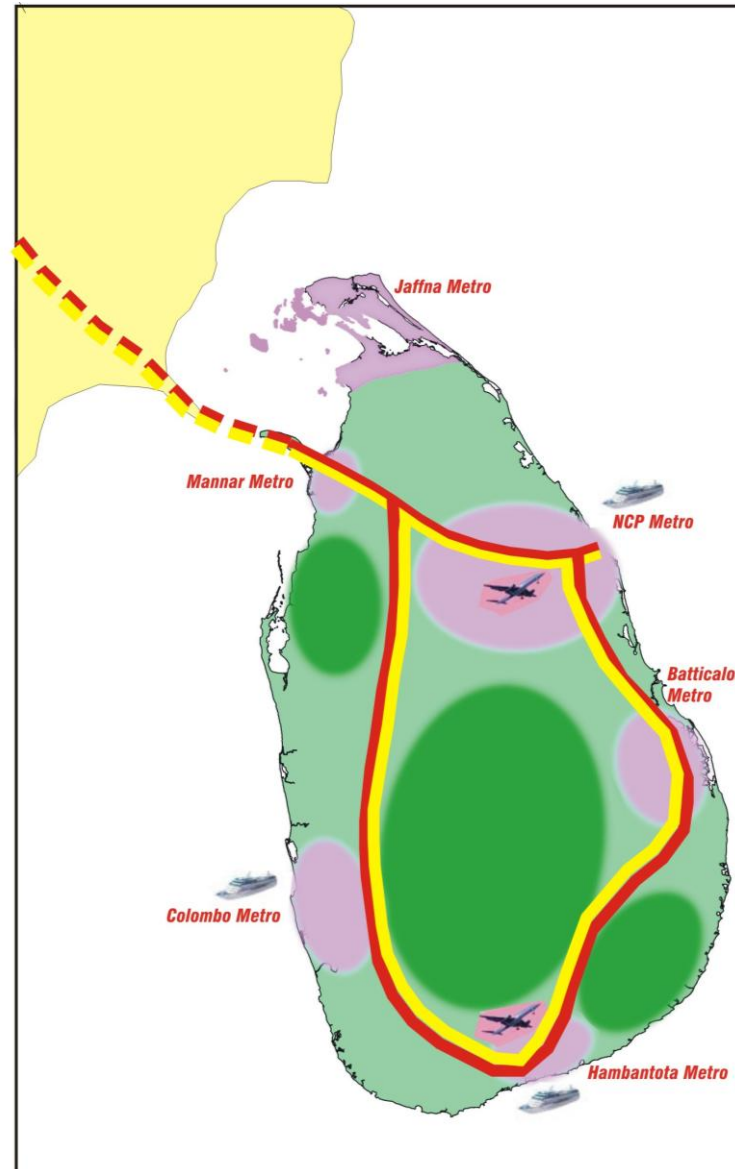


Implementation of the National Physical Planning Policy and Plan

Sri Lanka 2010-2030

Project Proposals



National Physical Planning Department

April 2010

**Implementation of the
National Physical Planning Policy and Plan
Sri Lanka 2010-2030
Project Proposals**

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April 2010

INTRODUCTION

The purpose of this document is to demonstrate large scale public and private investment opportunities for infrastructure and urban development projects for the next 20 years and beyond. Such projects are listed to indicate to potential investors and donors the advantages of a planned Sri Lanka.

This document consists of the following sections:

Section 1:	Introduction to the National Physical Planning Policy and Plan
Section 2:	International and Asian Context
Section 3:	Projects in International and Asian Context
Section 4:	National Projects
Section 5:	Regional Projects

The document outlines the National Physical Planning Policy and Plan and is published with the following specific objectives:

1. As a list of large scale infrastructure and urban development projects available for investment or donor / sponsorship;
2. As a guide to government agencies for future planning of their sectoral programmes;
3. As a guide to policy makers;
4. As an informative document to the general public.

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Section 1: Introduction to the National Physical Plan

Background

In 1997 the Presidential Task Force on Housing and Urban Development recommended that there should be a National Spatial Plan for Sri Lanka. The National Physical Planning Department was set up under the Town and Country Planning (Amendment) Act No. 49 of 2000 to prepare and implement the National Physical Plan.

The preparation of both the National Physical Planning Policy and the National Physical Plan have been guided by an advisory council of professionals and approved by two committees, established under the Town and Country Planning (Amendment) Act, as follows:

- the **Technical Advisory Committee (TAC)** includes representatives from the Professional Institutions such as the Engineers Institute, Architects Institute, Surveyors Institute, Town Planners Institute and the National Planning Department, Ministry of Finance and Planning and Ministry of Irrigation;
- the **Inter-Ministerial Secretaries Co-ordinating Committee (IMCC)** consisting of Secretaries of each Ministry as identified in the Act and Chief Secretaries of the nine Provincial Councils. This committee coordinates with those involved in the implementation of any plans and projects recommended by the National Physical Planning Council; and
- the **National Physical Planning Council (NPPC)** headed by H.E the President and consisting of Hon. Ministers as identified in the Act as well as the Chief Ministers nine Provincial Councils. Important issues relevant to the development and implementation of the National Physical Planning Policy are brought before the council to be resolved.

Preparing the National Physical Planning Policy and Plan

The National Physical Planning Policy, National Physical Plan, and its background studies were prepared with input from many government departments and agencies, non-government agencies and research undertaken by the National Physical Planning Department. It is a result of dialogue with a range of stakeholders, experts and government officials. With this input, the National Physical Planning Policy and National Physical Plan will provide a single voice for government in the physical planning and development of Sri Lanka. Gazetting the Policy and Plan will make it the pre-eminent document for plan making and implementation of the identified projects.

The Town and Country Planning Amendment Act No. 49 of 2000 outlines the process that must be undertaken when preparing the National Physical Plan. This process is documented in Figure 1.

Purpose

The National Physical Planning Policy and National Physical Plan provide a broad framework to secure Sri Lanka's place in the global economy by promoting economic growth. It is a strategic document that outlines a vision for Sri Lanka to 2030. Its role is to promote and regulate the integrated planning of economic, social, physical and environment aspects of land in Sri Lanka. Another important function of the National Physical Plan is to bring the Government, stakeholders and the community together to discuss, review and then make decisions to guide the future of Sri Lanka's economy, environment and communities.

Sri Lanka is fortunate to have significant untapped economic resources, a unique natural environment and important fragile areas. Untapped resources include minerals and fish within Sri Lanka's Exclusive

Economic Zone. The unique natural environment supports a wide range of ecosystems with exceptional biodiversity, and provides an opportunity to improve tourism, including ecotourism, which enhances and protects that natural environment. Fragile areas of Sri Lanka include the coastal zone, hill country (above 300 meters country wide) and network of national parks, and flora and fauna habitats and corridors. Preservation of the fragile areas and the natural environment is important for the sustainable development of the country.

Constraining these identified opportunities are some factors which may reduce Sri Lanka's ability to build on domestic competitive advantages. The lack of reliable sources of electricity and water, and poor access to efficient transport, social infrastructure and employment opportunities, have contributed to the widening regional disparity in terms of education, quality of life and income across Sri Lanka. The civil conflict has displaced many people, resulting in ethnic and social imbalances, and contributing to existing issues of poverty, low per capita income and regional disparity. The difficulty in moving people and goods around the country, as a result of rundown transport infrastructure, is a key issue constraining equitable economic growth across Sri Lanka, and international investment.

Sri Lanka's strategic geographical location in relation to import and export markets, major regional infrastructure and transportation could provide an edge over many other countries in terms of economic development. There are many opportunities available for Sri Lanka to take advantage of its strategic location, and play a greater role in the South Asian Region and global economy, including:

- the provision of air and sea hub facilities which build on proximity to international sea routes and major regional aviation destinations;
- developing road and rail connections with the South Asian mainland to link Sri Lanka with the Asian Highway and Trans Asian Railway;
- improving Sri Lanka's telecommunication industry by linking into the global optical fibre submarine system; and
- extraction of offshore petroleum resources and associated development of a petrochemical sector.

The end of the civil conflict in Sri Lanka would most likely also see a return to the high volume of tourist demand for the coastal, central and northern areas of Sri Lanka and increase demands for domestic and regional air travel infrastructure.

Factors constraining international opportunities include global warming and linkages to the international economy. Climate change has emerged as a key concern for Sri Lanka and its people in the 21st century. Sea level rise, warming temperatures, uncertain effects on forest and agricultural systems, and increased variability and volatility in weather patterns are expected to have a significant impact in the developing world, where people remain most susceptible to the potential damages and uncertainties inherent in a changing climate. The existing domestic and international transport networks are unable to sufficiently facilitate the international movement of people for both tourist and business purposes. The lack of road, rail and telecommunication corridors across the Palk Strait may constrain growth in the future.

The purpose of the National Physical Planning Policy and Plan is to provide an integrated land use and infrastructure framework that will enable Sri Lanka to make best use of its natural resources and strategic location in the South Asia Region.

Guiding Principles

Economic, social and environmental sustainability are the guiding principles for the National Physical Planning Policy and National Physical Plan. Sustainable development requires the effective integration of economic, social and environmental considerations in decision-making processes, and can be achieved through the implementation of the following principles:

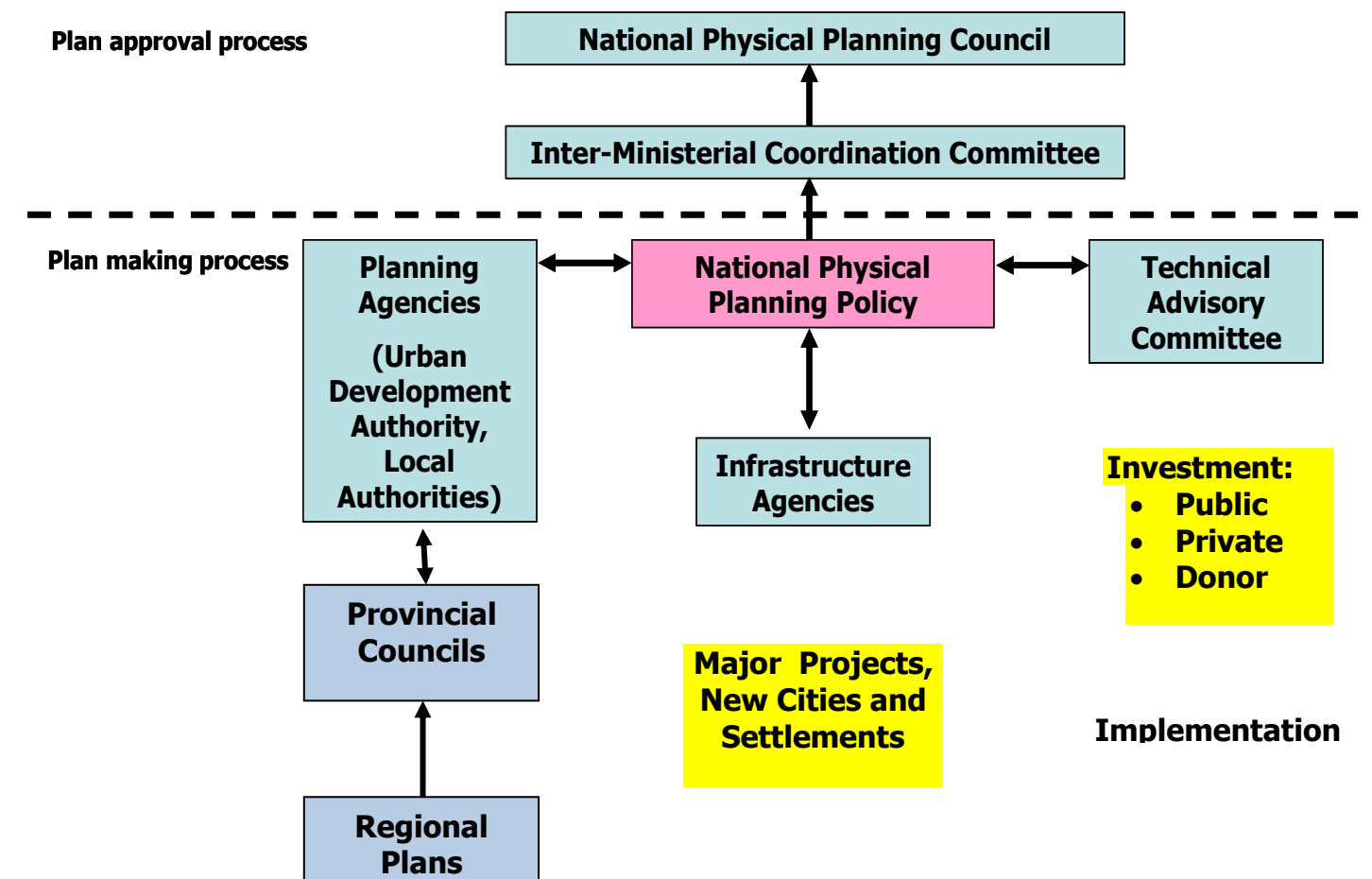
- the precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- inter-generational equity - the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations;
- conservation of biological diversity; and ecological integrity - conservation of biological diversity and ecological integrity should be a fundamental consideration; and
- improved valuation, pricing and incentive mechanisms - environmental factors should be included in the valuation of assets and services.

