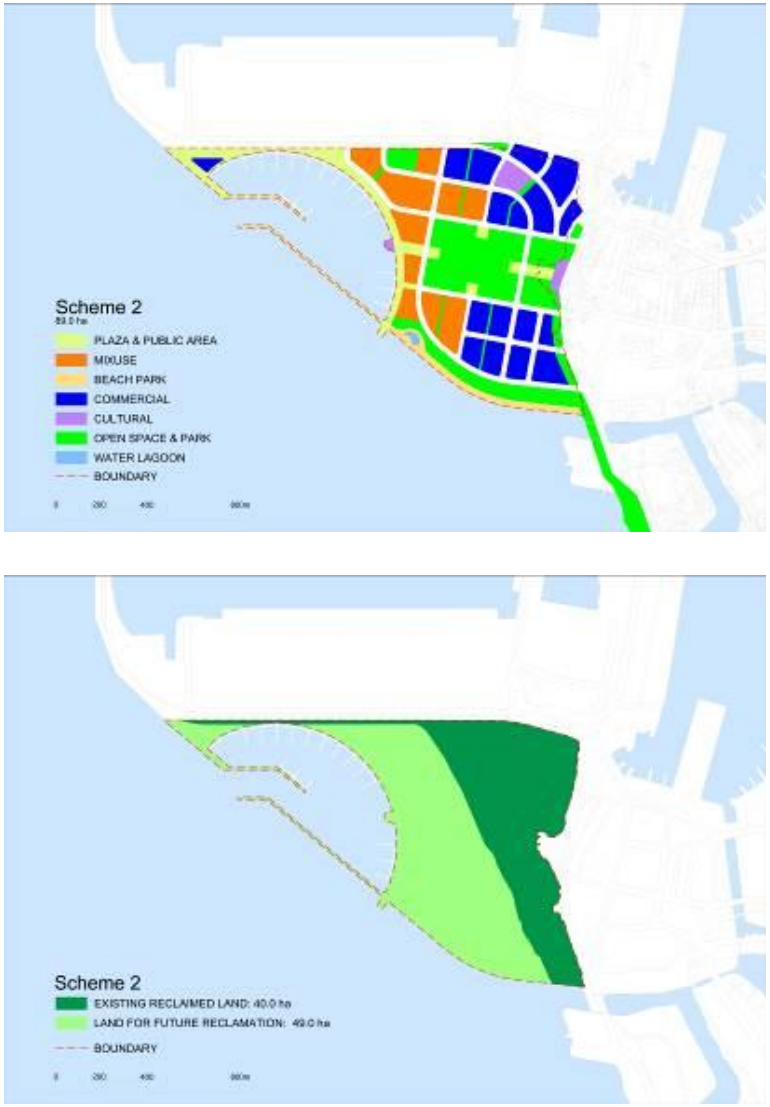


Fig. 8.2: Proposed Urban Design Plan of Port City

Colombo Port

Colombo Port has very good potential to grow considering its strategic location along the international shipping route. At present, Colombo port has a capacity to handle around 8 million TEU annually but it only handled around 5 million TEU in 2014. So, there is still spare capacity to accommodate growth in container cargo in the next few years.

In the future, the port is expected to improve its capacity to process around 20 million TEU and as such, additional berthing facilities need to be added to the existing facilities. This could be achieved by extending the existing south port and adding the new north port. At the same time, additional land for logistic and processing facilities will also be reserved to complement and create higher value-add in port services. The proposed port extension (by Port Authority) for 2030 and 2045 is as shown in the figure 9.3.

With higher capacity, the connectivity to the Port also need to be improved to allow port traffic to have direct access to the highway network.

At present, Colombo port does not have a Cruise Terminal. However, cruise activities are expected to increase with the economic growth in South Asia and Colombo could position itself as the largest Cruise Centre in the region considering the surrounding international tourism destination within Sri Lanka as well as in the Indian Ocean. Cruise Centre is proposed by converting and extending the current bulk cargo terminal near the Fort Area. This Cruise Centre should be

connected directly to the City to add vibrancy to the Fort, the Pettah areas and the new development along Beira Lake.

KEY PORT RELATED PROJECTS & INTERVENTIONS

- EAST CONTAINER TERMINAL

In line with the growth of the container volume to the Port of Colombo, identified the requirement of a new deep draft container terminal on immediate basis. Therefore, SLPA has constructed 440 m length of -18 m deep quay wall and 10 ha of container stacking yard space of East Container Terminal facilitating to handle 0.8 million TEUs per annum (Phase-1). Procurement of container handling equipment for the project is in progress. The total quay length of the ECT is 1.2 km and its full capacity is planned as 2.4 million TEUs per annum.

- IMPROVEMENT OF UCT, PVQ AND GUIDE PIER TO OPERATE CONVENTIONAL CARGO

At present, Port of Colombo handles conventional cargo at the Bandaranaike Quay (BQ), North Pier, PVQ and Guide Pier. Depths of these facilities are limited. SLPA has revealed the need of attracting larger conventional cargo vessels and improve the facilities to operate conventional cargo. Considering the above requirements, SLPA has identified to improve Unity Container Terminal (UCT), Prince Vijay Quay (PVQ) and Guide Pier (GP) to operate conventional cargo.

- DEVELOPMENT OF RECREATIONAL FACILITIES

Cruising has become a major part of the tourism industry. In line with the rapid growth of cruising industry, it is worthwhile to develop recreational facilities in the Port of Colombo to deliver a better contribution for enhancement of tourism. Port of Colombo will require modernized passenger terminal in line with the other development in the tourism sector in the country. SLPA has identified to develop BQ as a passenger terminal to accommodate large cruise ships and to enhance adjacent areas as recreational facilities including a yacht marina.

- DEVELOPMENT OF WEST CONTAINER TERMINAL (WCT) 1

Container throughput forecast will reach 12 million TEUs by 2030 as per the present studies of SLPA. With the saturation of the container handling capacity of Port of Colombo, SLPA will require to develop an

additional deep draft container terminal by that time. The project will create a terminal with the capacity of 2.4 million TEUs per annum having 1.2 km deep draft berths and 50 ha of container stacking yard.

- EXTENSION OF COLOMBO PORT EXPANSION PROJECT BREAKWATER AND DEVELOPMENT OF WEST CONTAINER TERMINAL 2:

Accordance with the container forecast, Port of Colombo will reach its container handling to 19 million TEUs in year 2040. This will lead to need of implementation of Colombo Port Expansion Project Phase 2.

- NORTH PORT DEVELOPMENT PROJECT

Beyond the demand that can be accommodated with in the Colombo South Port and the perennial port, SLPA will require to extend its developments North Port development has been identified as the ultimate port development plan at the Port of Colombo, which will create more deep draft container terminals, conventional cargo handling facilities and other essential port facilities.

- EXTENSION OF ECT AND SAGT AS COMBINED BACK TO BACK TERMINAL

With the introduction of North Port, opportunity will be created to extend the ECT and SAGT and operate as a combined back to back main-feeder container terminal. This project will enhance the capacity and productivity of two terminals. Further, an area of 15 ha adjacent to the terminals will be developed for Multi-Country Consolidation (MCC) operations

- ESTABLISHMENT OF CARGO VILLAGE

The Port of Colombo, owing to its close geographic proximity to major arterial global East–West shipping lane and, its centric position to the greater Indian Sub-Continent and adjacent markets, enjoys a unique strategic advantage. Massive population and existing medium level labour cost create good opportunity for Sri Lanka to take a major part of logistic business in the region with the location advantage of the Port of Colombo. Even though the country left behind the technology level of the world, this could be improved during the performance of the business. Therefore, in addition to the proposed logistic

It is worthwhile to establish a cargo village of about 2000 ha in suitable location close to the Port of Colombo with necessary transportation access and infrastructure facilities.

This project to be implemented in stages with the growing demand for the business. Required land to be allocated by the Government of Sri Lanka and necessary road connections and infrastructure will need to be provided by the Government in line with the demand. The proposed land(s) to be connected with Port of Colombo through a dedicated access or expressway link. The cargo village to be operated as a free-trade zone. Land to be offered to investors by calling proposals and appropriate concessions may have to be given to attract more investors. This project will create a good platform to centralized the logistic business thereby reduce production cost and traffic congestion.

- Construction of shipping and maritime center building

- Establishing a marina by converting southern part of Dikkowita fishery harbor
- Rehabilitation of Panadura fisheries harbor

(Note: For further details regarding the projects please refer project identification report)

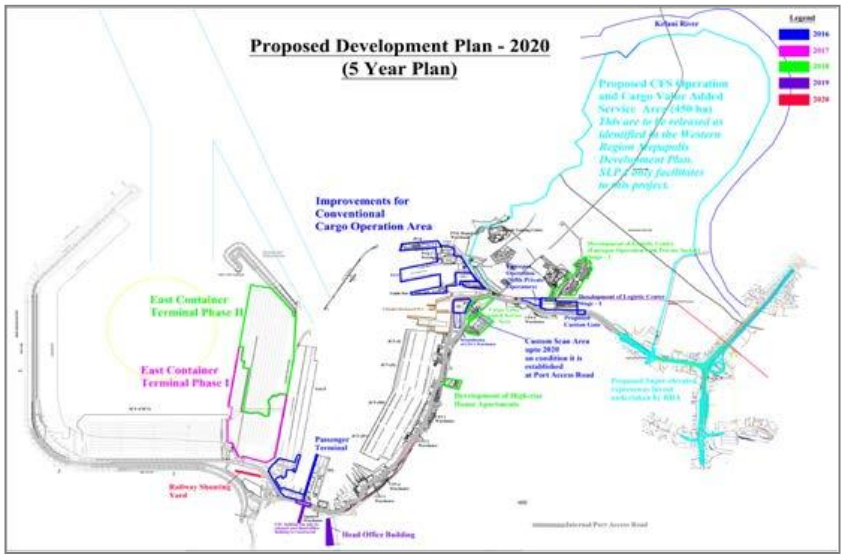
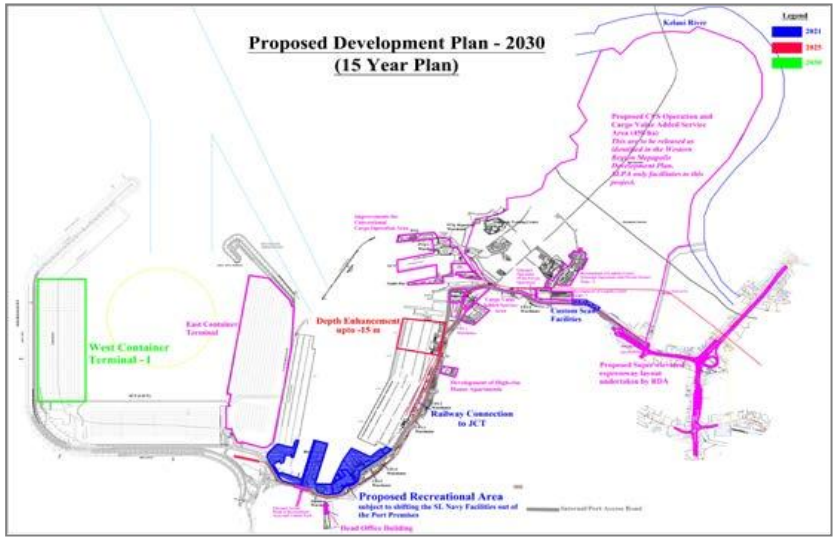


Figure 8.3 Colombo Port Development Plan 2020 (Source: SLPA)



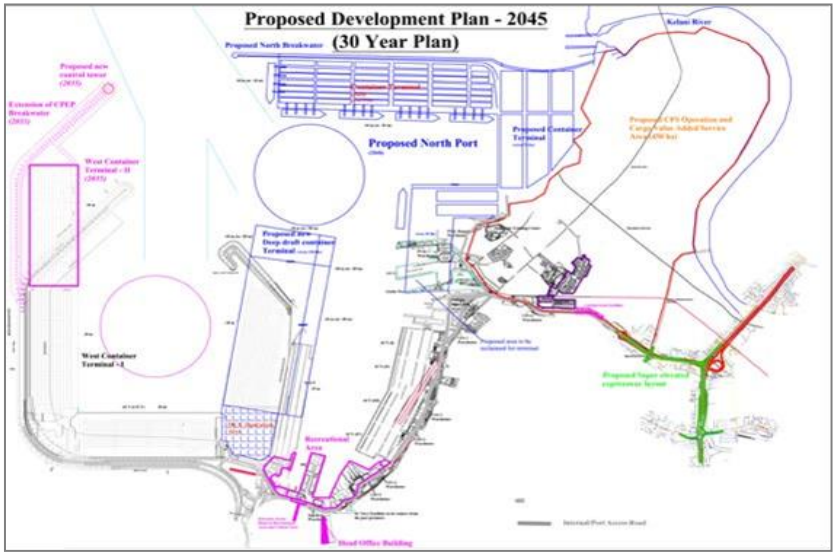


Figure 8.4 Colombo Port Development Plan 2030 (Top) 2045 (Bottom) (Source: SLPA)

8.3 LOGISTICS CORRIDOR

The Logistics City is strategically located in close proximity to the Colombo Port and the Airport, and its accessibility to other parts of the country. The Logistics City is aimed at tapping into this strategic opportunity to grow logistics industries and manage the sporadic existing logistic activities. The Logistics City is envisioned to be the premiere transport and logistics hub of South Asia.

The project will consolidate and link existing and potential logistics activities in the Western Region. Multi modal connectivity such as dedicated roads, expressways and railway links are proposed for freight handling and transportation. Industrial clusters will be developed to accommodate different facilities such as transshipment, dry port, warehousing, cold storage, vehicle repair, and cargo distribution.

The integrated residential clusters will be developed to provide housing near to the employment centre. Various types of housing, recreational, commercial and public facilities will be provided ensuring a good quality living environment.

This project will generate around 100,000 new jobs and attract investors in the logistics sector as well as real estate developments.