The principles of sustainable development provide a framework for addressing the issues and challenges that will face Sri Lanka towards 2030. Resolution of competing or conflicting proposals, and prioritising projects, can be facilitated by adherence to these long term and globally oriented guiding principles. Environmental protection and social integration, for instance, are core components of continued economic growth and development. Progress towards the stated vision and objectives is unlikely to be balanced and equitable if the principles of sustainable development are not fully integrated into the development and implementation of physical planning at the national, regional and local levels.

Conclusion

The National Physical Planning Policy and Plan sets out the framework for the future development of Sri Lanka. It was prepared using the principles of economic social and environmental sustainability. This is reflected in the Vision for Sri Lanka in 2030 and the Objectives that support the Vision.

Figure 1: National Physical Plan Making Process

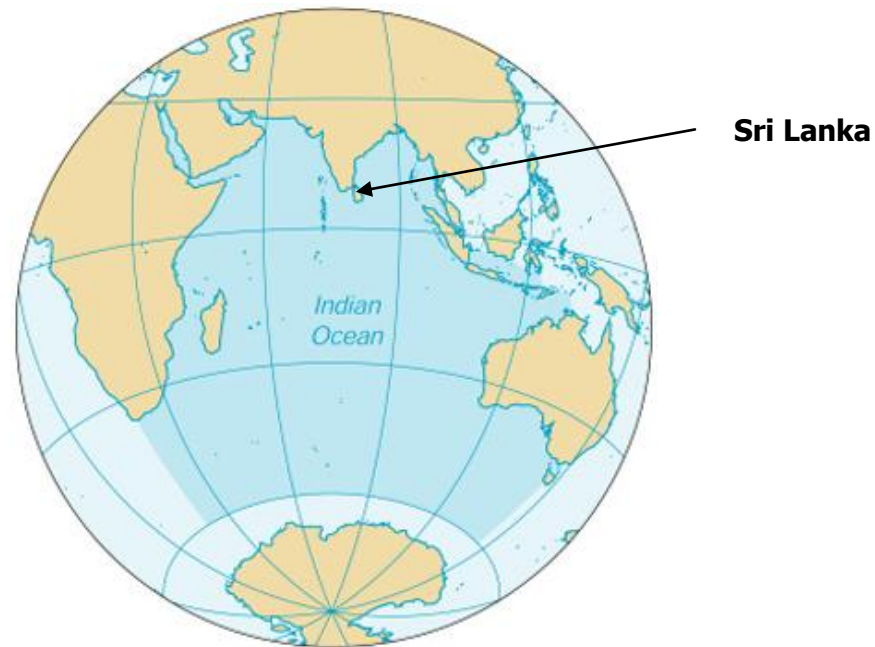


Section 2: International and Asian Context

The past few decades have seen major shifts in both the Sri Lankan and South Asian economies. Whereas in the mid-twentieth century the Sri Lankan economy was largely based around production of tea, rubber and coconut, in more recent times a combination of the remittances from Sri Lankans working abroad, the local apparel industry, and the export of tea are the major economic sectors and foreign exchange earners. Other important sectors include export of precious and semi-precious stones, and earnings from tourism, although this has reduced due to the tsunami that occurred in December 2004 but is showing signs of a fast recovery and further growth in the aftermath of the cessation of the protracted war. These shifts in economic activities reflect changes of global trends towards high productivity commodity production and of services with a higher return such as telecommunications.

Sri Lanka, which has a population of 18 million, constitutes the 51st most populous nation, and in terms of population density Sri Lanka occupies the 36th position in the world (12th in Asia). New urban centres across the South Asian region are developing as a result of population growth and migration, local resources and a competitive advantage in the availability of skills. The international demand for low cost, high-quality service industries (such as call centres) are being exploited by urban centres across countries such as India, Pakistan and Singapore, which are able to benefit from developed infrastructure, high levels of education, English language skills, entrepreneurship and pro-active national and local governments.

Sri Lanka in the Global Context



Sri Lanka's Strategic location

While Sri Lanka is well placed to adapt to changing global trends, given high literacy and education levels, it is Sri Lanka's strategic geographical location in relation to import and export markets, major regional infrastructure and transportation that could provide an edge over many other countries. There are prospects of oil and petroleum exploration within Sri Lanka's Exclusive Economic Zone (see Map 7), and plans to increase this Zone to cover the outer edge of the continental shelf would improve these prospects. Fishing resources contained within this exclusive economic zone also have the potential to be developed for the benefit of domestic and international markets.

The Emerging Asian Region

Sri Lanka forms part of the South Asian Association for Regional Cooperation (SAARC), which is the largest regional organisation in the world, covering approximately 1.47 billion people. SAARC is an economic and political organisation of eight countries in Southern Asia, including India, Pakistan, Bangladesh, Sri Lanka, Nepal, Afghanistan, Maldives and Bhutan. Other regional links are formalised through organisations such as the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) and in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). Further, trade agreements with South Asian countries such as India have further enhanced economic ties and created an emerging sense of regionalism in South Asia.

To take advantage of this emerging regionalism, and ensure that Sri Lanka is a lead country within the South Asian regional context, it is critical that the linkages between this island nation and the continent are reinforced by facilitating infrastructure. This may include:

- establishing Sri Lanka's role as a hub within the regional and global hierarchy of sea ports;
- creating sufficient domestic and international airport network to facilitate the movement of people for both tourist and business purposes, and create a regional hub for cargo and passenger transport;
- developing road, rail and telecommunication corridors across the Palk Strait;
- introduce new urban centres with a strong service base to match international demand;
- ensuring that Colombo continues to perform its role as an influential regional economic centre; and
- affording employment and education, health, recreation, sporting and entertainment opportunities to meet both domestic and international demand.

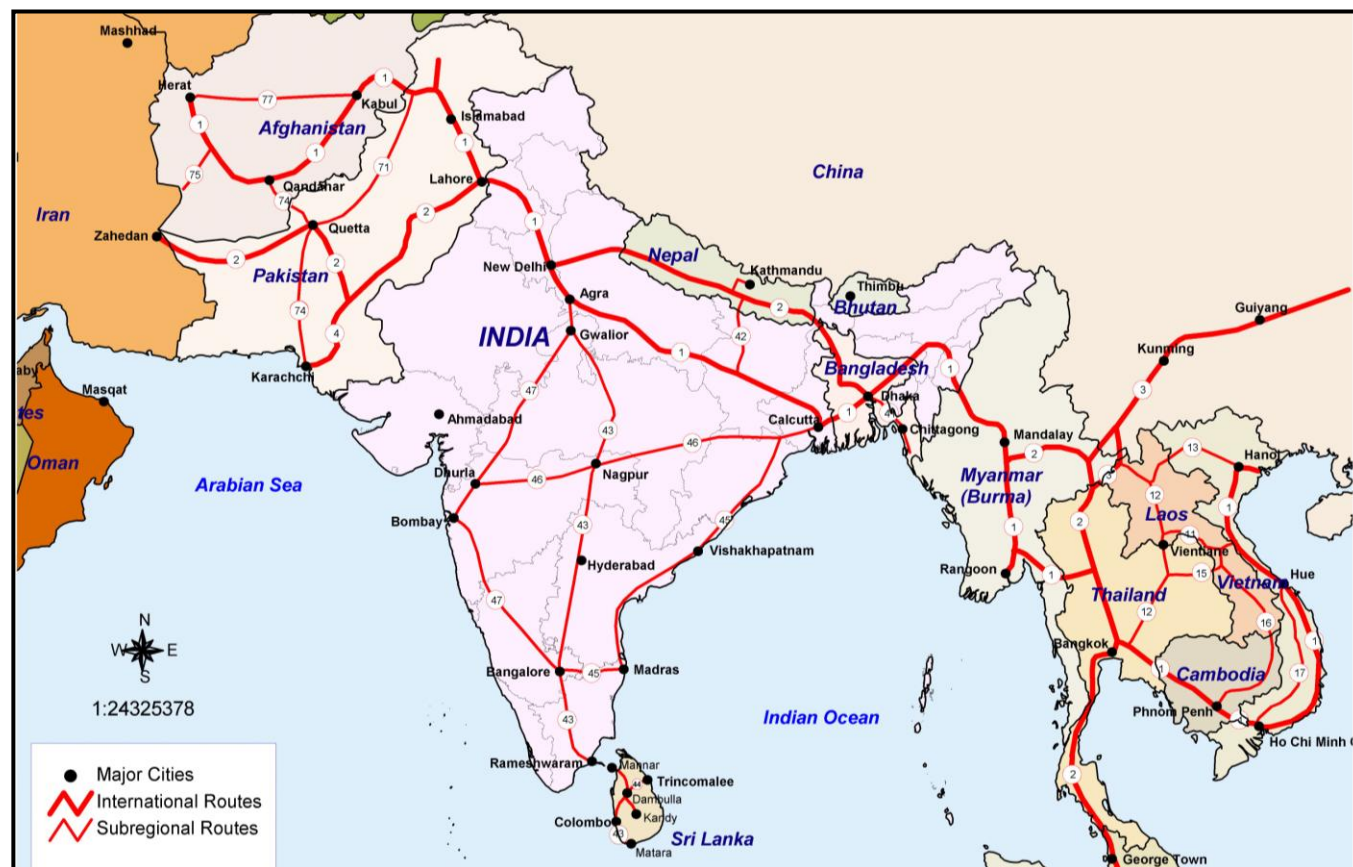
Section 3: International and Asian Context Projects

1. Transport and Access

1.1 Asian Highway

Proposals to link Sri Lanka with the South Asian mainland by road and rail, such as the Asian Highway (Map 1) and Trans-Asian Railway (Map 2) would drastically change Sri Lanka's trade and exchange with India and other South Asian neighbours.

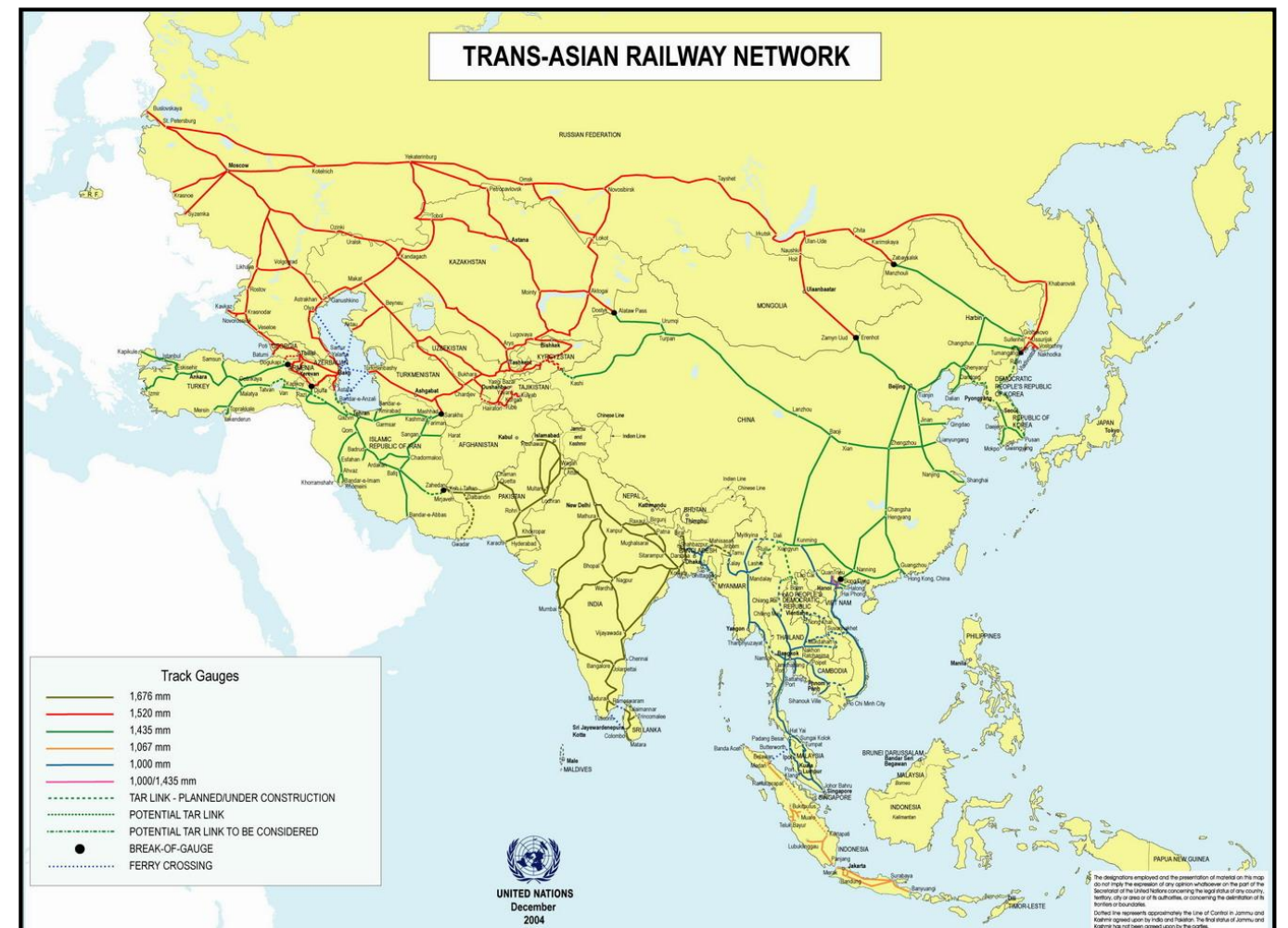
Map 1: Proposed link to the Asian Highway



1.2 Trans-Asian Railway

A Railway bridge crossing appears to be the least cost mode of direct connection based on available data. Initially a single-line railway may be installed which could be converted to a double line later. The advantage of a railway crossing over the ship crossing is the continuity of passage without the need for transfer of modes.

Map 2: Proposed Trans-Asian Railway Network



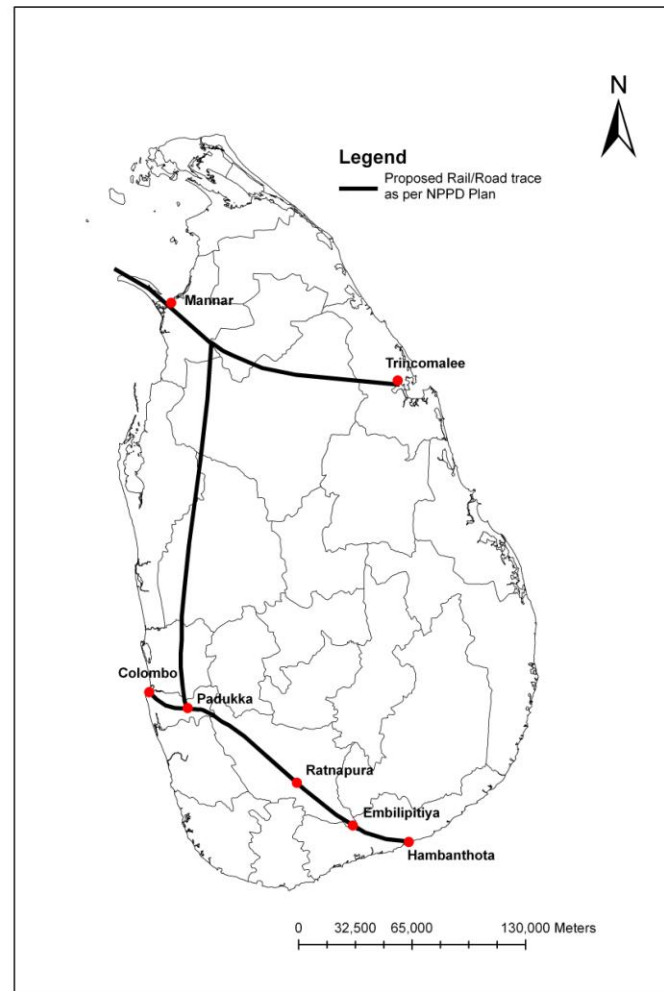
It is undisputed that due to the close proximity to the Indian Subcontinent, setting up of the proposed Asian highway link between Sri Lanka and India would benefit Sri Lanka immensely. Some benefits that could accrue are stated as follows:

1. Promotion of International transport and regional integration.
2. Main Access to Sri Lanka for gas and oil resources at Bangladesh.
3. Link of areas of economic activities such as main agricultural and industrial centres.
4. Connections to main sea ports thereby increase of container handling and logistic supply.
5. Major cargo input to ports at Colombo and Hambanthota from and to Indian Subcontinent.
6. Development of tourist industry by connection to major tourist destination.

The NPPD proposal (figure 2) is to extend the Asian Highway as a railway from Mannar directly to Trincomalee via Vavuniya and to extend the Asian Highway as a railway to Hambanthota via Padukka , Ratnapura and Embilipitiya is justified in terms of the environmental protection and regional development.

Benefits to the Hambanthota Harbour include:

1. International Trade of Asian countries to other regions of the world via Hambanthota harbour
2. Increased ability to provide goods & services not available locally
3. Internal distribution of goods unloaded at the harbour



Alternatives for a Trans-Asian connection from Mannar to southern India include:

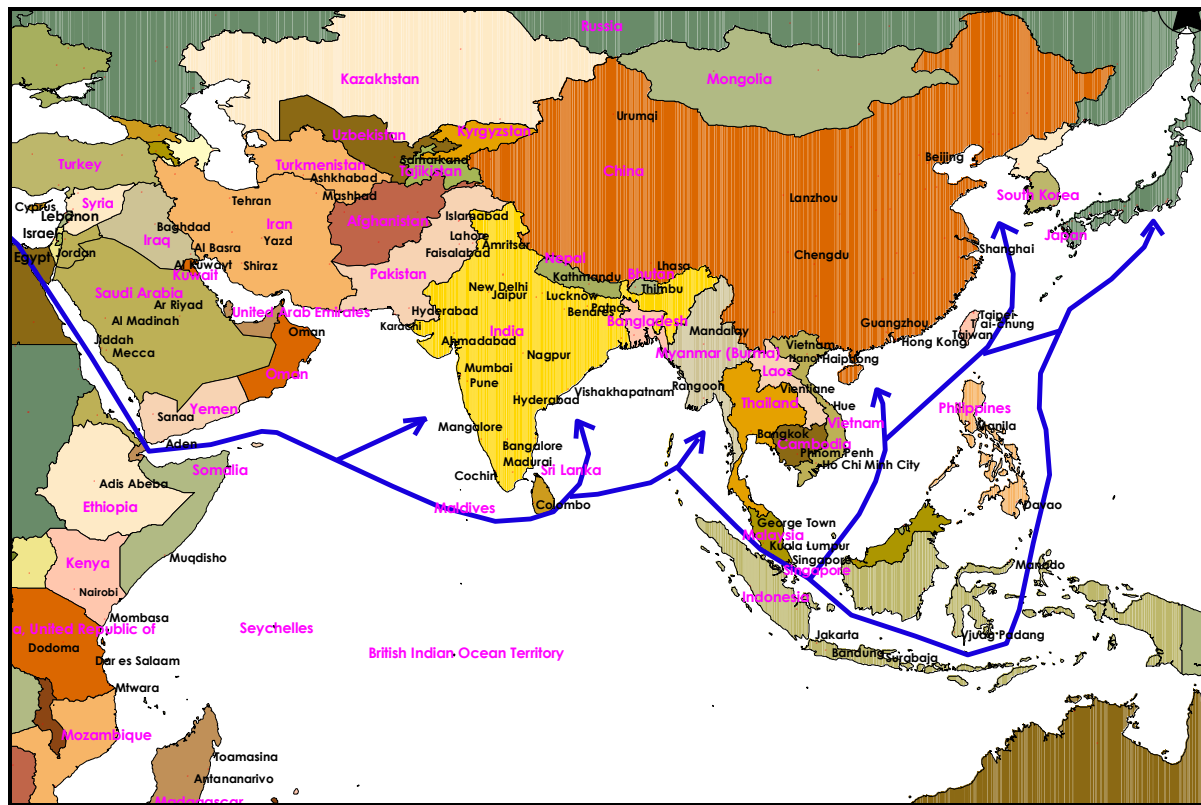
Option	Mode	Estimated Cost
A	Ship Transport – upgrade existing port facilities	Rs. 15 billion
B	Railway Bridge Crossing	Rs. 200 billion
C	Road/Rail Bridge Linkage	Rs. 400 billion
D	Tunnel Rail	Rs. 500 billion

Figure 2 - Connections to Asian Highway/ Railway, an alternative proposal by the NPPD

1.3 Indian-Pacific Sea Routes

One factor that directly affects the economy and economic growth is the effectiveness of the transport network. Transport is influential at the local, national, regional and international level, with strong networks and linkages being often essential elements of successful and high growth economies. Being an island nation, Sri Lanka's linkages with other countries are currently only possible by sea and air. However, its southwest coast is approximately 4 miles from the major international east-west shipping routes, transporting oil and containers between the Middle East and Singapore and other countries.

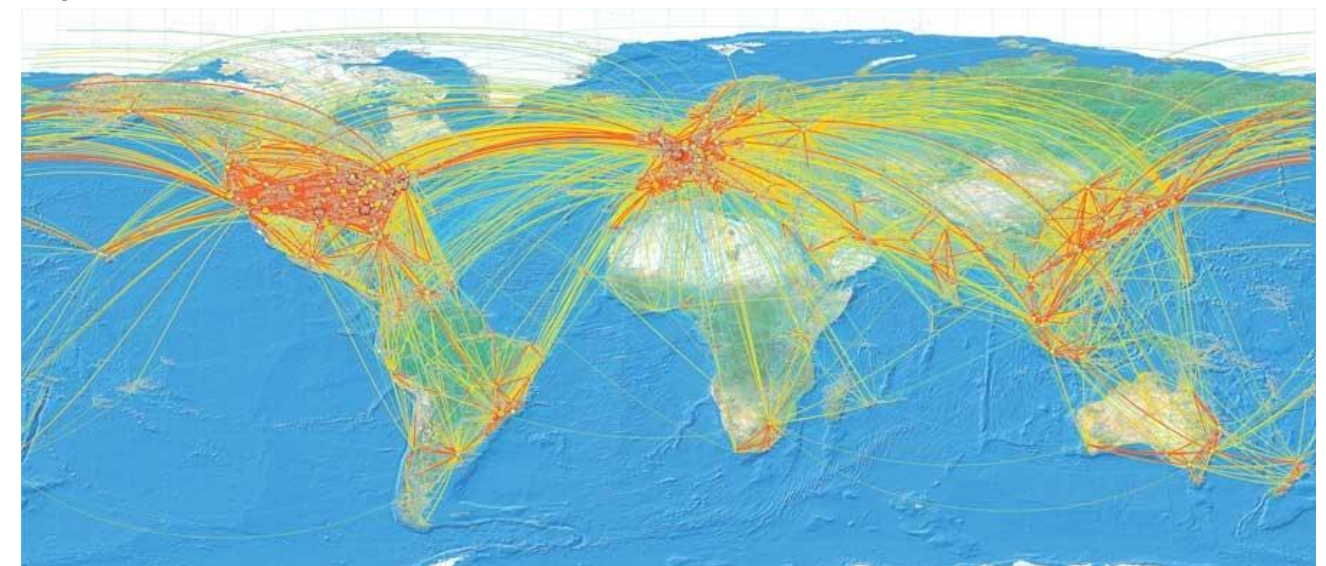
Map 3: Regional Sea Routes



1.4 International Air Routes

The advantages of linking Sri Lanka by air to one or more of the South Asian regional air hubs (such as Delhi, Chennai, Kolkata and Mumbai), and international hubs (such as Singapore, Bangkok and Hong Kong) include improving access to cargo and freight transport, in addition to facilitating business and tourist passenger travel. Expanding the capacity of Sri Lankan domestic airports to enable both improved domestic and regional linkages would also contribute to improved connectivity. Existing patterns of tourism travel are likely to be influenced by improved access to Sri Lanka, particularly if a second international airport and improved domestic air travel facilities are developed. The end of the conflict in Sri Lanka already indicates a return to the high volume of tourist demand for the coastal, central and northern areas of Sri Lanka which increase demands for domestic and regional air travel infrastructure.