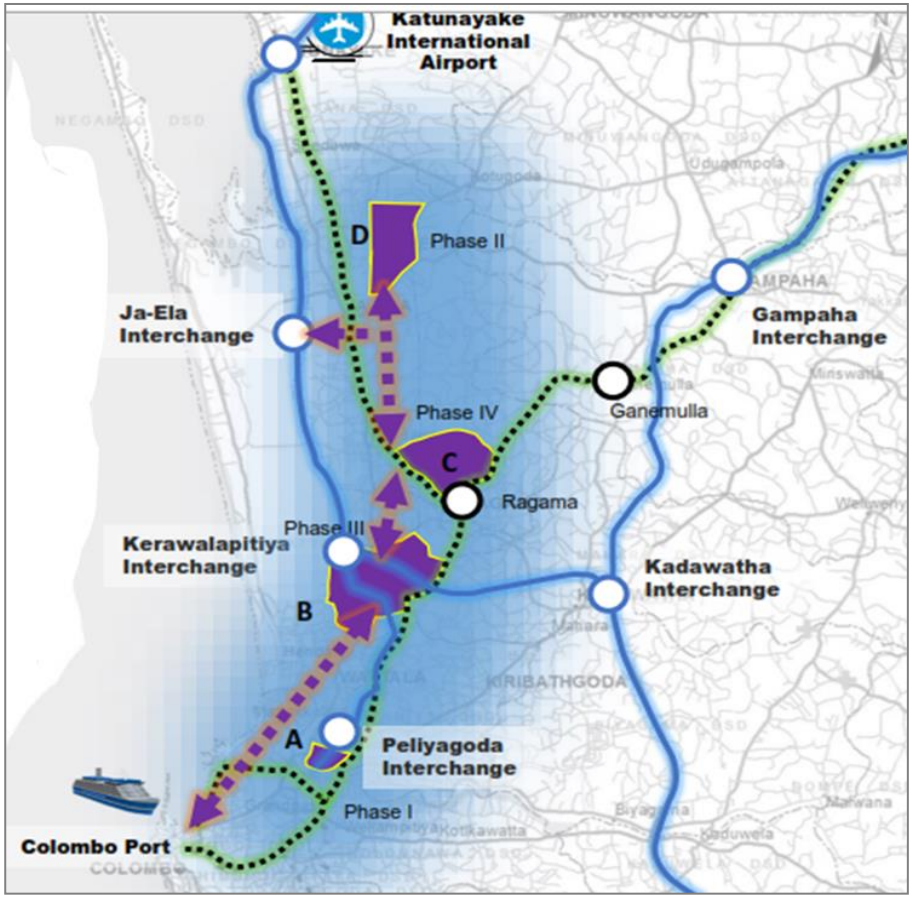


Figure8.5 Concept Plan for Logistics Corridor

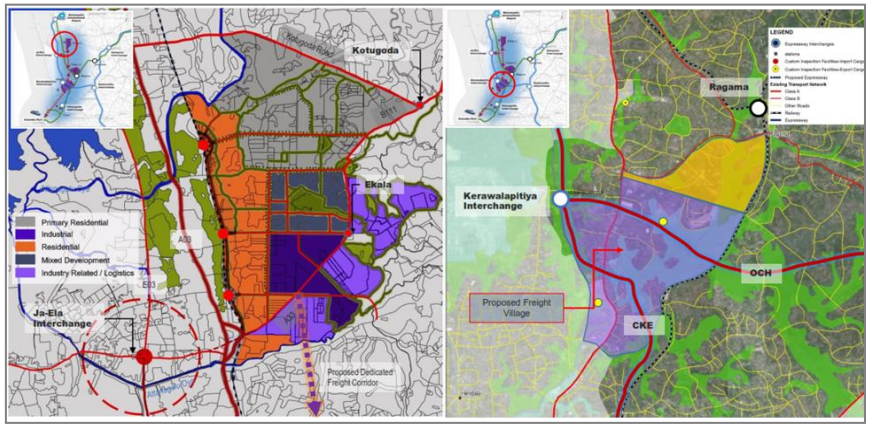


Figure 8.6 Proposed Uses at Ekala and Welisara clusters

8.4 AERO CITY

The Aero City, will involve development of airport infrastructure including **Aerodrome, New Passenger Terminal, Aero-City Business-Park, Airport Hotel, and an International Convention Centre,** along with the development of an **Aero-City Residential Township** at Minuwangoda. The project will consist of the airport cluster and a residential township cluster. The airport cluster is aimed at growing the aviation related businesses around the airport, including the development of second runway, the airport extension, the development of aviation industries, logistic and MICE businesses around the airport, while the residential clusters will complement the airport city development by providing well planned residential areas in proximity to the employment centre around the airport. Various types of housing, recreational, commercial and public facilities will be integrated in the township, ensuring a good quality living environment.

This project will attract investors in the airport development, airport operation & management; aviation related industrial developers as well as real estate developers.



The specific projects to be undertaken under 'Aero City' development include the following:

- Bandaranayaike International Airport (BIA) Aerodrome Upgrade
- Expansion of Existing Passenger Terminal Building at BIA
- BIA Development Project Stage II Phase II
- Transit Hotel at BIA
- Proposed Runway of BIA
- Establishment of the Business Park in the Aero City
- Establishment of Convention and Expo Center in the Aero City
- Establishment of the Hotel School in the Aero City
- Car Rental and Transport Facilities in the Aero City
- Aero City Township Development - Divulapitiya

In addition, a separate zone named 'Logistics Village' will be established to cater to the logistics needs of the overall Aero Maritime Trade Hub.

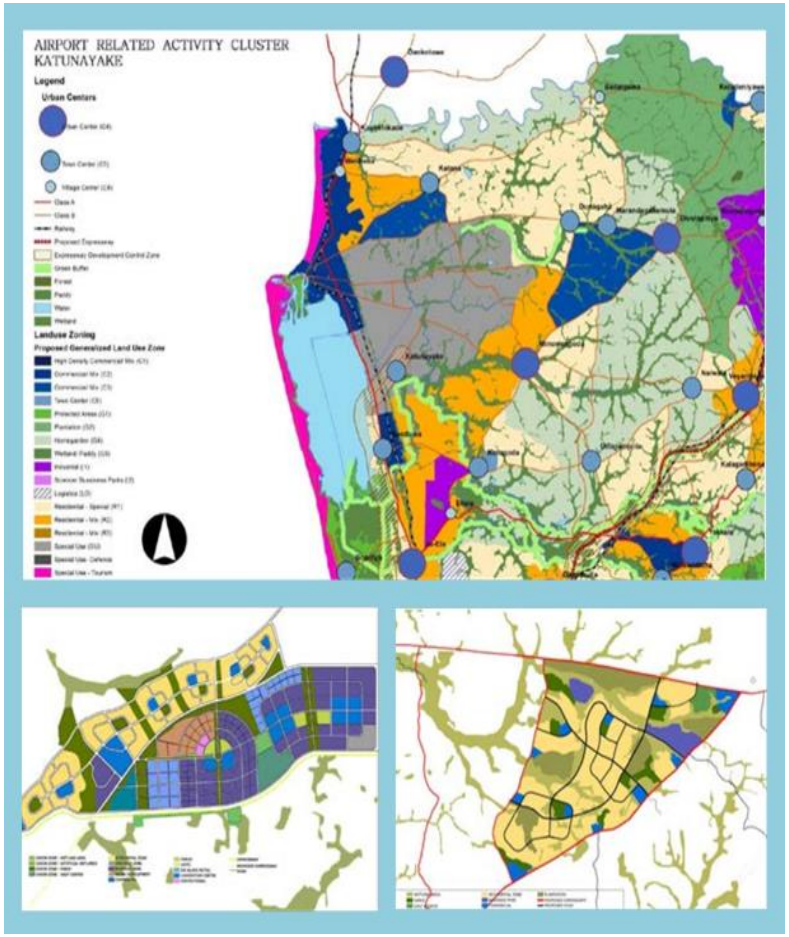


Figure 8.7 Aero city Zoning Plan (top), Proposed Uses in Aero city Business park (bottom left), Proposed Uses in Aero city (Bottom right) Residential Precinct

Bandaranaike International Airport (BIA)

Bandaranaike International Airport (BIA) is the main airport in Sri Lanka serving both domestic and international travels. Currently, the airport has a single runway and handled 7.7 million passengers per annum in 2014. The total tonnage of cargo BIA handled in 2014 is 209,417 metric tonnes.

In line with the growth in air transport, BIA is expected to accommodate up to 50 – 60 million passengers in the long run. Accordingly, this airport will need a 2nd runway as well as the extension of airport building and related cargo terminal and other airport facilities.

Currently, 2 runway options are being studied, the northern runway option and southern runway option. Once the option is decided, sufficient land has to be allocated for the 2nd runway as well for the airport extension and related facilities. Figure9.7 shows the runway options.

The facilities at present in the BIA can't cater the expected future arrivals. The predicted passenger/ tourist number to the BIA will be 30 mn by 2030. As per the predictions and Megapolis goals and economic targets, the need of second Runner- way becomes very vital. The construction of the second runner way has been identified to meet this demand of Megapolis plan. According to the analytical studies project team has identifies two options as demonstrate in the following figure. Out of both, option one recommend for detail designs and feasibilities.

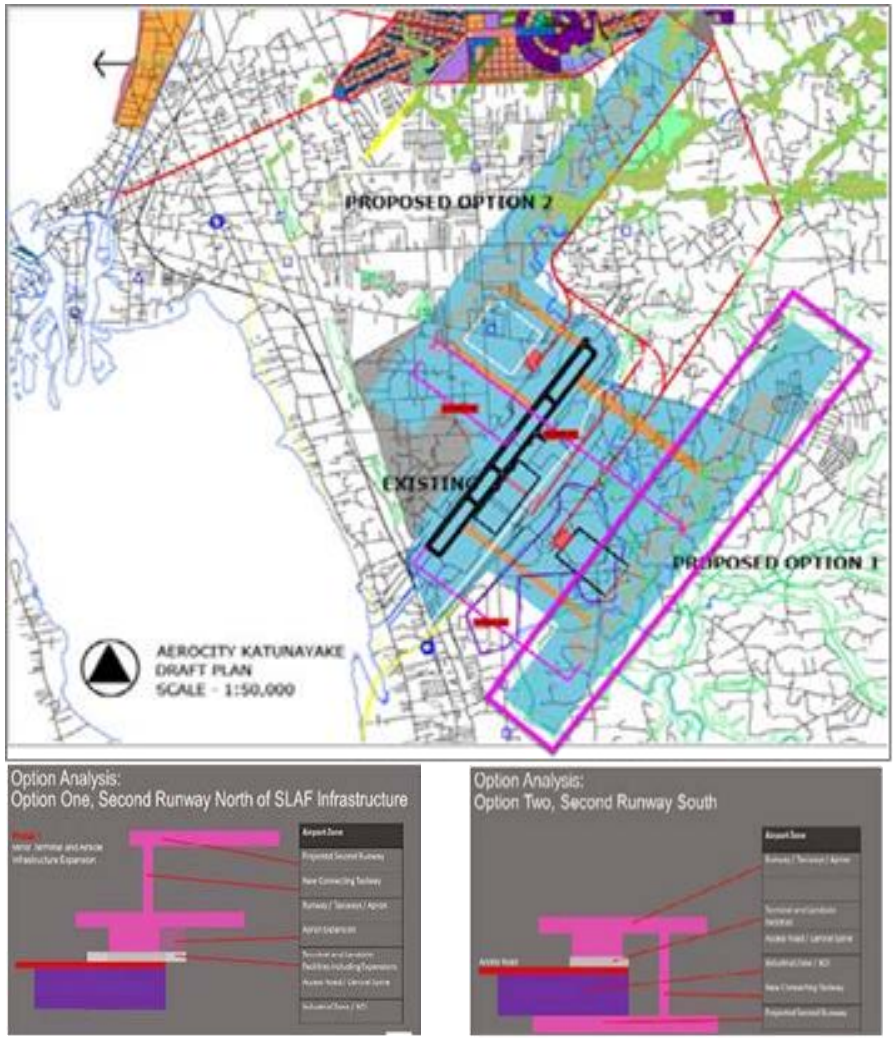


Figure 8.8 Bandaranaike International Airport Expansion Options

Ratmalana airport

Ratmalana airport is the oldest airport of Colombo. It has a single and short runway of about 2.5 km and is currently used for chartered plane and other domestic air travel. The government has been contemplating to redevelop the airport into residential and commercial development as the airport is not optimally used and may not be viable in the long term. While the decision has not been made on its future, it is worth considering to keep the Ratmalana airport as a city airport serving the shorter destinations as well as serving the projected increase in chartered and private planes and the possibility to develop it into a hub for budget airlines. No additional land can be allocated for this airport as it is located in highly urbanized and residential area.

To enhance the existing capacity and the character of the area through the airport facility, urban design framework has proposed for Ratmalana area.