Map 4: Global Air Routes



To realize the vision to be South Asia Air Hub, there is an urgent need to expand the Bandaranaike International Airport due to the competition from other airports in the South Asian region. For the airport expansion, an area covering 900 ha around the Bandaranaike International Airport has been set aside under the master plan. This is to accommodate the international and domestic flights operation, modern cargo complex, a second well-separated runway, the extension of the present runway as well as the SLAF air base. According to IATA, the second runway needs to be separated from the existing runway by 2.5 km to accommodate the new airport related facilities and the existing airbase.

Other strategies to improve international aviation linkages include:

- Preparation of an aviation development plan to facilitate the exploitation of Sri Lanka's strategic location in the South Asian region; and
- Develop a second international airport at Katunayake and construct new international airports at Mattale and Hingurkoda.

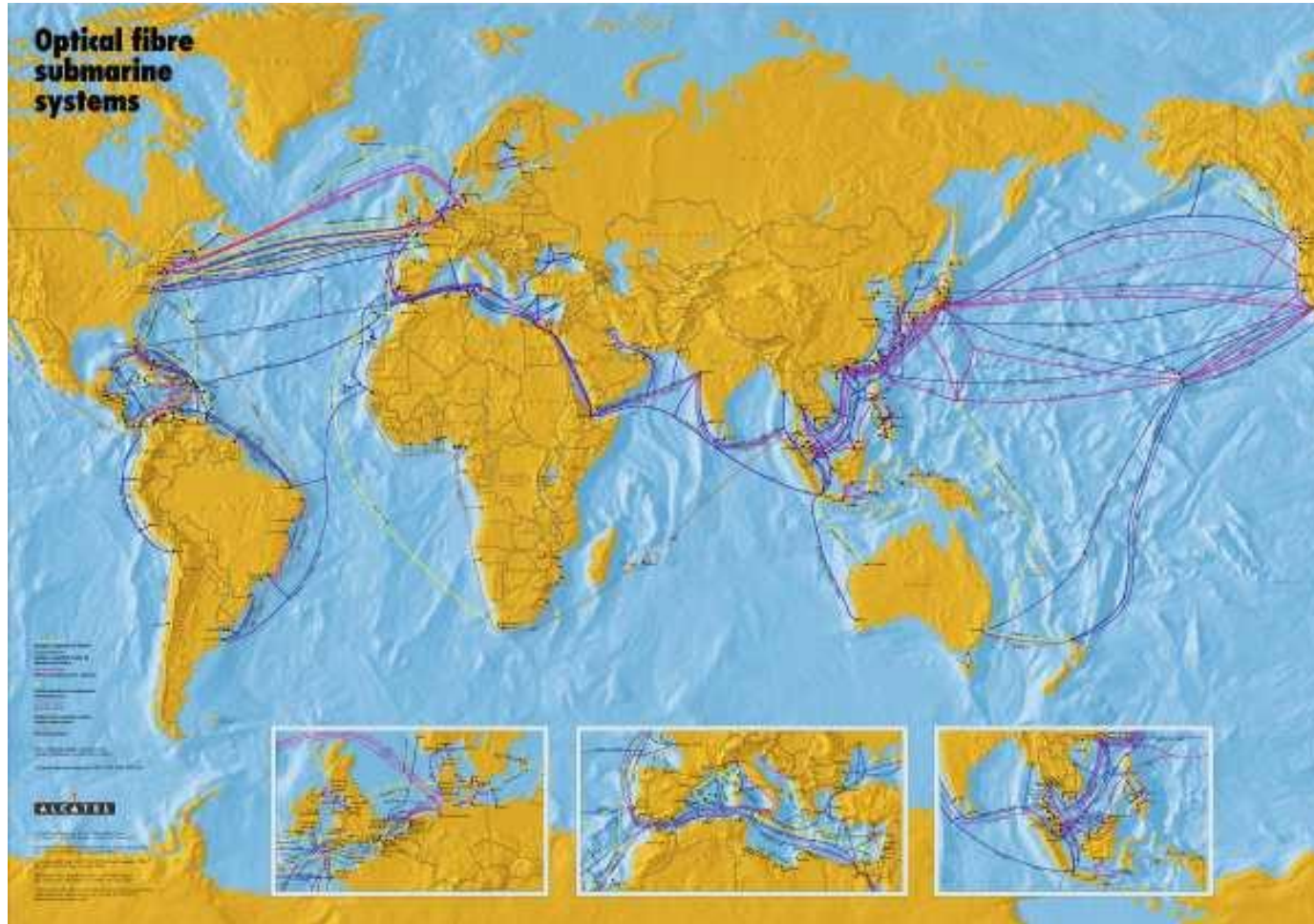
2. Communications

Sri Lanka forms a critical hub in the optical fibre submarine network. The opportunity is available to introduce greater technology into the existing system and expand the network.

Strategies to enhance telecommunications networks include:

- Improvement to the telecommunications network of Sri Lanka by linking with the nearby global submarine fibre network;
- Supporting the development of computer-telecommunication technologies in proposed Metro-cities throughout Sri Lanka; and
- Ensuring adequate IT infrastructure is available to enable the development of identified IT Parks.

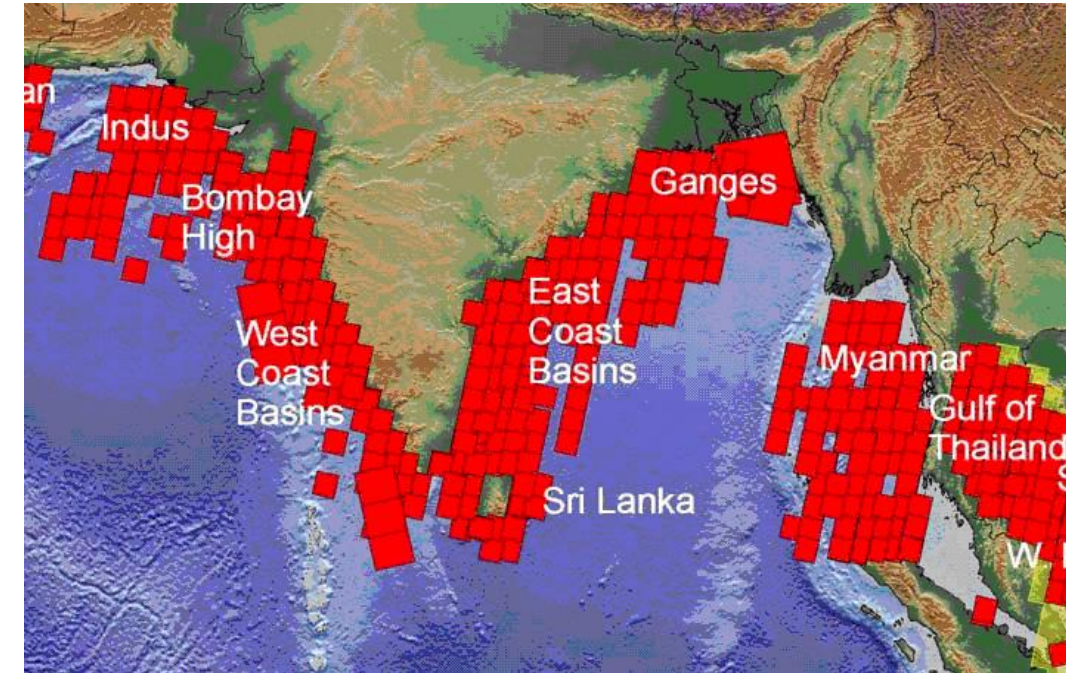
Map 5: Global Optical Fibre Submarine System



3. Energy and Exploration

Sri Lanka is expanding its Exclusive Economic Zone and hence it's potential to invite partnership projects for offshore oil and gas exploration and development. The EEZ will also provide opportunities for expanded marine economies, including additional fishing grounds and ecotourism of offshore reefs and shoals.

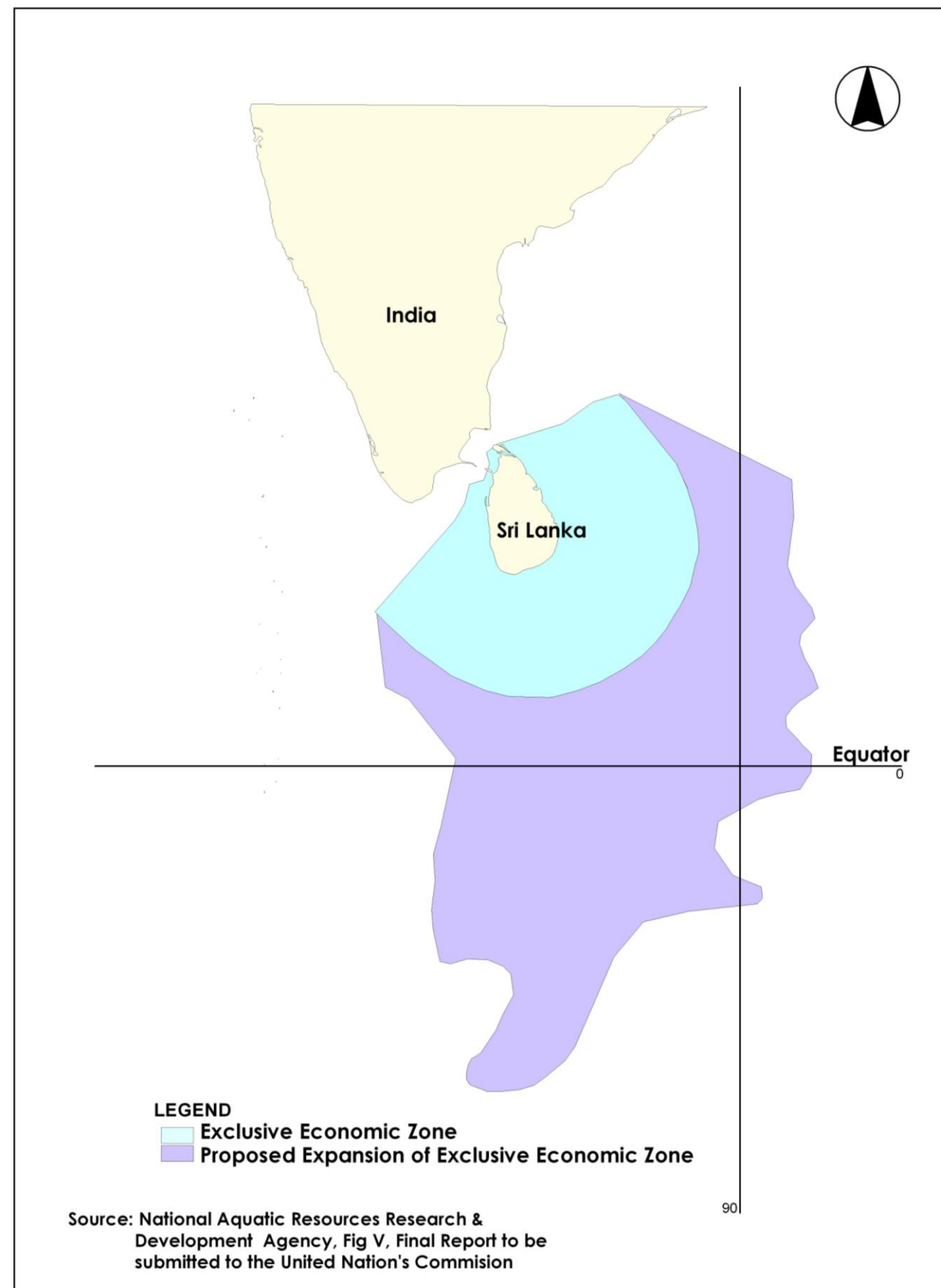
Map 6: Regional Offshore Petroleum Resources



The future reliability of energy supplies and renewable energy sources will include implementation of a National Energy Policy and Strategies for Sri Lanka that includes an extended Exclusive Economic Zone (EEZ) and considers:

Category	Energy Source	Location
1.	Oil and gas	Off-shore exploration in EEZ
2.	Coal based	International and National
3.	Renewable: <ul style="list-style-type: none"> • Solar, wind, oceanic, hydro; • Biomass cultivation; and • Mini-hydro and biogas facilities for rural areas. 	National and Regional

Map 7: Sri Lanka's Exclusive Economic Zone



Conclusion

The many opportunities available for Sri Lanka to take a greater role in the South Asian Region and global economy include:

- Potential petroleum resources and development of a petrochemical sector;
- Mineral excavation and processing;
- Expansion of the fishing and fish processing industries;
- The provision of air and sea transport facilities and develop the services associated with construction, repair and support for air and sea travel;
- Increase tourism, including ecotourism that promotes and protects Sri Lanka's unique natural environment;
- Developing Sri Lanka as a trade, finance and industrial hub;
- First choice provider of specialist skills to the South Asian Region;
- Improving Sri Lanka's telecommunication industry by linking into the global optical fibre submarine system; and
- Fostering an environment that looks outward and attracts investment from both international and national sources.

In effect, increasing globalisation and the rapid growth of the South Asian Region (SAR) have increased regional and international demand for Sri Lankan goods and services, skilled and semi-skilled workers and high quality infrastructure services. Sri Lanka is poised to benefit from the opening up of regional markets through closer economic ties to South Asia. Continued high labour and environment protection standards, high workforce literacy and investment promoting policy atmosphere, are key factors in creating an enabling environment for economic development, both domestically and regionally.

However as pointed out earlier it should be noted that factors such as the lack of reliable sources of electricity and water, and poor access to efficient transport, social infrastructure and employment opportunities, have contributed to the widening regional disparity in terms of education, quality of life and income across Sri Lanka. The difficulty in moving people and goods around the country is a key issue constraining equitable economic growth across Sri Lanka.

One direct consequence of these factors is the unwillingness of public and private sectors to relocate away from Colombo, Sri Lanka's Global city, and the Western Province. Resulting community and social imbalances need to be addressed and resolved as a priority, if meaningful achievements are to be realised in the global context. The vision, objectives, principles and strategies developed as part of the National Physical Policy and Plan seek to achieve community integration through a national settlement structure, and closer connections to the regional and international economies through improved infrastructure linkages at the domestic level.

4. Summary of International and Asian Context Projects:

No.	Section	Category	Project	Priority
1.	Transport and Access			
1.1		Asian Highway	Connection to Southern India	
1.2		Trans-Asian Railway	Connection to Southern India	
1.3		Indian-Pacific Sea Routes	New Major Port Facilities at Hambantota (under construction)	1
			Expand Port at Olivil	2
			Expand Port at Trincomalee	3
			Expand Port at Kankasanthural	4
			Passenger Port at Mannar	5
			Improve Port at Galle	6
1.4		International Air Routes	New International Airport at Mattale	1
			Expand International Airport at Bandaranaike	2
			New International Airport at Hingurkgoda	3
2.	Communications			
		Optical Fibre Network	Create International Communications Hub	
3.	Energy & Exploration			
		Exploration & development	Encourage Oil & Gas Exploration in the Exclusive Economic Zone	1
			Encourage Private/Partnership exploitation of Energy Resources	1

Section 4: National Projects

1. Cities and Settlement

By 2030, Sri Lanka's population is estimated to be 25 million. To accommodate such prediction, it will be necessary to develop new cities, restrict development in the Protected Area Network (PAN) and the Central Fragile Area (CFA).

Enable the Protected Area Network to contribute to the environmental, social and economic development of Sri Lanka by prohibiting new development in the area identified as Category 1, including:

- a. wildlife reserves and identified corridors;
- b. conservation forests;
- c. degraded forest areas that will be restored for ecological reasons;
- d. areas of archaeological and historical value
- e. areas of natural beauty and natural features of exceptional value;
- f. environmentally and hydrologically important wetlands and catchments;
- g. corridors identified by the National Physical Planning Department;
- h. areas where landslides are likely;
- i. unutilised lands in areas of high rainfall intensity, with slopes that have a gradient of over 60 degrees and highly erodible soils; and
- j. all natural and man-made water courses, water bodies and their reservations.

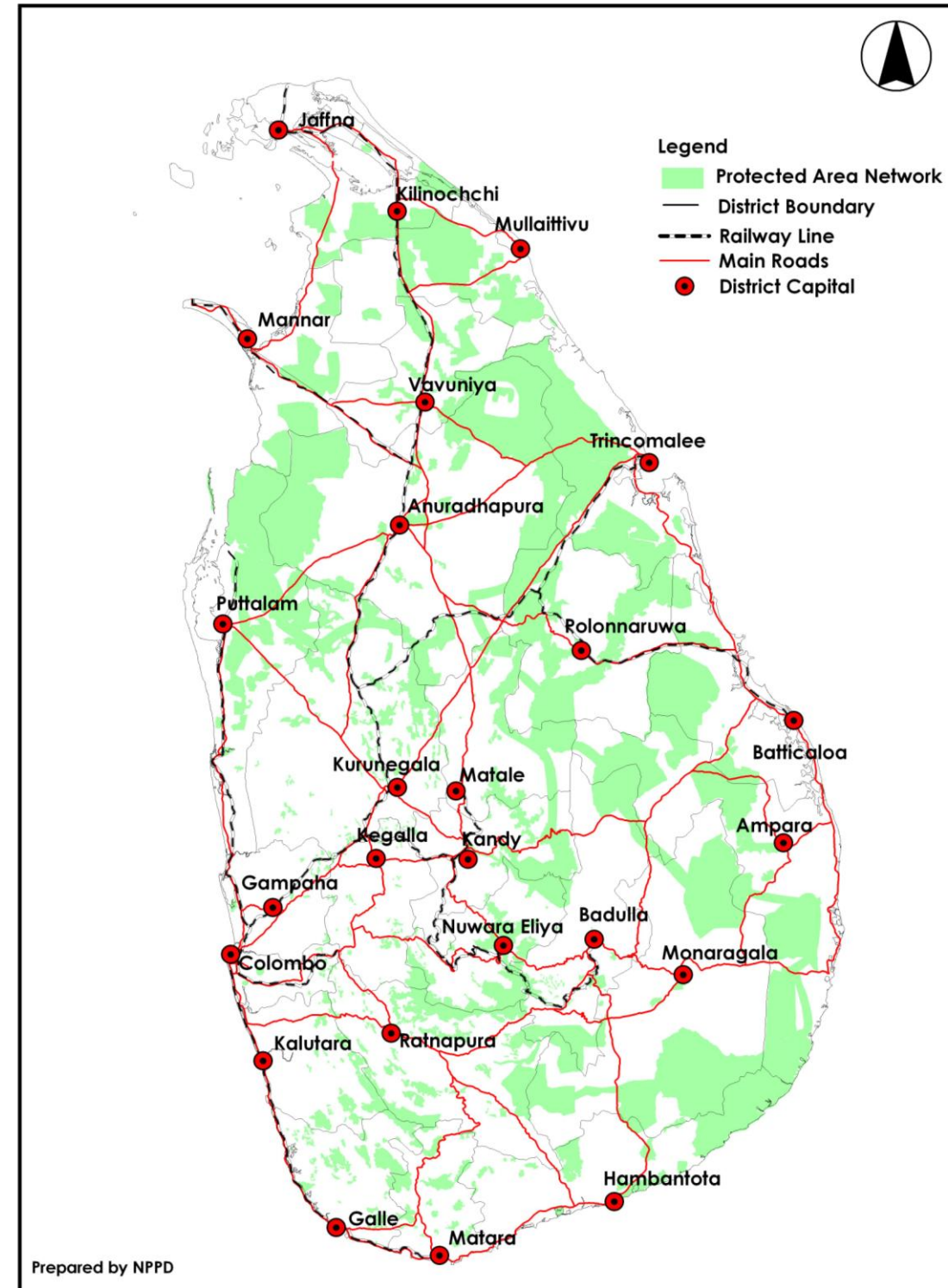
Strategies identified to achieve these objectives include:

- Identify, Protect and manage land with nature conservation and biodiversity values in Regional and Local Plans.
- Ensure that land use planning and development activities consider and respect conservation and biodiversity values.

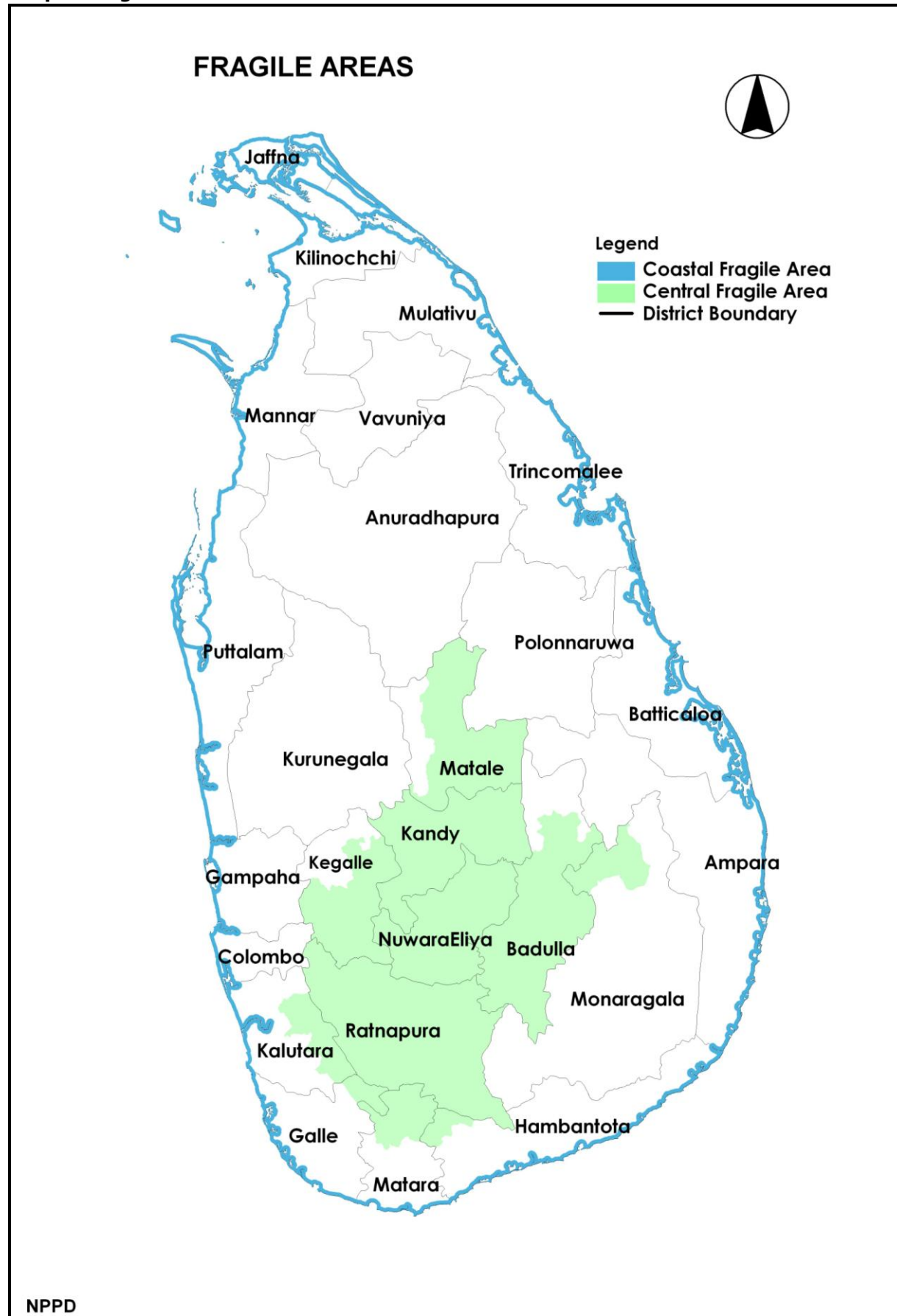
Principles:

1. **Regulate development in the Protected Area Network**
2. **Protect and retain land with environmental values**
3. **Create new Cities and settlements and encourage an outward movement of population and plantations from the PAN and CFA.**

Map 8: Protected Area Network



Map 9: Fragile Areas



Map 10: Proposed Outward Movement of Population and Plantations (see Appendix A)

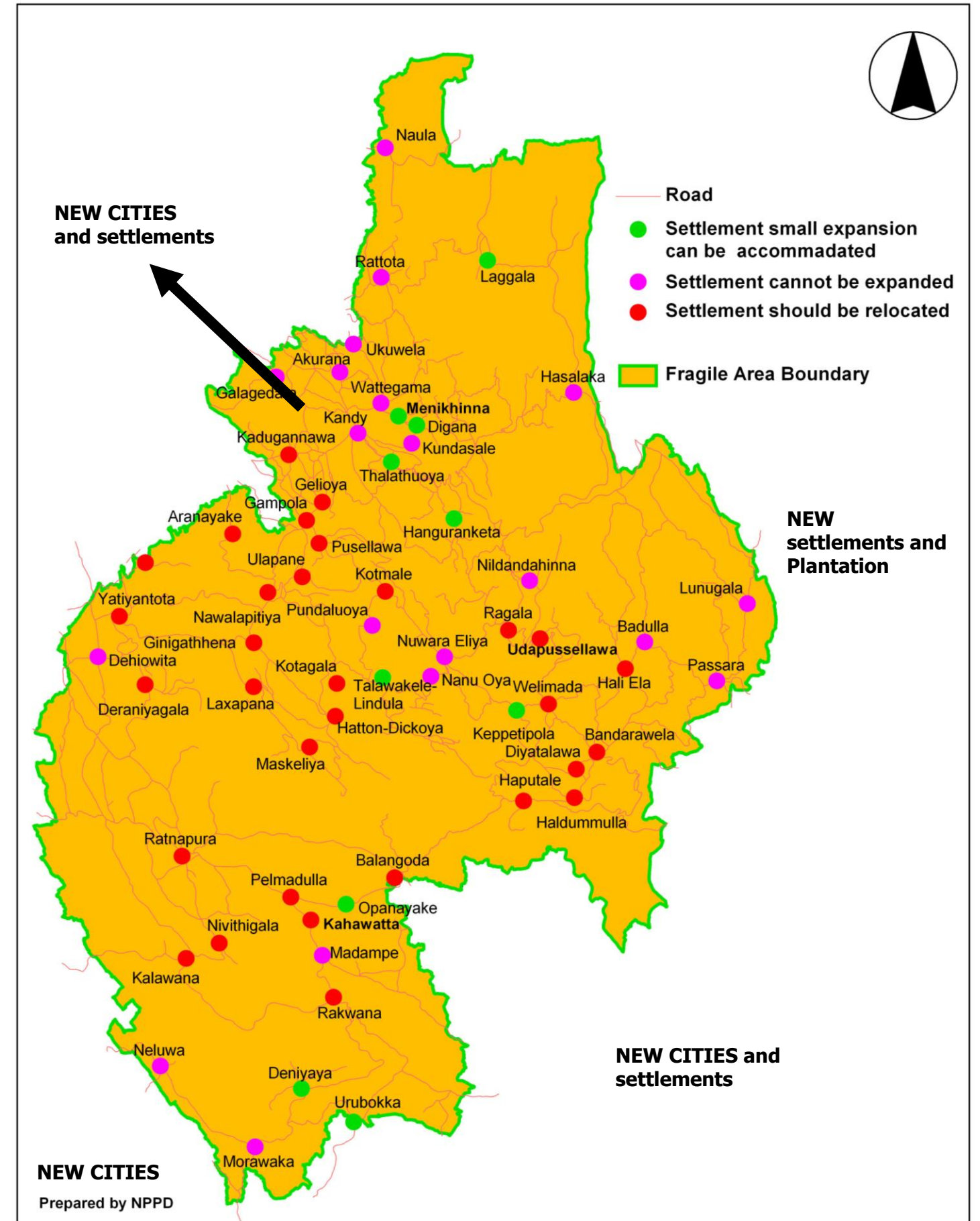
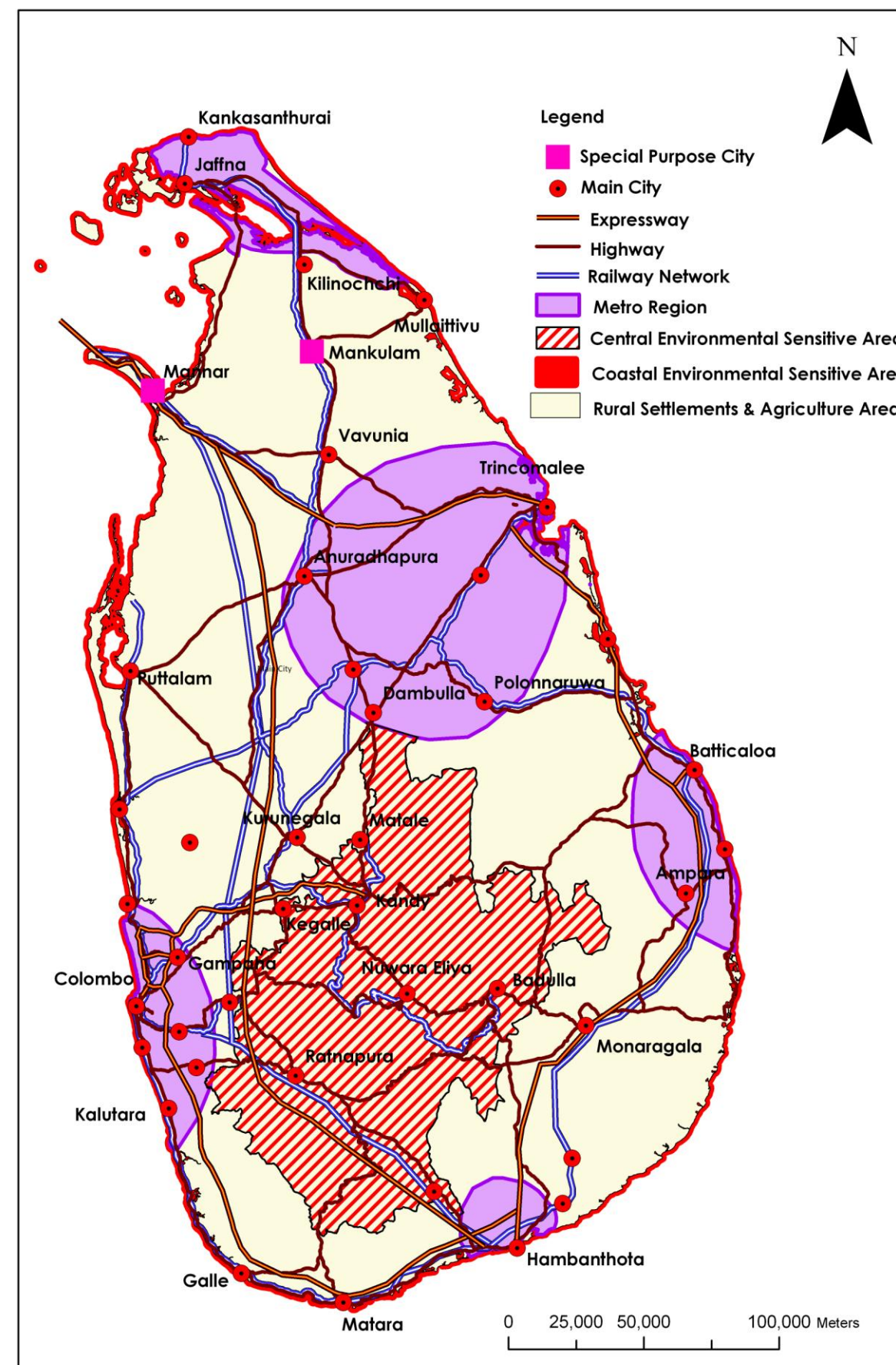


Figure 2: Projected Population for Metro-Cities and District Capitals

City Type	City Name	Target Population	Metro Region total
Western Metro Region			
Metro City	Colombo	2,000,000	3,500,000
District Capital	Gampaha	750,000	
District Capital	Kalutara	750,000	
North Central Metro Region			
Metro City	Anuradhapura	1,500,000	4,000,000
Metro City	Dambulla	500,000	
Metro City	Polonnaruwa	1,000,000	
Metro City	Tricomalee	1,000,000	
Eastern Metro Region			
Metro City	Ampara	500,000	1,000,000
Metro City	Batticaloa	500,000	
Hambantota Metro Region			
Metro City	Hambantota	1,000,000	1,000,000
Jaffna Metro Region			
Metro City	Jaffna	1,000,000	1,000,000
District Capital	Badulla	75,000	7,500,000
District Capital	Galle	300,000	
District Capital	Kandy	100,000	
District Capital	Kegalla	50,000	
District Capital	Kilinochchi	50,000	
District Capital	Kurunegala	200,000	
District Capital	Manner	200,000	
District Capital	Matale	100,000	
District Capital	Matara	100,000	
District Capital	Monaragala	100,000	
District Capital	Mulativu	50,000	
District Capital	Nuwara Eliya	50,000	
District Capital	Puttalam	100,000	
District Capital	Ratnapura	75,000	
District Capital	Vavuniya	200,000	
Total		12,250,000	

Map 11: Settlement Pattern 2030 and Schematic Location of Metro Regions



2. Infrastructure

Objective

Provide infrastructure facilities that will support cities, towns and villages and economic activities.

Context

An efficient and developed network of physical and social infrastructure across the country is vital for creating opportunities for economic growth, poverty alleviation, employment generation and thereby reducing regional disparity. A network of infrastructure, including transport that supports and links cities, towns and villages will create an economic environment that will be able to provide jobs and services to its community. It will also ensure that there is a focus for investment.

Transportation is a vital component of economic infrastructure and provides access to domestic and international markets, through linking Sri Lanka with the rest of the world and facilitating the domestic movement of people and products. Upgrading transport infrastructure will improve access to jobs, ports and other economic activities and reduce the cost of doing business. Investment decisions will, however, need to be based on sound planning, evaluation and assessment to ensure that social and environmental outcomes are balanced with economic objectives.