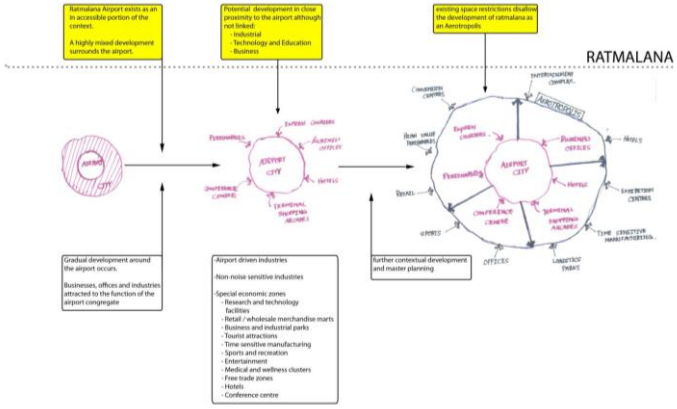
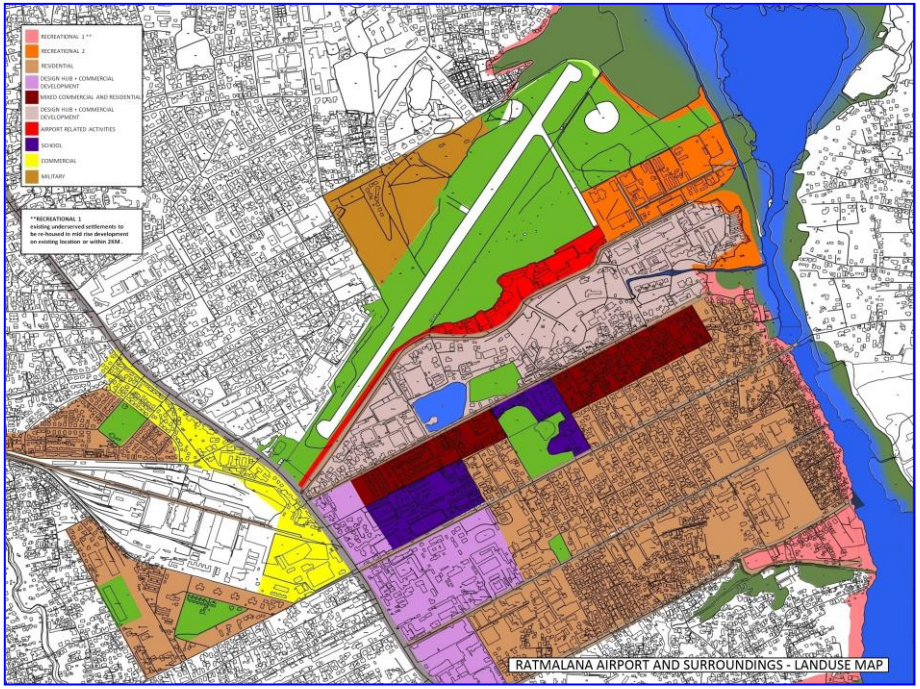


Figure 8.9 Concept Plan development for Ratmalana Airport Surrounding



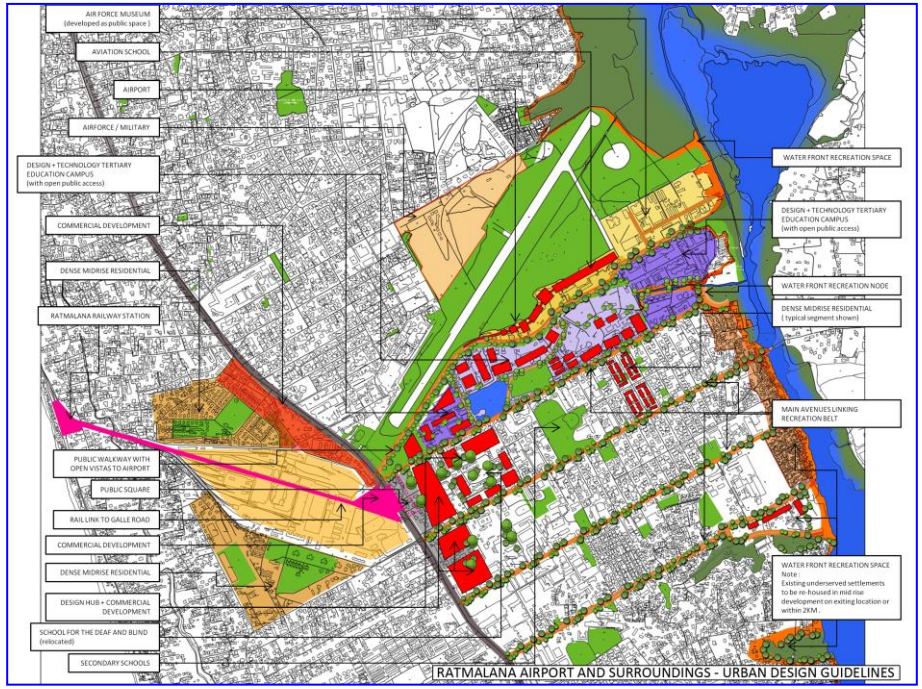


Figure 8.10 Proposed Land Use and Design Guidelines for Ratmalana Airport and Surrounding

CHAPTER 09: 'THE HIGH RISE' – CENTRAL BUSINESS DISTRICT

Main Scope: ***Downtown infrastructure, structures for banks, commercial & lodging as government, PPP and Private Development***

Jobs expected: ***70,000***

The 'The High Rise' will be developed as the dynamic, vibrant and glamorous Central Business District of the Megapolis, which will be the **hive of international trade, commercial and financial activity**, with an attractive environment. 'The High Rise' will involve addition of **at least sixty new high rise buildings of 40-floors or more** including most of **the leading Hotel Chains in the World**. Downtown Colombo which has evolved as the prominent business district, and has been one of the most attractive cities in the world during the early part of the last century, will be developed as the Centre of the CBD, which will expand much beyond the extent of the traditional downtown Colombo into the bordering outer core.

Figure 9.1 Proposed Design Elements of CBD Area around Beira Lake

CBD & Inner Core Area in Colombo is the most diverse area in terms of land use, density and building typology.

Considering the future development in Western Region, where the Core Area will perform as the international business and financial center as well as regional trading and services center, larger part of the Core Area will be zoned for various commercial developments as follow:

- High density commercial zone in the CBD including the future "Port City"
- Medium density commercial zones and corridors outside the CBD
- Medium density commercial corridor (waterfront) along the coastal area

Rapid Transits System (RTS) alignment and the location of RTS stations, a high density commercial nodes will be allocated around the RTS stations to optimize its roles as transit hubs.

Within the Commercial Zone, however, high density and good quality residential development are allowed and encouraged. This is to ensure the good mix and vibrancy in the city. As for the housing development, good class low density housing in Colombo 7 (Kurunduwatta Area) and around the parliament house is preserved, while the remaining housing areas are proposed for medium density housing allowing densification in the long term with the increase in land price.

Areas for institutions are designated around the parliament house and in some other pockets of land, while industries and port related activities are reduced to free up land for higher value land uses, except some pockets of clean and services industries.

To improve urban development quality, urban design control is recommended to be prepared in key areas within CBD and among other area in inner core, the waterfront areas and area around Ratmalana Airport. Heritage areas and areas with special characters will be zoned as special development areas. This includes Fort, Conservation Zone, Pettah Bazaar Zone, and the Old Dutch areas at Hultsdorf and around the Cathedral. Special plans and guidelines will be developed for these areas. The proposed Development Plan for the downtown is as shown in figure 9.13.

Figure 9.2 Proposed Urban Design for Beira Lake Surrounding

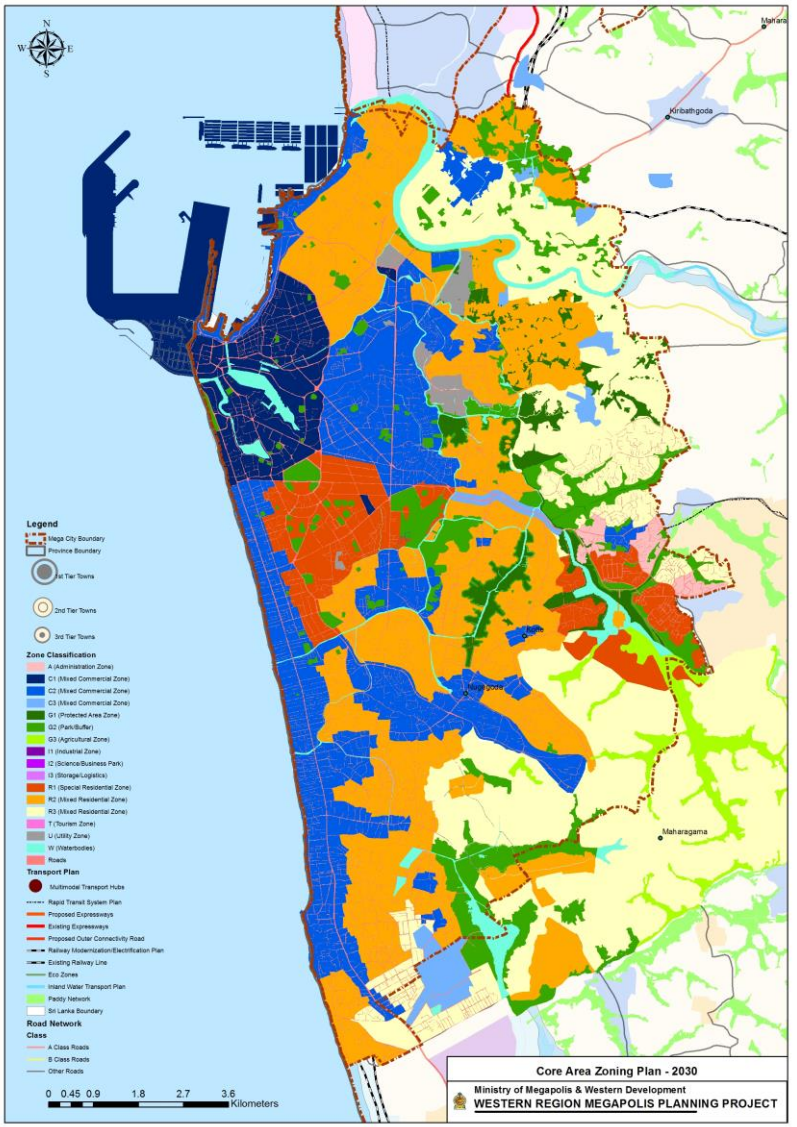


Figure 9.3 Proposed Zoning Plan for Colombo Core Area



Some of the specific development projects will include:

- Development of a Modern Rapid Transit System for greater efficiency and quality of Public Transport within the Central Business District
- Development of a Modern Integrated Transport Hub in Pettah
- Development of a unique shopping district along Beira Lake utilizing the railway land as one of the main landmark in Colombo downtown;
- Development of a unique entertainment district on the other side of Beira Lake as another destination in Colombo downtown;
- Development of a Cruise Centre at the old port linking the new shopping district, the Fort heritage district and the Pettah bazaar district;
- Development of a Commercialization Centre for all forms of Innovations with Commercialization Potential
- Development of Fort and Pettah Areas into a pedestrian friendly destination;
- Development of green connectors that will allow pedestrian to move seamlessly between Beira lake, cruise centre, Pettah, Fort, Galle Face and the future Maritime City.
- Regeneration of Pettah, Preparation of Urban Design, Architectural Concepts and Design Guidelines
- Pettah Development - Liberty Square Project
- Declaration of Archeological sites
- Draw up a conservation and a restoration plan to conserve the isolated buildings
- Conservation of historical monuments/sites