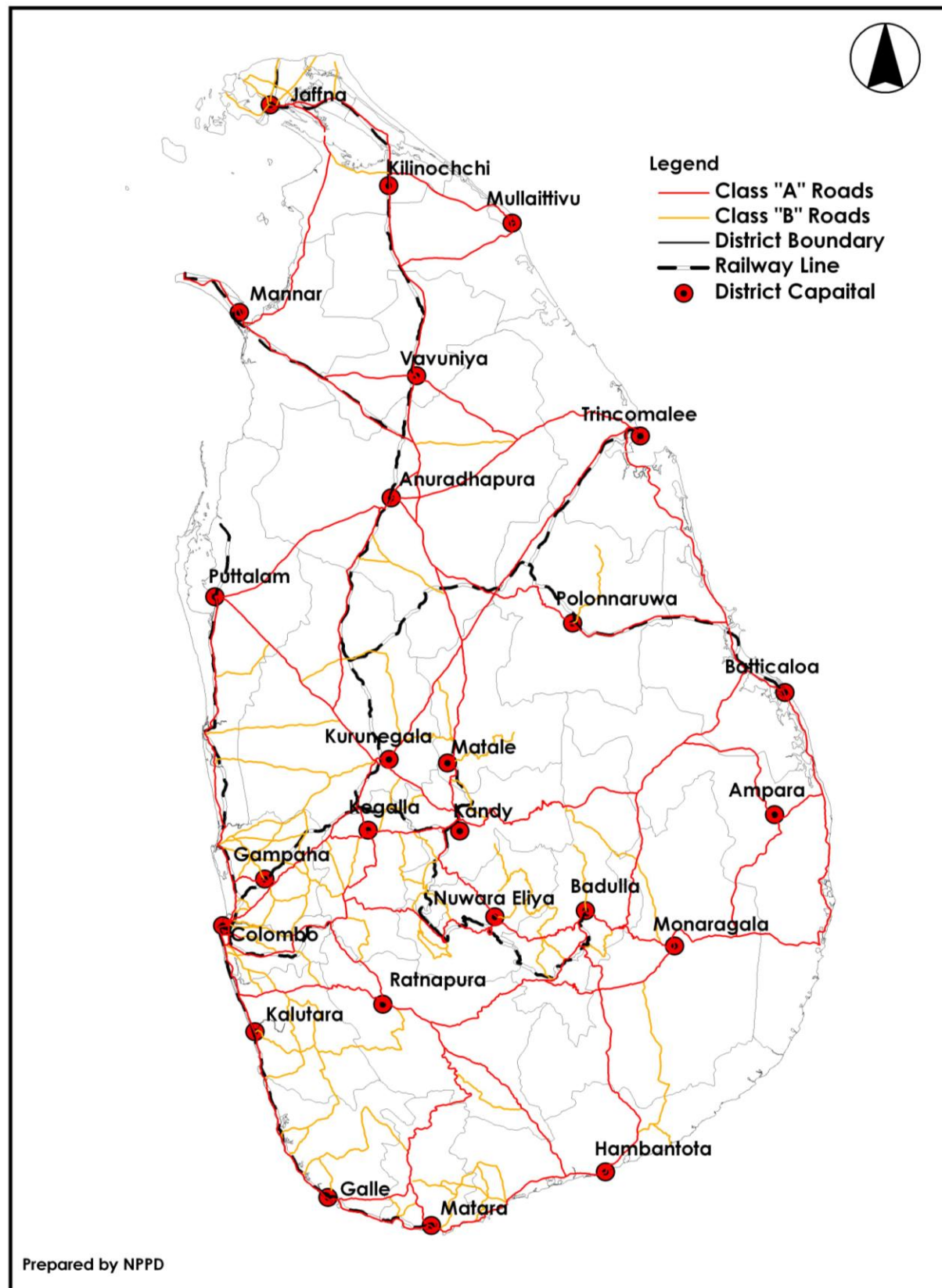
Key Issues

Despite the ongoing expansion of infrastructure facilities in Sri Lanka, existing capacity constraints have limited potential economic development. These constraints can be identified across all parts of the infrastructure network including passenger and freight transportation (road, rail, air and sea), water and electricity supply, solid and waste disposal, and telecommunications.

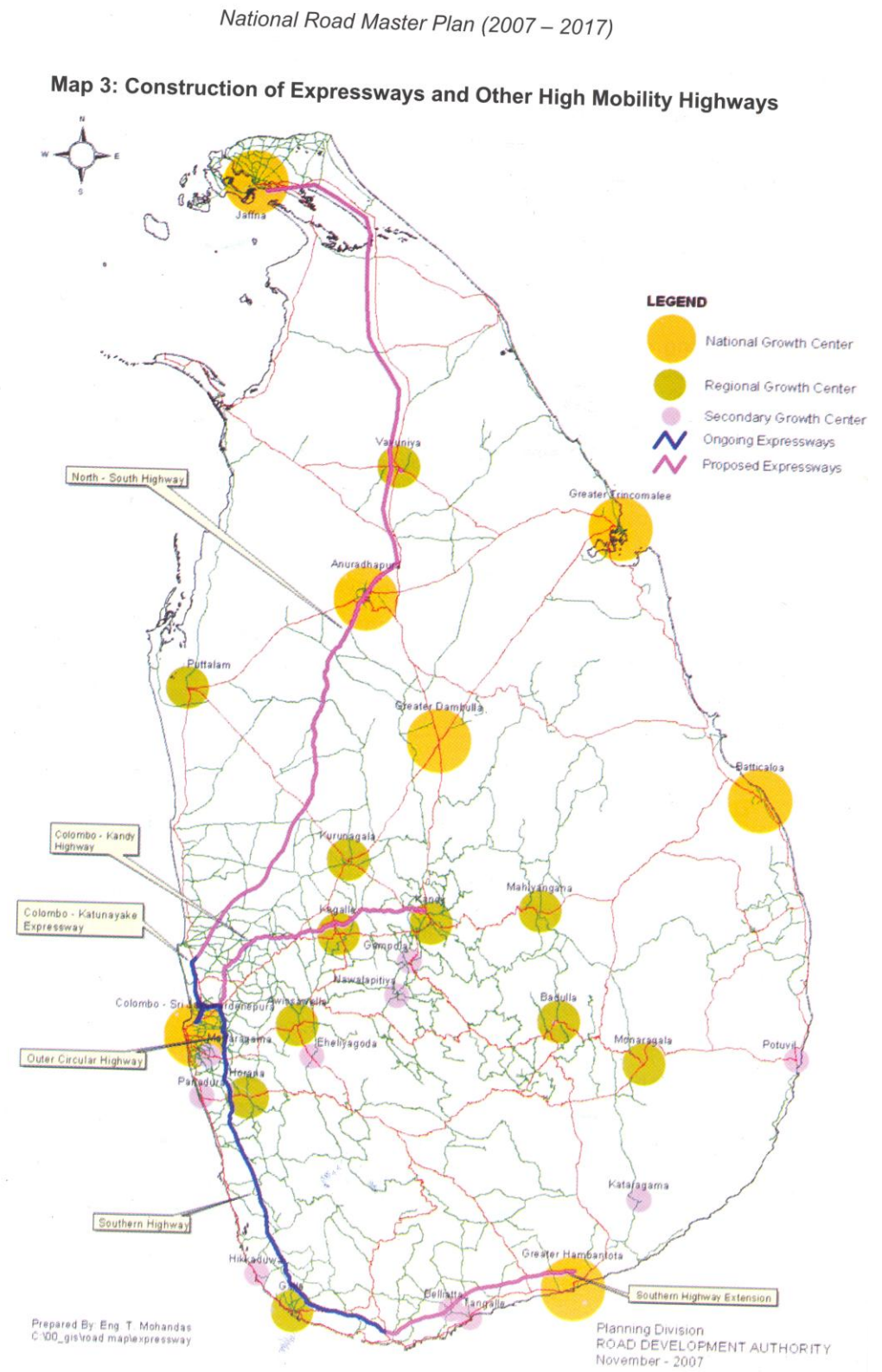
Principles:

- 1. Maintain and rehabilitate the existing road network and construct regional highways to connect urban regional centres.**
- 2. Develop bus networks to improve inter-city and intra-city connections.**
- 3. Upgrade and extend the railway network for passenger and freight travel.**
- 4. Develop regional and international ports and supporting infrastructure to reinforce sea based economic gateways to Sri Lanka.**
- 5. Improve domestic and international aviation linkages for passenger transport and expand capacity for air based cargo transport.**
- 6. Enhance telecommunications networks.**
- 7. Ensure the sustainable management, treatment and disposal of solid waste and sewerage.**