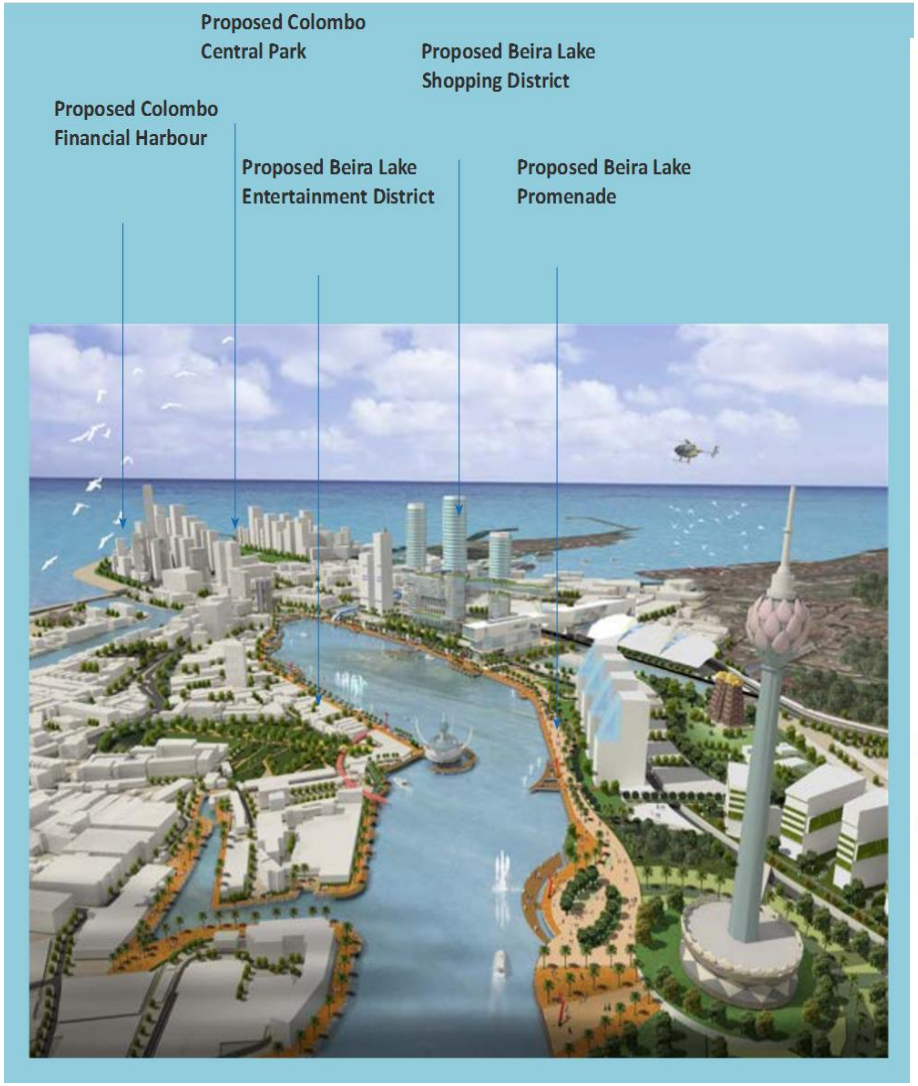


Figure 9.4 Artistic View from Proposed Financial Center around Beira Lake

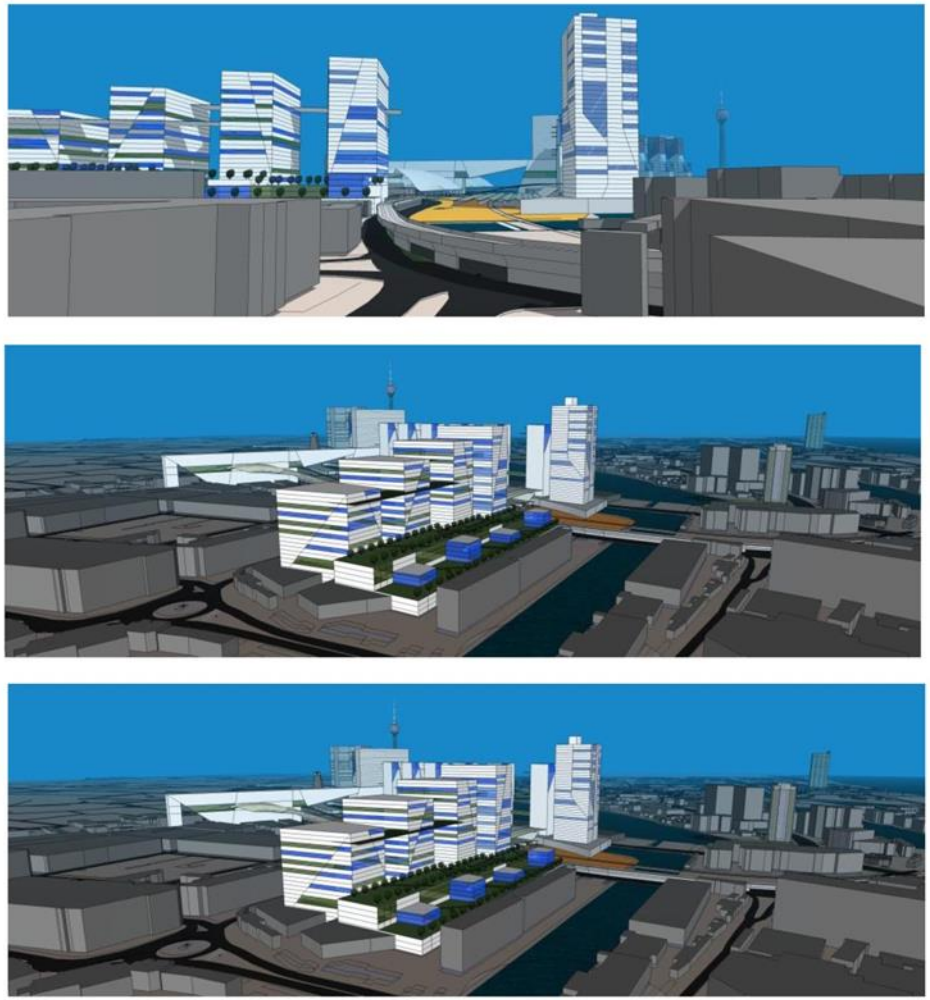


Figure 9.5 Views of Proposed Building scape of Colombo Core Area

CHAPTER 10: INDUSTRIAL AND TOURIST CITIES – MIRIGAMA, HORANA, NEGOMBO, ALUTHGAMA

Main Scope: ***Industrial zones, Tourist area development as government, PPP and Private development***

Jobs expected: ***105,000***

While Mirigama and Horana are to be developed as Industrial Cities, Negombo and Aluthgama will be developed as Tourist Cities.

The two Industrial Cities to be established at Mirigama and Hoarna are part of the overall drive to enhance the manufacturing component of the national economy, while generating direct and indirect employment opportunities, and facilitating effective concentration and relocation of some of the existing industries. While the industrial city at Mirigama is expected to be developed as a specialized zone for Food Processing, largely export oriented, and based on the diverse variety of Sri Lankan and Regional culinary, thereby emerging as an important centre of the Asian Culinary Map. The Industrial City at Horana is aimed at both Import Substitution and Export Development, and will facilitate concentration of some of the SMEs scattered across the region, thereby enabling better economies, further expansion in numbers and diversity, and better management of the environmental impacts. The two Cities, covering respectively 184 and 85 sq. km in extent, both including some small towns and villages in their respective neighborhood, are expected generate 300,000 each new employment opportunities.



10.1 MIRIGAMA INDUSTRIAL CITY

The Mirigama Industrial City is located at the north east corner of the Western Region. The Mirigama Industrial City is located at the north east corner of the Western Region. It occupies approximately an area of 184 sq. km including some small towns as well as scattered villages.

The project aims to attract major players in Pharmaceuticals, electronic products Edible products manufactured out of the cultivated agricultural products, Ceramics, glassware of the mineral based products, Cosmetic products manufacturing and provide location for SME's that will support the above industries. The site in Mirigama was selected as land is still highly available, labour cost is lower, and it is located at the gateway to Western Region.

This project also aims at creating a livable city where migrants from rural areas can settle in Mirigama without necessarily moving to

Colombo, which has been overcrowded in Sri Lankan context. This project is expected to attract industrial developers, which in turn will attract investments in electronic manufacturing and create employment. The Mirigama Industrial City is expected to generate additional 100,000 new employments.

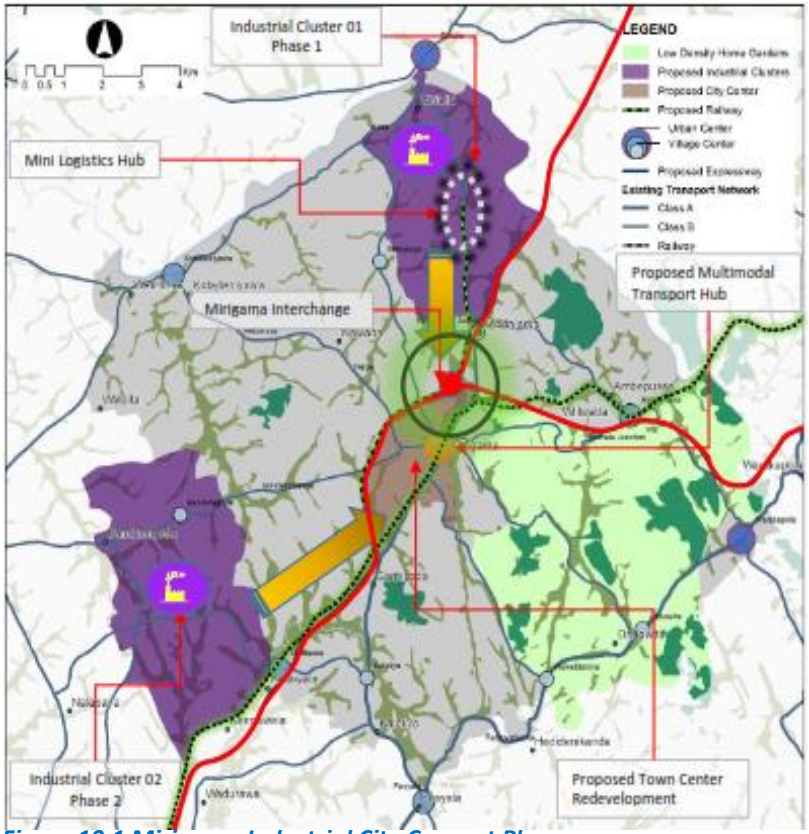


Figure 10.1 Mirigama Industrial City Concept Plan

This project will also attract real estate developers, who will be counting on the industrial estate as an employment centre that will attract workers and create real estate demand.

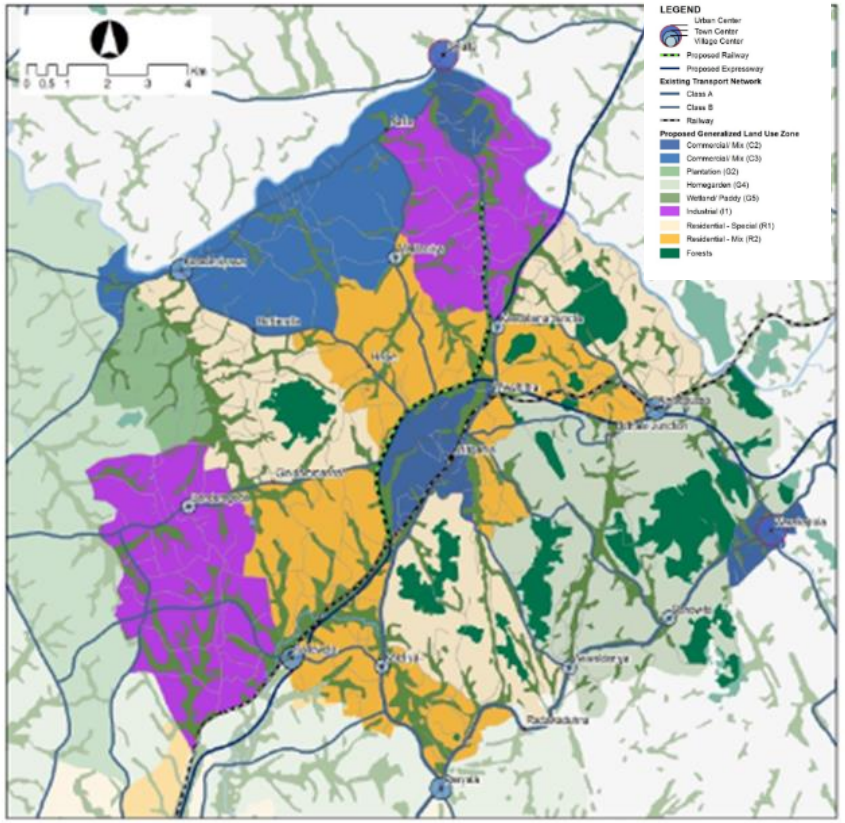


Figure 10.2 Mirigama Industrial City Zoning Plan

10.2 HORANA INDUSTRIAL CITY

The Horana Industrial City occupies approximately 85 sqkm consisting of existing towns and scattered villages.

The project aims to accommodate the large numbers of large scale industries and Tyres and tubes, electronic products, Pharmaceuticals, Edible products manufactured out of the cultivated agricultural products which was scattered in the Western Region without proper industrial infrastructure, and has been identified as the source of pollution in many areas.

In line with the economic growth, these large scale industries are also expected to improve in technology and value; and thus they should be relocated to proper industrial estate with adequate infrastructure.

The site in Horana was selected due to land availability and its good connectivity via the north south highway.

Better quality new residential development including affordable housing will also be developed to support the industries. The project is expected to attract both industrial and real estate developers. The Horana Industrial City is expected to generate additional 200,000 new employments.

Major components of the project will include,

- Establishment of Industrial Parks
- Develop Manufacturing industries (non-polluting large, medium and small scale)
- Development of a New Residential Township

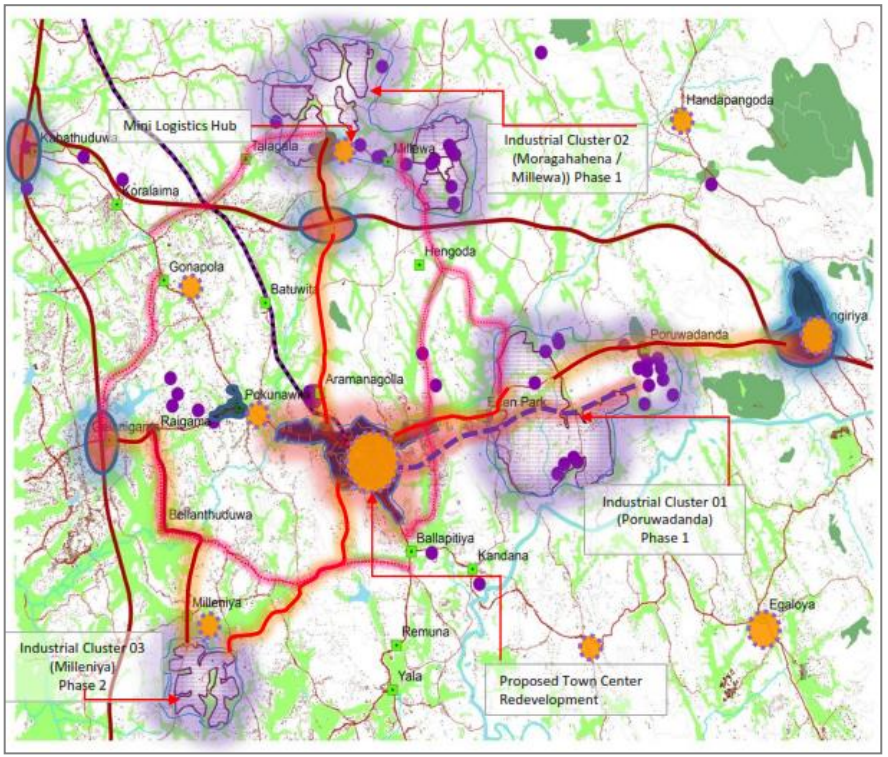


Figure 10.3 Horana Industrial City Zoning Plan

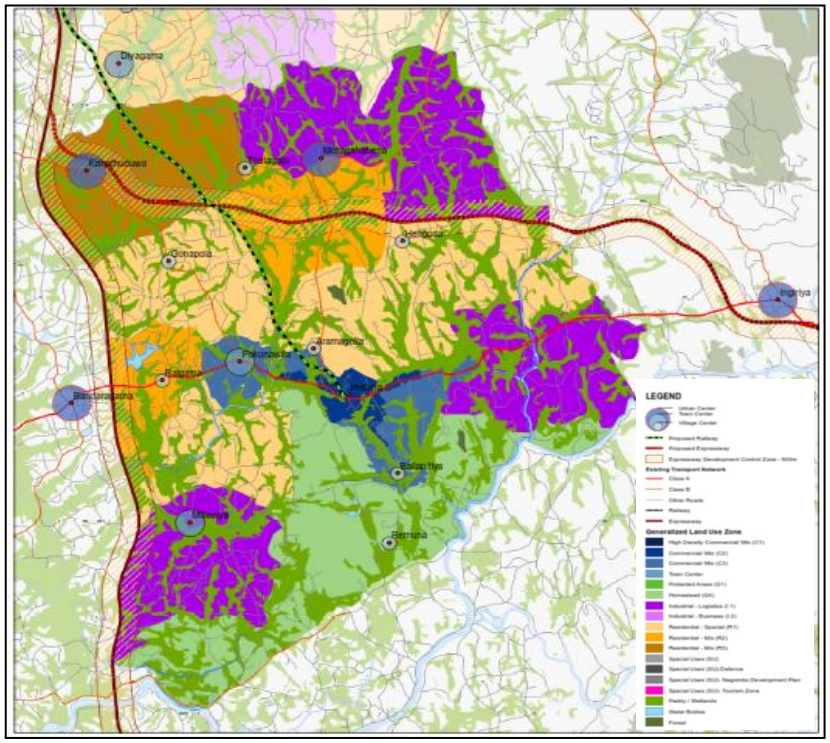


Figure 10.3 Horana Industrial City Concept Plan

10.3 TOURIST CITIES

Development of Negombo and Aluthgama as two Tourist Cities within the Magapolis Region is identified as an important strategic measure in developing tourism as a key sector in the overall national economy, and the two initiatives taken together are expected to generate around 35,000 job opportunities.

Tourist City - Negombo

The major development activities identified include,

- Development of Muthurajawela Conservation and Tourism Zone
- Negombo Township and Tourism development, and
- Establishing a Marina by converting southern part of Dikkowita Fisheries Harbor.

Although not directly involved in tourism, one of the other development projects identified in the area would be development of a Fisheries Harbor for Multiday Boats at Morawala area in Negombo

Southern Coastal and Tourism Corridor – Aluthgama

The major development activities include,

- Marina Development in the Outer Harbor area of Beruwala Fisheries Harbor
- Dedduwa River mouth area tourism Development, and
- Compact Township Development – Aluthgama

CHAPTER 11: SCIENCE AND TECHNOLOGY CITY

Main Scope: ***Improving knowledge level of Science & Technology and application to the industry, new research with the intention of becoming a Knowledge Based Economy as government, PPP and Private development***

Jobs expected: ***60,000***

National Space Technology Hub including Ground Station infrastructure for receiving & distribution of Earth Observation Satellite Data

Source: Arthur C Clark Institution for Modern Technologies

The Science and Technology City is the key strategic intervention made towards enabling the necessary structural transformation of the national economy into a knowledge-based innovation-driven economy with a major high-tech manufacturing and tradable services sector with strong export orientation. It is designed to provide a comprehensive all-encompassing Eco-System for Innovation. The city will provide the infrastructure for geographic concentration of all high-tech research and development centres, incubation centres, and high-tech industries with all requisite support services and facilities, and in addition, a dedicated technological university among other major technology centres.

The areas of advanced technology that the Science and Technology City will mainly focus on include Nano Technology, Civil Nuclear Technology, Space Technology, Information and Communication Technologies, Electronic Manufacturing & Semiconductor Technologies, Robotics and Automation, Bio-Technology, and Gene Technology. The City will have High-Tech Industries exemplified by manufacturing of high value addition Nano Materials such as Nano Carbon Tubes, Graphene, Nano-Titanium, Semi-Conductor Manufacturing, as well as Advanced Health Care with Super Specialty Hospitals.

The full range of services and facilities namely those required for conducting high-tech research, incubating facilities for transforming research output into products or technology solutions with commercial potential, manufacturing at pilot scale, and finally for establishment of 'technology start-up companies' or for productively transferring the technology to a suitable manufacturer, will be

provided. The facilities will include mechanisms for risk-capital financing, marketing support and Intellectual Property management etc. The optimum work and living environment will be created for the professionals, entrepreneurs and other stakeholders operating in the city.

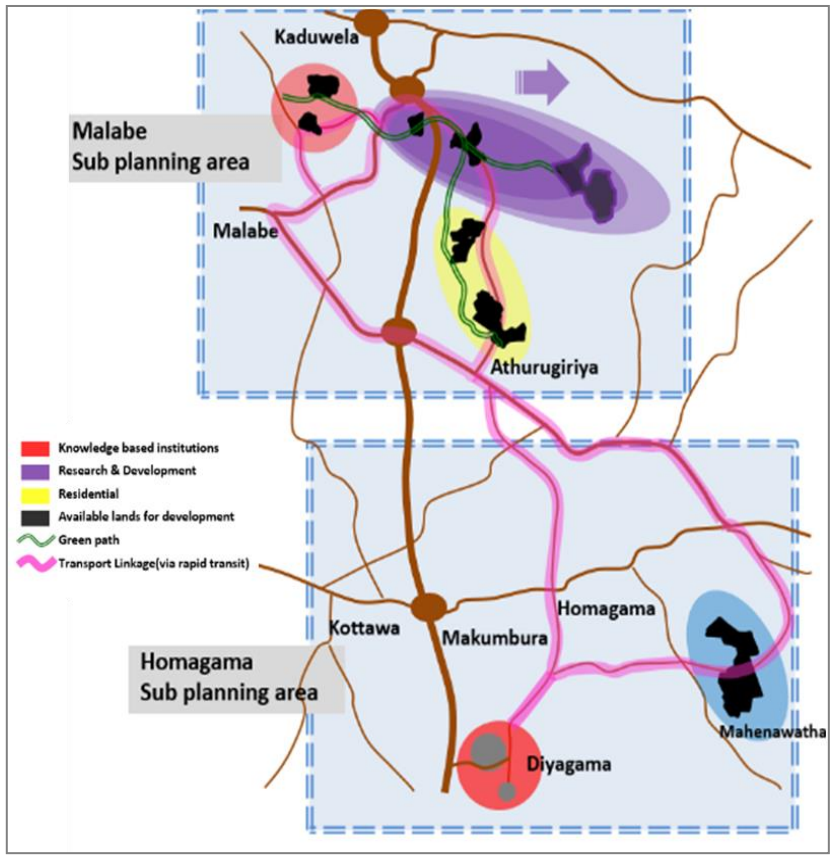


Figure 11.1 Science and Technology City Concept Plan

The Science and Technology City is to be built on the Malambe-Homagama corridor. It is expected to generate employment opportunities, with a significant proportion of them being highly specialized professional positions of engineers, technologists, and scientists. It is intended to enable increase of the High-Tech value added product and services component of Sri Lanka's exports to above 50% of the total exports by 2030.

The development will lead the transformation of Sri Lankan industries into higher value industries, promote research and development activities and position Sri Lanka as one of the high tech industrial hubs in the future.

New universities, high quality residential with ample facilities will be developed to create a conducive environment for scientists and creative individuals working and living in this area. This project is expected to attract business park developers, software houses, big players in advanced technology and bio-medical industries as well as real estate developers. The Science and Technology City is expected to generate additional 60,000 new employments.

The Mega Project 'Science and Technology City' will include following major projects.

- **High Tech Industrial Park**
- **Nano City (The Nano Technology zone)**
- **National Space Technology Hub including Ground Station infrastructure for receiving & distribution of Earth Observation Satellite Data**
- **Information Technology Zone**

- Civil Neuclear Technology Zone
- Bio-Technology Zone
- Green Energy Technology Development Zone
- Science City – National Science Centre and Other Facilities
- Medi City (Healthcare facility zone)
- Alternative Technology zone
- Shopping complex, Cinema, Schools, Recreational activities, Parking Block
- Residential – 3 -4 storied housing, Apartments, Medium rise houses
- R&D based Incubation center for SME Sector

Figure 11.2 Science and Technology City – Proposed Activities in Research and Development Hub

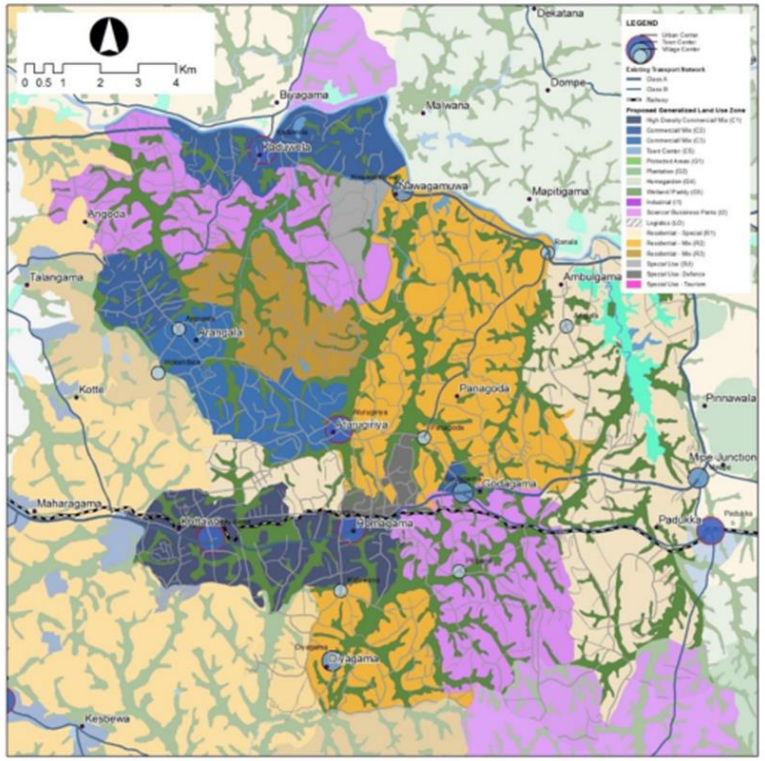
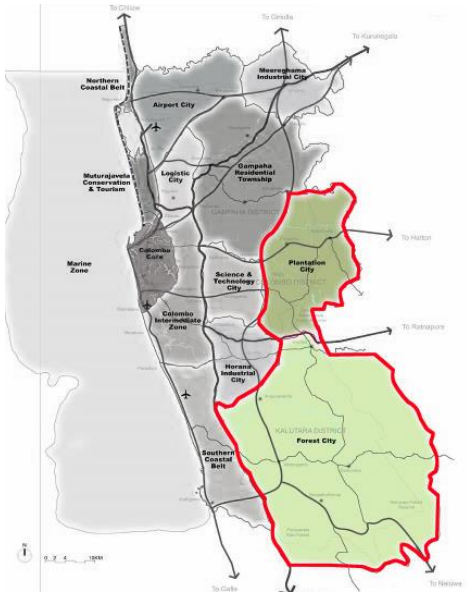


Figure 11.3 Science & Technology City Zoning Plan

CHAPTER 12: ECO HABITAT AND PLANTATION CITY



The Mega Project formulated as 'Eco Habitat and Plantation City' covers two distinct and adjacent geographical areas, both abundant with flora and fauna as well as with plantations. This is the wettest area of the country with high rainfall, blessed with a large rain-forest cover and large plantations. The zone identified for development under 'Eco Habitat' boasts of the 'Singharaja Forest Reserve', which is one of the oldest Virgin Forests and a richest bio-diversity hot-spots on Earth, including some native species never found elsewhere on the Earth. 'Singharaja' has also been 'inscribed' as a 'World Heritage' site by UNESCO. Bio-diversity and unparalleled scenic beauty make Singharaja and the surrounding area a unique destination for 'Eco-Tourism', and for Adventure, Leisure and Education.

The surrounding area is also abundant with medicinal herbs of proven curing power demonstrated over millennia, a unique potential that is intended to be tapped with economies of scale through establishment of an industry for manufacturing herbal products for the international market.

The adjacent zone identified for development as the 'Plantation City' is abounded by plantations. **Avissawella town is to be developed as the commercial hub for value added plantation products including Rubber, Tea, and Cinnamon. A Bio-Tech Research Institute will be established at Matugama. In order to enrich the kind of tourist experience offered by the 'Plantation City' area, an 'Eco Park' of tropical flora will be developed at Matugama and, a new Zoological Garden will be developed at Avissawella.**

12.1 ECO HABITAT

Eco Habitat Area: **1050 sq. km.**

Jobs created: 20,000

Main Potentials: **Eco-Tourism, Tea, Rubber, Cinnamon, *Bio tech products, herbs, spices***

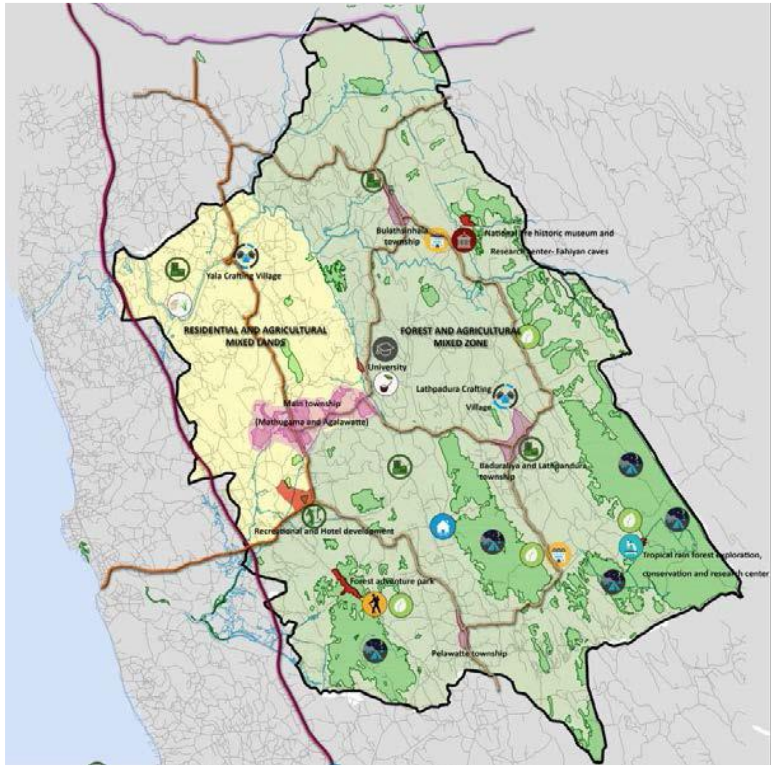


Fig.12 .1 Forest City Concept Plan

In Mathugama a Tropical Floral Park backed by the Bio Tech Institute and the nature given rain forests, will be established for leisure, commercial and educational purposes. This will support the Cut Flower market as well as the Herbal Medicine markets. The unutilized potential of the unparalleled wide variety of the flora, will emerge to add value to the country while making people aware of the rich biological farm they are living in.

12. 2 PLANTATION CITY

Plantation City Area: **330 Sq. km**

Jobs created: 30,000

Main potentials: Tea, Rubber, Cinnamon, Spices, Tourism

The agro products in this area already have an export market, as unprocessed goods. The value addition towards finished products can create many industries while earning an identity for them in international market while many finished rubber products will substitute imports. In this regard the contribution by the proposed Rubber Research Center expansion and the Science & Innovation Park will play a major role. The ventures for high tech agro product industries are encouraged in this area, making use of the educated labour market and resource rich area.

New Zoo at Avissawella

As an exquisite crown, a new Zoo is proposed for this area, blending with the natural flora and less polluted and water rich environment. The hampering traffic & vehicle parking issue in present Dehiwala Zoo area, makes it less attractive. New Zoo will be planned for all eventualities and to be a retreat for the bizarre urbanization.

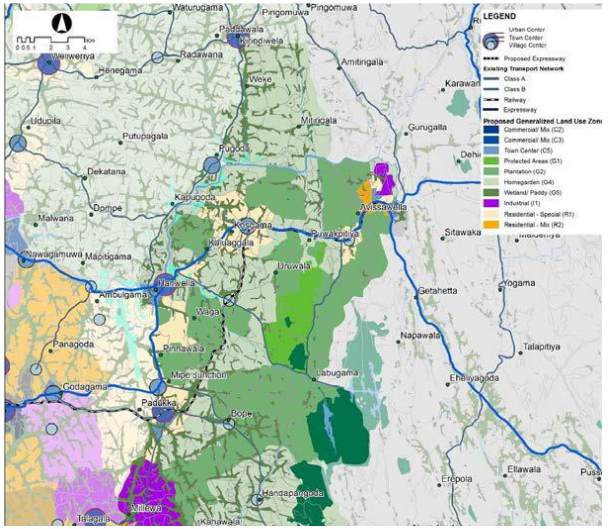


Fig.12.2 Plantation City Zoning Plan

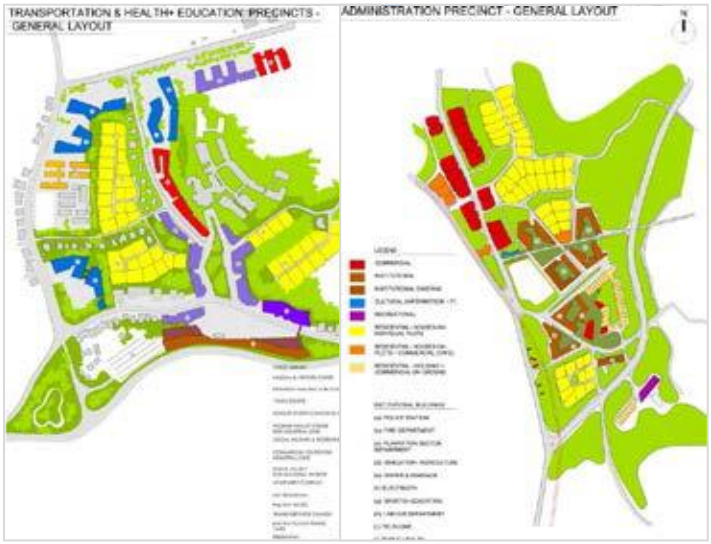


Fig.12.3 Plantation City Proposed Uses in Transportation, Health and Education Precinct (Left), Civic and Retail Precint (Centre), Administrative Precinct (Right)

CHAPTER 13: 'SMART NATION'- THE SMART CITY INFRASTRUCTURE PROJECT

The extensive range of physical, social, institutional and economic infrastructure, and the enormous amount information that it necessitates to process and analyze round the clock in planning, implementing and operationalizing its numerous services and facilities does call for effective harnessing of digital infrastructure for optimal performance of the City. It is inevitable that the City should effectively engage intelligent, well interconnected, well instrumented systems to optimally manage the City. No modern city that pays due attention to its efficiency and sustainability in the long run could afford not to establish appropriate Smart City infrastructure. For the same reason development of Smart City Infrastructure has been identified as a separate functional area and hence a separate programme.

The services and facilities identified to be provided through the Smart City Infrastructure Development Project entitled 'Smart Nation' are outlined below, under the two broad categories Smart Citizen Services and Smart Government.

SMART CITIZEN SERVICES

Payments and transport management

- Electronic Ticketing, Single Smart Card for Multiple Travel and Transport Applications
- Centralized Booking System for Advance Ticketing – Unified Platform offering travel reservation convenience
- Geo Tracking of Transport Services
- Navigation, Navigation through GPS solution and location tagging through digital address

Government service management

- Service Query/Request management for all the municipality related services
- Alert on municipality related services
- Emergency Services and disaster management
- Government Services APP – application based Provision of 118 Services with intelligent Location Sensitive Interface
- Government Premises Navigation - Navigate inside large arena/buildings via Beacon technology

Utility management

- Smart Meter - Usage control & Affordability and Prepaid for Utility/Payment convenience and demand management.
- Smart Street Lighting
- Environment Sensors - Proactive response for environmental hazards and Service Failures

SMART GOVERNMENT

Smart Management of Travel & Public Transport

- Collection Efficiency through automated settlements
- Revenue management
- Reduce Coin Circulation
- Cashless transactions – minimize misappropriation of funds
- Capacity Management
- Optimal use of resources through improved planning
- Centralized Tracking of Transport Services
- Demand management / Schedule management
- Quality / Safety control
- Traffic management – traffic prediction (through cell based info)
- Navigation and Delivery Efficiency using digital address
- Analytics - access vital information such as latitude/ longitude

Smart Enablement of Public Services

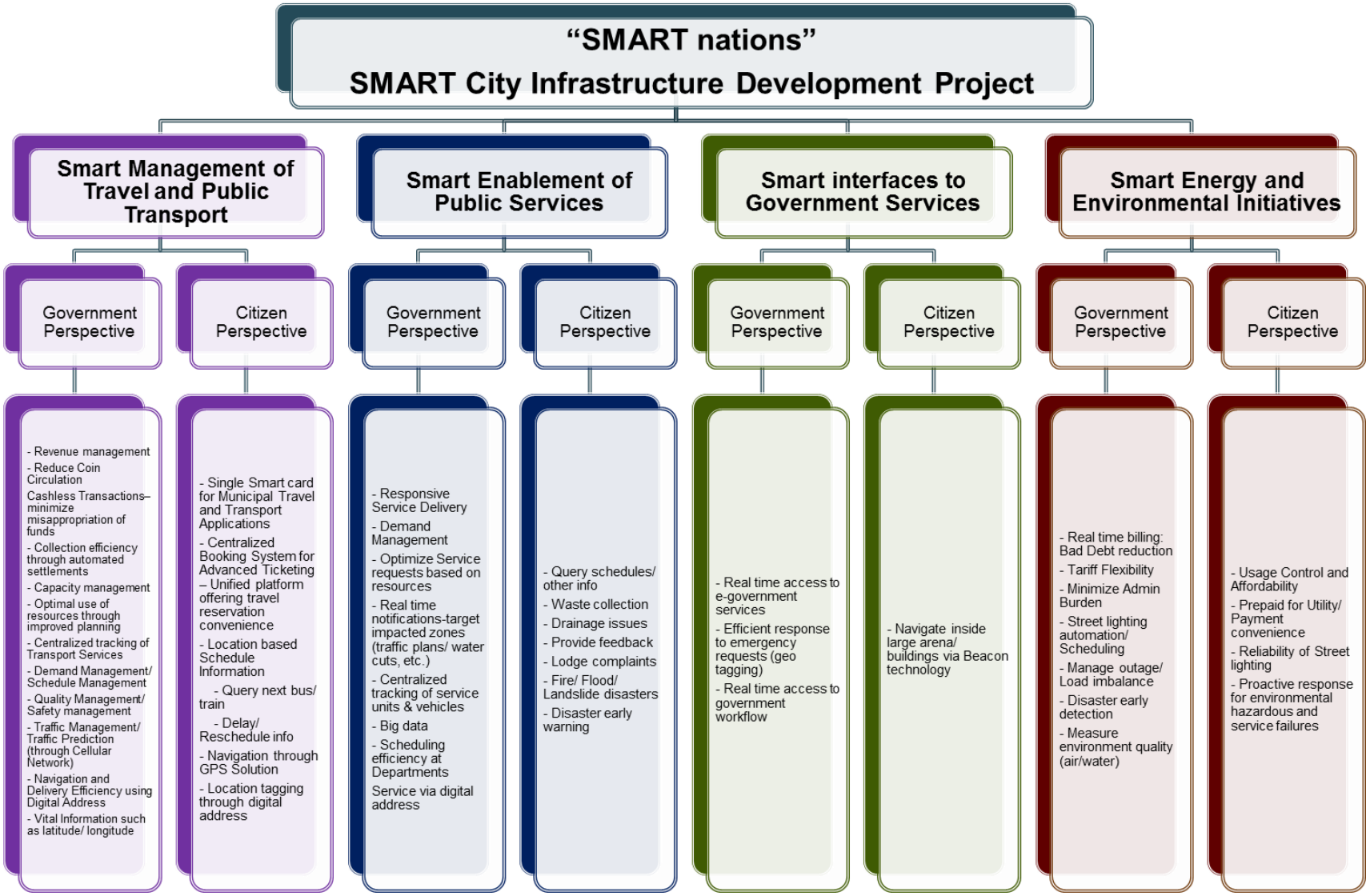
- Responsive service delivery
- Demand Management
- Optimize service requests based on resources
- Real time notifications - target impacted zones (traffic plans/ water cuts etc.)
- Centralized tracking of service units & vehicles
- Big Data
- Scheduling efficiency at Departments
- Service efficiency via digital address

Smart Interfaces to Government Services

- Real Time Access to e-Government Services
- Efficient response to emergency requests (geo tagging)
- Real-time access to Government workflow

Smart Energy & Environmental Initiatives

- Real Time Billing: Bad Debt reduction
- Tariff Flexibility
- Minimize Admin Burden (E.g: Disconnections)
- Street lighting automation/ Scheduling
- Manage outage/ Load imbalance
- Early detection (floods/ storm)
- Measure environment quality (air/water)


"SMART nations"
SMART City Infrastructure Development Project
Smart Management of Travel and Public Transport
Smart Enablement of Public Services
Smart interfaces to Government Services
Smart Energy and Environmental Initiatives
Government Perspective
Citizen Perspective
Government Perspective
Citizen Perspective
Government Perspective
Citizen Perspective
Government Perspective
Citizen Perspective
- Revenue management
- Reduce Coin Circulation
Cashless Transactions– minimize misappropriation of funds
- Collection efficiency through automated settlements
- Capacity management
- Optimal use of resources through improved planning
- Centralized tracking of Transport Services
- Demand Management/ Schedule Management
- Quality Management/ Safety management
- Traffic Management/ Traffic Prediction (through Cellular Network)
- Navigation and Delivery Efficiency using Digital Address
- Vital Information such as latitude/ longitude
- Single Smart card for Municipal Travel and Transport Applications
- Centralized Booking System for Advanced Ticketing – Unified platform offering travel reservation convenience
- Location based Schedule Information
- Query next bus/ train
- Delay/ Reschedule info
- Navigation through GPS Solution
- Location tagging through digital address
- Responsive Service Delivery
- Demand Management
- Optimize Service requests based on resources
- Real time notifications-target impacted zones (traffic plans/ water cuts, etc.)
- Centralized tracking of service units & vehicles
- Big data
- Scheduling efficiency at Departments
Service via digital address
- Query schedules/ other info
- Waste collection
- Drainage issues
- Provide feedback
- Lodge complaints
- Fire/ Flood/ Landslide disasters
- Disaster early warning
- Real time access to e-government services
- Efficient response to emergency requests (geo tagging)
- Real time access to government workflow
- Navigate inside large arena/ buildings via Beacon technology
- Real time billing: Bad Debt reduction
- Tariff Flexibility
- Minimize Admin Burden
- Street lighting automation/ Scheduling
- Manage outage/ Load imbalance
- Disaster early detection
- Measure environment quality (air/water)
- Usage Control and Affordability
- Prepaid for Utility/ Payment convenience
- Reliability of Street lighting
- Proactive response for environmental hazardous and service failures

CHAPTER 14: 'TRANQUILITY' – THE SPIRITUAL DEVELOPMENT FACILITATION

'Individual Happiness' forms one of the four pillars of the philosophy that guides overall human development envisaged by all development initiatives, large and small, including the Western Megapolis, the other three pillars being Economic Growth & Prosperity, Social Equity, and Environmental Sustainability. While the material comforts in the living environment brought about by the other three pillars will certainly contribute to happiness, it will be far from the 'Happiness' derived through spiritual development.

Closely intertwined with the organized efforts to facilitate "individual happiness" will be the need to facilitate the development of the common citizen of the megapolis as a "cultural human being".

Individual Happiness achieved through spiritual development has been a cornerstone of the Sri Lankan Society for over two and a half millennia, and is deep-rooted in the Sri Lankan culture, as well as in its consciousness and identity as a nation.

Indeed, individual happiness and spiritual development had been an all pervasive guiding philosophy that had been inextricably built into spatial planning of the historical kingdoms of Sri Lanka, with Anuradhapura, which is the only city in the whole world that had remained the capitol city for over fourteen centuries while sustaining its physical, economic and social infrastructure, providing classic living testimony to the same.

This provides the rationale for not only the inclusion of a programme for 'Individual Happiness' and 'Spiritual Development Facilitation' as an integral part of the master plan of Megapolis, but also the degree of prominence accorded to it by ranking it among the Ten Mega Projects, despite its relative size in terms of the physical resources expended.

The Specific Projects identified for building of new physical facilities or improvement of the existing facilities under the 'Facilitation of Spiritual Development' Project, named 'Tranquility' include,

- **Rehabilitation and Improvement of Buddhist Temples and Religious Places belonging to all other main religions within the Megapolis**
- **Establishment Centers of Meditation belonging to each religion**
- **Establishment of 10 full-pledged Centers for the practice of the techniques for holistic simultaneous development of physical and mental health, such as 'Yoga', and their training and education**

- **The programme, in addition, includes development of centers for performing arts with such a comprehensive Performing Art Centre with Multiple Galleries for different disciplines planned to be set up within Downtown Colombo.**

CHAPTER 15: PLANNING REGULATIONS

15.1 INTRODUCTION

The Planning, Zoning, Environmental and Building Regulations of Western Region Megapolis Planning Authority (WRMPA) of Sri Lanka involve with the innovative development-regulations and guidelines for the region. It provides for the control, protection, and/or abatement of pollution of air, water and noise. The regulations also provide for the prevention of soil erosion, sedimentation and safety from fire, flood and other natural or man-made disasters. These regulations also provide for the protection of the natural, historic, cultural and scenic character of the region. It further provides for the preservation and promotion of agricultural production, forest, aquaculture and timber resources. The regulations protect public investment in transportation, storm water management systems, sewage and solid waste treatment and disposal within the region. Public recreational facilities and other requirements in promoting a balance of housing choice for all income levels are incorporated in the regulations. These regulations assure the health, safety, security, equity, and welfare of all the citizens and their right to affordable housing.

While there will be general regulations applicable within the administrative limits of the Western region, there will also be specific regulation governing the specific development activities to be undertaken within respective planning area divisions.

The regulation will include, but not limited to, those governing,

- Submission of Plans for Approval,
- Submission of Architectural, Structural and Service Plans,
- Preliminary Planning Clearance and Approval of Plans,
- Appeals Against Refusal,
- Development to be in Conformity with the Permit,
- Suitability of Site,
- Use of the Site,
- Floor Area Ratio,
- Access through Private Roads,
- Specifications for Buildings,
- Height of Buildings,
- Street Lines and Building Lines,
- Sub Division of Land,
- Width of Carriage Way,
- Extent to be Reserved for Community and Recreation,
- Demarcation of Street lines,
- Layouts for Flats and Housing Units,
- Open Spaces around the Buildings,
- Rear Space,
- Additional Requirements for High-Rise Buildings,
- High Rise Buildings,
- Maximum Height of Buildings,
- Open Space between Building and the Boundary,
- Parking and Traffic Control,
- Splaying of Corners of Street,
- Architectural Control,
- Conservation of Places of Historical or Architectural Interest or Landscape Value,
- Landscape and Tree Preservation,

- Advertisement Control,
- Airport and Other Zones,
- Clearance from Electric Lines,
- Dimensions of Buildings,
- Dimensions of Bathrooms and Toilets,
- Dimensions of Storage Rooms,
- Minimum Height of Rooms,
- Height of Rooms with Sloping Roof,
- Stair Case,
- Lighting and Ventilation,
- Lighting and Ventilation for Rooms,
- Natural Ventilation,
- Aggregate Area of Openings,
- Requirement of Lighting for Rooms,
- Requirements of Vents for Ventilation,
- Standard Light Plane,
- Ventilation for Basement,
- Light and Ventilation for Photographic and Dark Rooms,
- Mechanical Ventilation and Air Conditioning,
- Foundations,
- Foundations for Party Walls,
- Requirement of Qualified Persons,
- Lifts,
- Water Supply and Sewerage ,
- Sewerage System and Sanitation,
- Rain Water Harvesting and Drainage,
- Waste Disposal,
- Electrical and Plumbing Work,
- Fire Safety,
- Fire Safety Requirements,
- Sumps for Water Storage,
- Certificate of Conformity,
- Inspections of before COC,
- Unsafe Buildings,
- Facilities for Disable Persons,
- Pollution Control,
- Visual Pollution
- Construction of Religious Statues on Junctions & Reservations

15.2 RECOMMENDED DEVELOPMENT CONTROL FRAMEWORK

Meanwhile, it is recommended to review the DP format to streamline, remove grey areas and standardize the Zoning Classification, Colour coding and zoning parameters. If initiated immediately, this review process could take about 1 years to complete. At the same time, detailed master plan for all planning areas in the Western Region need to be prepared, as the base for the new DP. Once completed, new DP for the whole Western Region should be prepared. This new DP should provide a clear, consistent and transparent development control framework.

As present, in the area where DP is not available, broad zoning classification, color coding and zoning parameters are proposed. According to the regional structure plan as depicted in table 10.1. This will provide broad guidelines while detailed plans are being prepared. This broad classification and regulation should be refined further during the detailed planning process to ensure its ease of use, clarity and consistency in the development control framework in the whole of Western Region.

No.	Zone Classification	Zone Code	FAR	Maximum No. of floors	Plot Coverage %		Permissible use	Conditional use	Color Code	Minimum Plot size	Road Width(m)
					max	min					
1	High Density Commercial Zone	C1	12	100 or more	80	20	Retail, Hotels, Offices, Residential Public facilities ,Institutional, Parks/Green, Others	Clean Service Industries, Minor infrastructure installation,		8000sqm (2 acre)	30
	Medium Density Commercial Zone	C2	4	30	80	20				4000sqm (1 acre)	30
	Low Density Commercial Zone	C3	2	30	40	10				3000sqm (3/4 acre)	30
	Regional center/MC area	C4	2	20	80					2000sqm (2/4 acre)	30
	Town center/UC area	C5	1.5	15	80	20				1500sqm	20
	Neighborhood/ village	C6	1	10	80	50				1000sqm (1/4 acre)	15
2	Industrial Zone	I1	2.5	4	60	40	All Industries, Workers dormitory, Public facilities, Institutional, Park/Green, Infrastructure	Commercial up to 20% of total GFA,		4000sqm (1 acre)	30
	Business Science Park	I2	1.5	4	40	20	Research based/clean industries, Public facilities, Institutional, Park/Green	Commercial up to 20% of total GFA,		4000sqm (1 acre)	30
	Storage/Logistics	I3	1.5	4						1 acre	30
	Utility	U									
3	Special Residential Zone	R1			50	-	Residential, Public facilities, Institutional, Park/Green	Commercial up to 20% of total GFA, Service industry		20 perch	15
	Medium Density Residential Zone	R2	1.2		60	-				20 perch	15
	Low Density Residential Zone	R3	3		40	-				20 perch	15
4	Protected area	G1			-					-	-
	Parks / Buffers	G2								-	-
	Agricultural Zone	G3								-	-
5	Tourism	T								-	15
6	Administration Zone	A									

Table 15.1 Broad Zoning Classification and Parametres

CHAPTER 16: WAY FORWARD

The master plan provides the medium and long term development directions for the Western Region. To ensure that the planned development takes place, it is necessary to prepare the following:

- Master Plan Implementation Framework
- Land Consolidation Plan
- Project packaging

16.1 MASTER PLAN IMPLEMENTATION FRAMEWORK

Master Plan implementation framework identifies projects to be implemented in the medium term including:

- Capital improvement projects, mainly infrastructure and transportation projects
- Catalyst projects mainly to attract investment and catalyst further developments.

In case of the Western Region, the key catalyst projects have been identified, while the capital improvement projects have also listed down in transport/infrastructure chapters needs to be defined more specifically. The project identification should include clearly defined project objectives, size and scope, pre-feasibility study as well as the estimated cost and the proposed funding models. Master plan implementation framework also looks at reviewing the institutional set-up to manage the proposed project including the operation and management of the projects.

Finally, the Master Plan Implementation Framework has to look at improving the master plan regulatory framework in its implementation to ensure that it will be clear, streamlined and transparent.

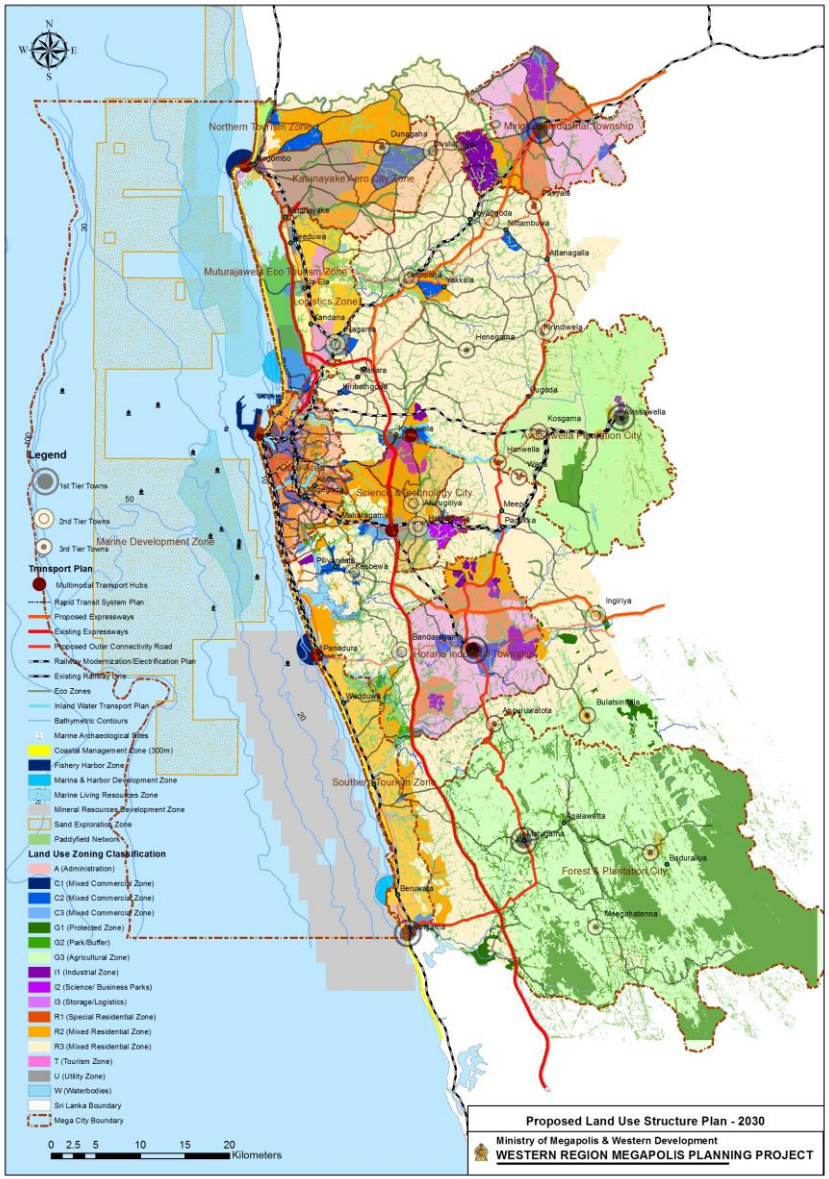
16.2 LAND CONSOLIDATION

State land and undeveloped land have been mapped in Western Region and identified as possible land for the key projects proposed. Considering that the process of state land alienation for development will have to go through some legal processes, while acquiring private land for development will need sizable capital and time, it is therefore critical to prepare land consolidation plan, so that priority could be set for the priority projects, such that they can be launched according to the implementation schedule.

16.3 Project Packaging

Most of the catalyst projects identified are proposed based on the assumptions that there is demand and that the land is available for development, although pre-feasibility study has not been done and some of the land for the projects are not yet acquired.

As such, it is critical to carry out pre-feasibility study and determine the exact scope of the project, the size in relation to land availability and the technical requirements that will form the conditions for the investor to abide in the development, such that an optimum outcome of the project will be achieved. The project packaging will allow the projects to be offered to local and international investors through direct negotiation or through international tender.


Northern Tourism Zone
Kelaniya Aero City Zone
Muturajawela Eco Tourism Zone
Logistics Zone
Marine Development Zone
Science & Technology City
Southern Tourism Zone
Forest & Plantation City
Legend
1st Tier Towns
2nd Tier Towns
3rd Tier Towns
Transport Plan
Multimodal Transport Hubs
Rapid Transit System Plan
Proposed Expressways
Existing Expressways
Proposed Outer Connectivity Road
Railway Modernization/Electrification Plan
Existing Railway Line
Eco Zones
Inland Water Transport Plan
Bathymetric Contours
Marine Archaeological Sites
Coastal Management Zone (300m)
Fishery Harbor Zone
Marina & Harbor Development Zone
Marine Living Resources Zone
Mineral Resources Development Zone
Sand Exploration Zone
Paddyfield Network
Land Use Zoning Classification
A (Administration)
C1 (Mixed Commercial Zone)
C2 (Mixed Commercial Zone)
C3 (Mixed Commercial Zone)
G1 (Protected Zone)
G2 (Park/Buffer)
G3 (Agricultural Zone)
I1 (Industrial Zone)
I2 (Science/ Business Parks)
I3 (Storage/Logistics)
R1 (Special Residential Zone)
R2 (Mixed Residential Zone)
R3 (Mixed Residential Zone)
T (Tourism Zone)
U (Utility Zone)
W (Waterbodies)
Sri Lanka Boundary
Mega City Boundary
0 2.5 5 10 15 20
Kilometers
Proposed Land Use Structure Plan - 2030
Ministry of Megapolis & Western Development
WESTERN REGION MEGAPOLIS PLANNING PROJECT

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189	Ms. Imali Jayaweera	Assistant Director -Urban Development Authority
190	Mr. D.K.S.P. Sandaruwan	Assistant Director-Urban Development Authority
191	Mr. Kosala Tennekoon	Architect-Urban Development Authority
192	Ms. N. Chathurika Kumari	Relocation Assistant-Urban Development Authority
193	Mr. Lasantha Bandara	Relocation Assistant-Urban Development Authority
194	Mr. Prasanna Sujith Kumara	Director - Industrial Development Authority
195	Mr. Wasantha Liyanage	Regional Director - Ministry of Industries and Commerce
196	Mr. W.T.H.R. Withana	Director - Ministry of Industries and Commerce
197	Ms. Asoka Jayakody	Senior Deputy Director- Board of Investment
198	Ms. Ganga Palaketiya	Assistant Director- Board of Investment
199	Ms. Jeevani Siriwardena	Additional Director General- Export Development Board
200	Mr. Dammika Jayawardena	Assistant Director- Export Development Board
201	Mr. W.S.Ranasinghe	Assistant Director- Industrial Development Authority
202	Mr. K.M.S.G. Bandara	Director- Industrial Development Authority
203	Mr. P.M.U.Rathnamalala	Director General- Industrial Development Board
204	Mr. K.A.L.Wasantha	Assistant Director- Ministry of industry and Commerce
205	Dr.(Ms) Madura M.Wehella	Director - Ministry of Education
206	Mr. R.P.Samarakkodi	Deputy Director General - Disaster Management Center
207	Dr. Y. Abeysundara	Civil Engineer - Ministry of Education
208	Mr. C. Kularathna	Civil Engineer- Ministry of Education
209	Mr. Prasad Fonseka	President - Kotte Hetritage foundation
210	Ms. M P J Tilakerathne	Director - Ministry of Education

211	Ms. Maheshi Anandasiri	Senior Manager - Cargills Lanka Pvt Ltd
212	Mr. Haridas Fernando	Deputy General Manager- Cargills Lanka Pvt Ltd
213	Dr. (Ms) T.D. Abeynayake	General Manager- National Authority for Tobbacco and Alchohol
214	Dr.(Ms)Avanthi Perera	Senior State Counsel- Attorney General Department
215	Ms. Nirmalee Perera	Assistant Director- Dept. of Probation and Child Care
216	Ms. Hasitha Perera	Assistant Director - Department of Prison
217	Mr. Chandima Hulangamuwa	Managing Director - Mitsui O.S.K. Lines Lanka
218	Mr. P.M.M.S. Senadeera	Project Engineer- Sri Lanka Ports Authority
219	Ms.Taniya Wettimuny	Director- SL Logistic & Freight Forwarding Association
220	Mr.Sean wan Dort	Executive Committee Member - SL Shippers Council
221	Dr.(Ms) Susie Perera	Director- Ministry of Health
222	Prof. Saroj Jayasinghe	Faculty of Medicine- University of Colombo
223	Prof. Vajira Dissanayake	Faculty of Medicine- University of Colombo
224	Dr. Senarath Mahamithawa	Director- Ministry of Health
225	Dr.(Ms) Sumudu Karunarathna	Medical Officer- Ministry of Health
226	Dr.(Ms) Indrika Rajapaksha	Senior Lecturer- University of Moratuwa
227	Ms. Chandana Kalupahana	Director- Urban Development Authority
228	Mr. Oliver Fernando.	President- The Association of Industrialists IE Panaluwa
229	Mr. J Ajith Fernando	Chairman- Haward Fashion pvt Ltd
230	Ms. A M P A Seneviratne	Manager- Industrial Development Board
231	Mr. D U E A Senanayake	Secrtary- Association of Industrialsts, Kalutara
232	Mr. Sugath Vithanage	Chairman- Supreme Lanka Agro Products Pvt Ltd.
233	Mr. Ravi Heiyanthuduwa	Proprietor- PolycolourPvt.Ltd
234	Mr. K L Guneratne	Secretary- Tea Small Holdings District Society, Kalutara
235	Mr. D R C Jayatilake	Director- Ministry of Industries & Commerce

236	Mr. Srimal Jayathilaka	Deputy Director- Industrial Development Board
237	Mr. S A G Senanayake	Deputy Director-Industrial Development Board
238	Ms. W A Leelawathi	Deputy Director-Industrial Development Board
239	Dr. (Ms) N.A.N.Perera	Medical Officer- Department of Health Educaion
240	Mr. H M U Chularatne	Deputy Director - SEVENATHA Agency
241	Mr. J A C P. Jayasinghe	Assistant Director - National Human Resources Development Council
242	Mr K.P P Perera	Development Officer- Human Resources Development Council
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244	Mr. C.P.W Gunathilaka	Divisional Secretary- Divisional Secretariat, Gampaha
245	Ms. W.H.N. Pushpamala	Divisional Secretary- Divisional Secretariat, Biyagama
246	Mr. H.M.L.S. Herath	Divisional Secretary- Divisional Secretariat, Divulapitiya
247	Mr. H.G.J.P. Wijayasiriwardena	Divisional Secretary- Divisional Secretariat, Dompe
248	Mr. D.M. Rathnayake	Divisional Secretary- Divisional Secretariat, Attanagalla
249	Ms. G.D.C. Sudarshani	Divisional Secretary- Divisional Secretariat, Ja- ela
250	Mr. K.G.H.H.R. Kiriella	Divisional Secretary- Divisional Secretariat, Katana
251	Ms. Pubudika S Bandara	Divisional Secretary- Divisional Secretariat,Kelaniya
252	Mr. G.S.I. Wimalasena	Divisional Secretary- Divisional Secretariat, Mahara
253	Mr. K.A.S.L. Gunathilake	Divisional Secretary- Divisional Secretariat, Minuwangoda
254	Mr. J.A.D.S. Jayasinghe	Divisional Secretary- Divisional Secretariat, Negombo
255	Ms. Sriyanthi Dissanayake	Divisional Secretary- Divisional Secretariat, Wattala
256	Mr. B.A.G. Wickramapala	Director- District Secretariat, Gampaha
257	Mr. Y. Indika M. Silva	Divisional Secretary- Divisional Secretariat, Mirigama
258	Mr. Sunil Kannangera	Government Agent- District Secretariat, Colombo
259	Mr. D.P. Wickramasinghe	Divisional Secretary- Divisional Secretary, Colombo
260	Mr. W.H.K.D.B. Rathnayake	Director- District Secretariat, Colombo

261	Ms. Champa N. Perera	Divisional Secretary- Divisional Secretariat, Dehiwala
262	Mr. K.S.K. Kannangara	Divisional Secretary- Divisional Secretariat, Homagama
263	Ms. H.M. Dayawathie	Divisional Secretary- Divisional Secretariat, Kaduwela
264	Mr. L.A. Kalukapuarachchi	Divisional Secretary- Divisional Secretariat,Kesbewa
265	Mr. A.U.K. Dodanwala	Divisional Secretary- Divisional Secretariat, Kolonnawa
266	Mr. Amal Edirisooriya	Divisional Secretary- Divisional Secretariat, Kotte
267	Mr. Buddhi Karunasena	Divisional Secretary- Divisional Secretariat, Maharagama
268	Mr. K.C. Niroshan	Divisional Secretary- Divisional Secretariat, Moratuwa
269	Mr. B.A.D. Chinthaka	Divisional Secretary- Divisional Secretariat,Padukka
270	Mr. D.A.H. Piyathilaka	Divisional Secretary- Divisional Secretariat, Ratmalana
271	Mr. W.A.K.P. Wanniarachchi	Divisional Secretary- Divisional Secretariat, Seethawaka
272	Ms. G. Karunarathne	Divisional Secretary- Divisional Secretariat, Thimbirigasyaya
273	Mr. U.D.C. Jayalal	Government Agent- District Secretary, Kalutara
274	Mr. K.A.D. Siriwardena	Director- District Secretariat, Kalutara
275	Mr. G.S. Kannangara	Divisional Secretary- Divisional Secretariat, Agalawatta
276	Mr. S.K. Henadheera	Assistant Divisional Secretary- Divisional Secretariat, Bandaragama
277	Mr. K.G.D. Chathura Malraj	Divisional Secretary- Divisional Secretariat, Beruwala
278	Ms. I. Weerasinghe	Divisional Secretary- Divisional Secretariat, Bulathsinhala
279	Ms. Thilanka Weththasinghe	Divisional Secretary- Divisional Secretariat, Dodangoda
280	Ms. Nishanthi Jayasinghe	Divisional Secretary- Divisional Secretariat, Horana
281	Mr. H.A.K Pushpakumara	Divisional Secretary- Divisional Secretariat, Ingiriya
282	Mr. S.P. Liyanage	Divisional Secretary- Divisional Secretariat, Madurawala
283	Ms. Sujani Mahesha	Divisional Secretary- Divisional Secretariat, Mathugama
284	Mr. S.B. Gunawardhana	Divisional Secretary- Divisional Secretariat, Millaniya
285	Mr. L.L.D. Thilakarathne	Divisional Secretary- Divisional Secretariat, Palindanuwara

286	Mr. K.G. Wijeyasiri	Divisional Secretary- Divisional Secretariat, Panadura
287	Mr. Darshana Ranasinghe	Divisional Secretary- Divisional Secretariat, Walallawita
288	Mr. J.K .Bandara	Assistant Director- District Secretariat, Kalutara
289	Ms. U.K.A. Dilhari	Divisional Secretary- Divisional Secretariat, Kalutara
290	Prof. Sirimalee Fernando	Chairperson- National Science Foundation
291	Dr. Ajith R Gunawardena	Asst. Director- Central Environmental Authority
292	Prof. Rohan W Jayasekara	Faculty of Medicine- University of Colombo
293	Dr. Rohan Karunarathne	President- Ceylon Institute of Builders
294	Dr. Ravihansa Chandrathilake	Senior Lecturer- University of Moratuwa
295	Mrs. N.S. Casseer	Director- Civil Aviation Authority Sri Lanka
296	Mr. Prabath Ranaweera	Deputy General Manager- Ceylon Fisheries Harbour Corporation
297	Mr. A.H. Gamini Hewage	Actg. Director- Coast Conservation& Coastal Resources Management
298	Mr. Nimal Chandarathne	Director General- National Aquatic Resources Authority
299	Mr. Manjula Amaranath	Deputy Director- Department of Wildlife
300	Mr. Senaka De Silva	Actg. Deputy Chief Secretary- Western Province Provincial Council
301	Mr. A E L Thilakawardena	Deputy Director- Department Of Archaeology
302	Mr. R S Wijesekera	General Manager- Water Resources Board
303	Dr. C H E Siriwardena	Deputy Director- Geological Survey and Mines Bureau
304	Mr. A A S V Dias	Director- National Building Research Organization
305	Mrs. Anoja Senavirathne	Director- Disaster Management Center
306	Mr. Veranjan Kurukulasooriya	Director General- Department of National Physical Planning
307	Mr. Hudson de Silva	Director Environment
308	Mr. B W R Balasooriya	General Manager- Water Supply & Drainage Board
309	Ms. Kamani Muhandiram	Senior Engineer- Coast Conservation & Coastal Resource Management
310	Mr. N A S N Nisshanka	Director- Urban Development Authority

311	Mr. D C S Nishantha	Deputy Conservator General of Forest- Department of Forest
312	Dr. N.S. Wijerathne	Deputy General Manager- SL Land Reclamation& Development Corporation
313	Mr. N. Nilwala	Secretary- Ministry of Agriculture - Western Province
314	Prof. Sasanka Perera	Sociologist- South Asian University – Newdelhi
315	Dr. Rohan Wijekoon	Director General- Department of Agriculture
316	Mrs. W.M.M.R . Adhikari	Secretary- Ministry of Fisheries
317	Mr. M. Y.Abdul Majeed	Acting Director General- Department of Irrigation
318	Mr. S.S.L.Weerasinghe	Additional Director General- Department of Irrigation
319	Mr. Nalin Mannapperuma	Director- Waste Management Authority
320	Dr. Herath Manthrithilake	Head- International Water Management Institute
321	Prof. Ajith De Alwis	Project Director- Coordination for Science, Technology and Innovation
322	Ms. Amali Ranasinghe	Scientist- Coordination for Science, Technology and Innovation
323	Ms. Kanthi De Silva	Director- Central Environmental Authority
324	Prof. Raj Somadeva	Archaeologist- Post Graduate Institute of Archaeology - Sri Lanka
325	Mr. Gamini Jayasinghe	Deputy Director General- Central Environmental Authority
326	Mr. S A M Azmy	Head- National Aquatic Resources Authority
327	Ms. Dammika Pindeniya	Ecologist- Sri Lanka Land Reclamation& Development Corporation
328	Ms. Nelka Perera	Assistant Director- Central Environmental Authority
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330	Mr. N.D.B. Unamboowe	Senior Deputy Solicitor General- Attorney General's Department
331	Mr. S.R.K Gamage	Deputy General Manager- Ceylon Electricity Board
332	Ms. Indika Wijegunawardena	Commissioner- Land Commissioner General's Department
333	Ms. Gothami Gannoruwa	Director- Ministry of Megapolis & Western Development
334	Mr. G.P.K. Wijekoon	Manager- Ceylon Petroleum Corporation
335	Mr. Harsha Wickramasinghe	Deputy Director General- Sustainable Energy authority

336	Dr. Lionel Pinto	Chairman- SL Vocational Training Authority
337	Ms. Anoja Senevirathne	Director- Disaster Management Center
338	Mr. S.M.S. Samarakoon	Director- Central Environmental Authority
339	Ms. Kusala Mahalekam	Assistant Director- Central Environmental Authority
340	Mr. M.M.D.J. Senarathna	Assistant Director- Department of National Botanic Garden
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341	Mr. N. Kaleichelvan	Project Accountant (WRMPP)
342	Mr. A.M.S.C. Alahakoon	Logistic Officer (WRMPP)
343	Ms. Jilani De Lanerolle	Secretary to the Chairman (WRMPP)
344	Ms. Kanthi Samarawickrama	Secretary to the Project Director (WRMPP)
345	Ms. T.G.V.W. Perera	Documentation Officer / Secretary (WRMPP)
346	Ms. Kanthi. G.S. Gunasekara	Account Assistant (WRMPP)
347	Mr. S.E. Dileepa Sirimal	Office Aid (WRMPP)
348	Mr. M.A. Lionel	Office Aid (WRMPP)
349	Mr. W. Chaminda	Office Aid (WRMPP)
350	Mr. R.M.W. Rajasinghe	Driver (WRMPP)
351	Mr. W.L. Rathnasiri	Driver (WRMPP)
352	D.P.S. Dahanayaka	Driver (WRMPP)