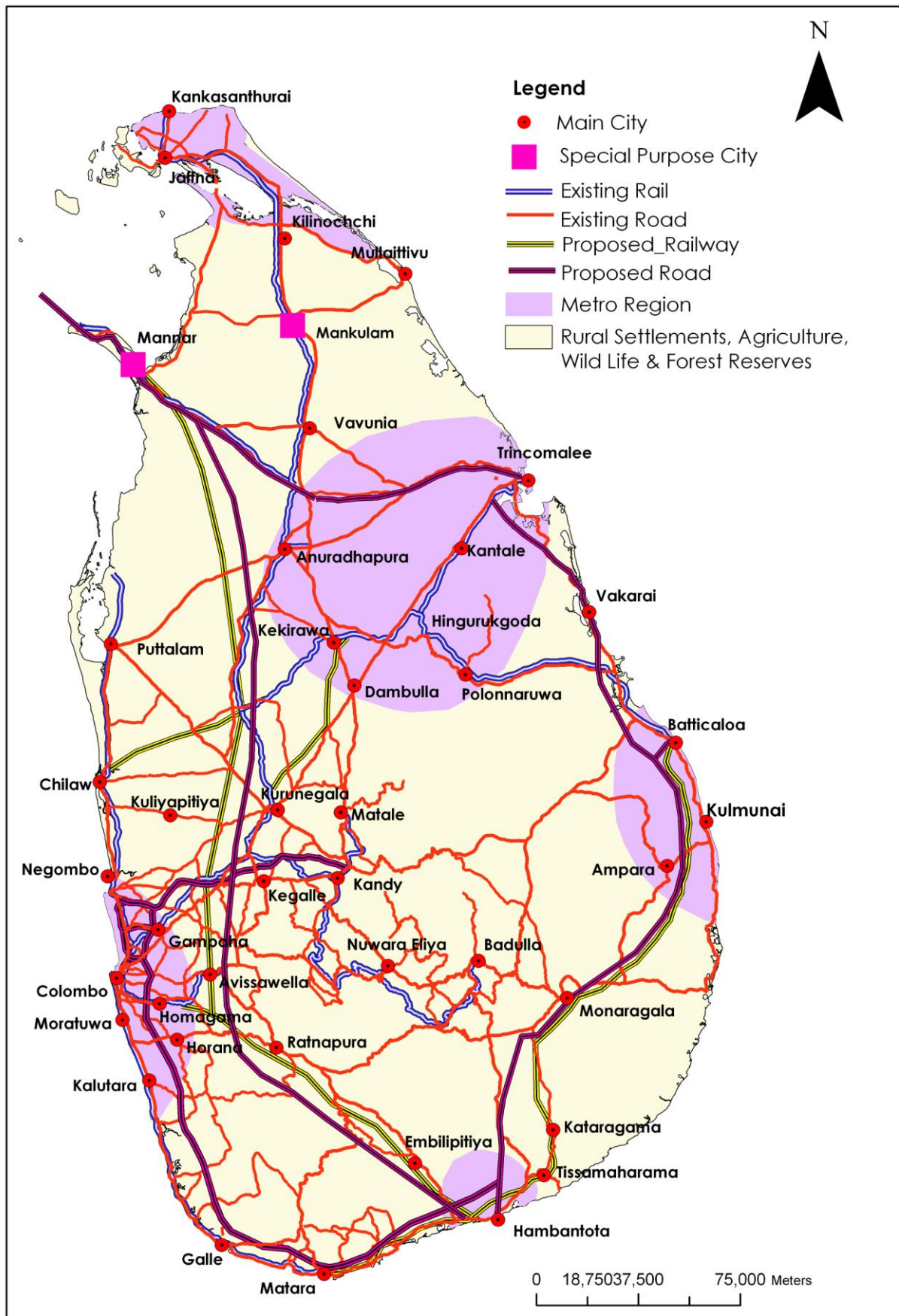
Map 12: Existing Roads



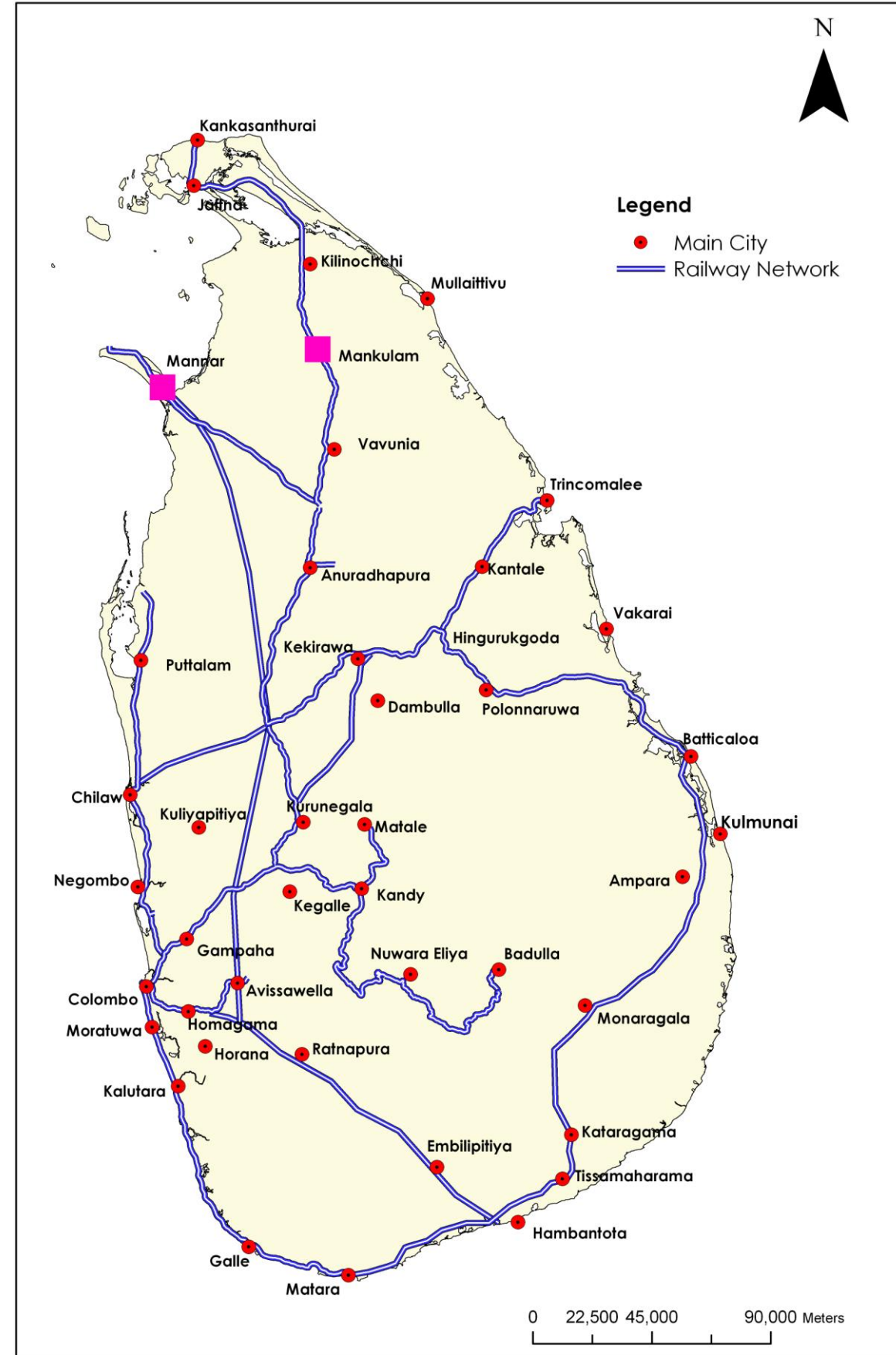
Map 13: Proposed Expressways and Highways(As per R.D.A.)



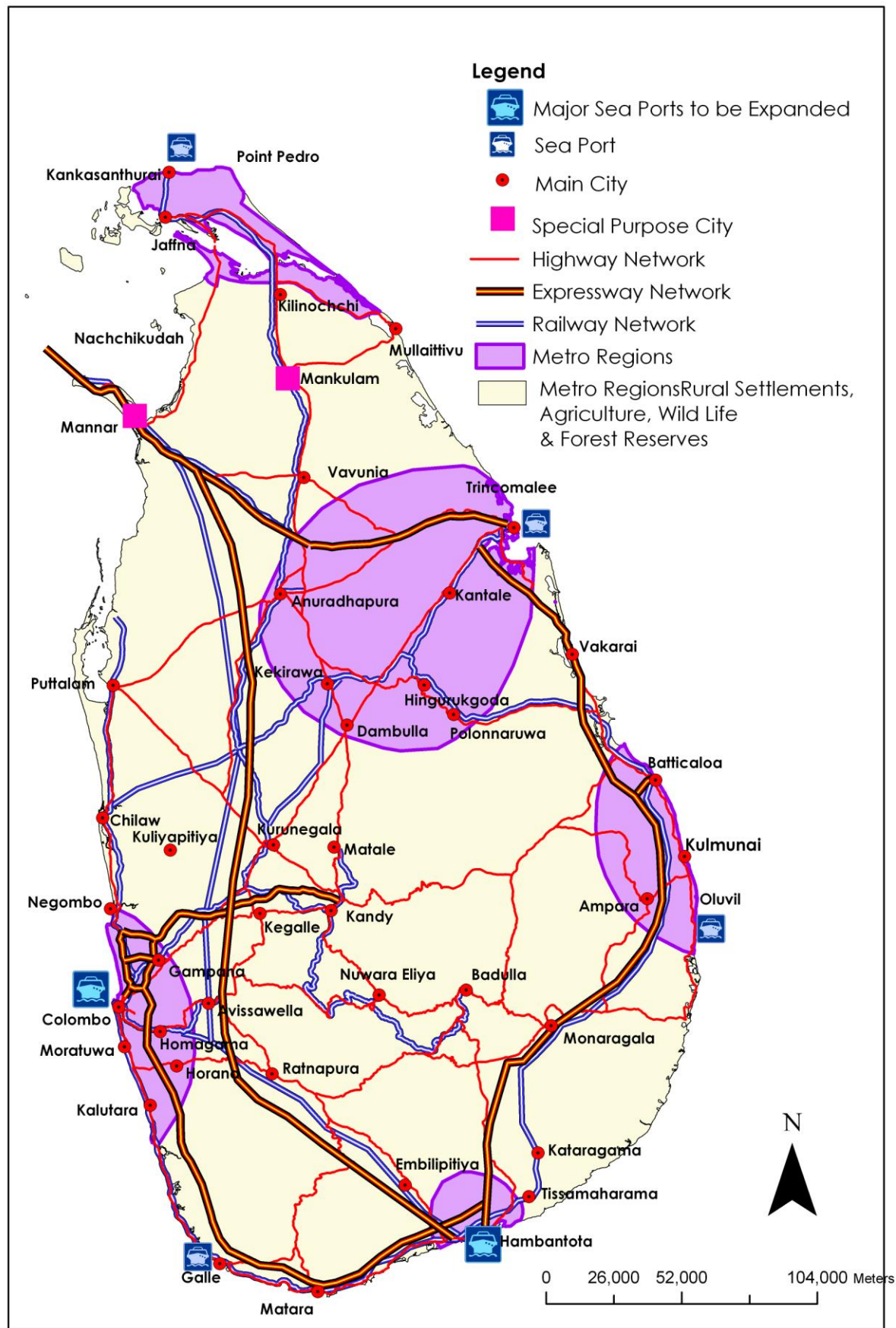
Map 14: Existing and Proposed Roads and Rail



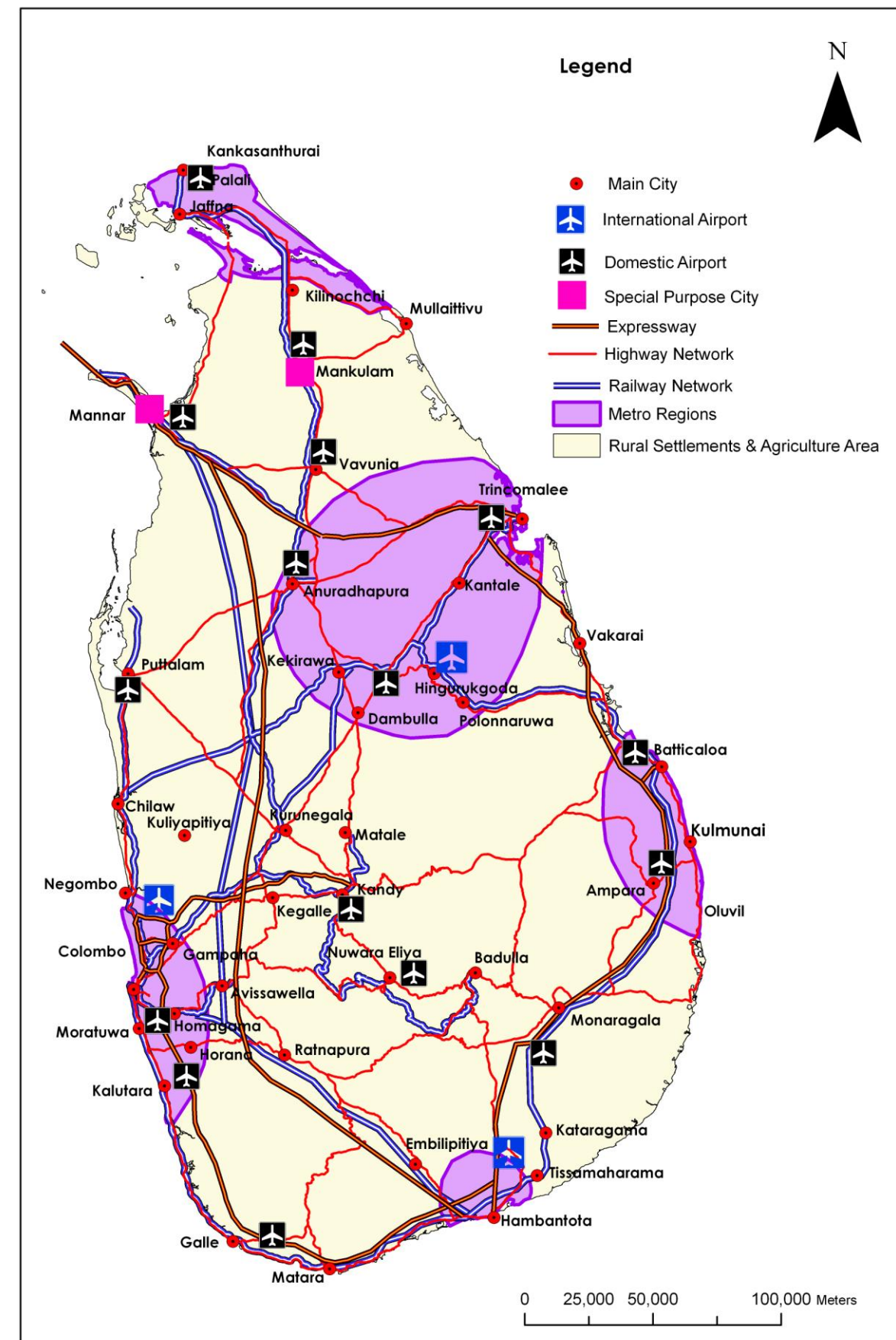
Map 15: Existing and Proposed Railway Network



Map 16: Existing and Ports to be Expanded



Map 17: Existing and Proposed Airports



3. Energy

Objective

Provide sustainable energy facilities and renewable energy where possible, that can support cities, towns and villages and economic growth.

Principle

Improve the availability and reliability of energy supply and encourage the development and use of renewable energy sources to reduce greenhouse emissions.

Strategies

- 1.1 Improve power distribution systems, especially in Metro Cities and industrial areas.
- 1.2 Support the development and use of alternative power sources such as solar, wind, oceanic, mini hydro and biogas energy for domestic purposes, particularly in rural areas.
- 1.3 Improve the power generation capacity by protecting the Central Fragile Area and water catchments from inappropriate development
- 1.4 Facilitate the provision of sufficient land for biomass cultivation to make it a viable form of electricity generation
- 1.5 Support the implementation of the National Energy Policy and Strategies of Sri Lanka by ensuring that there is sufficient land in appropriate locations for power generation.

Priority	Proposed National Power Projects	Location
1.	Coal Fired	Noraicholai
2.	Coal Fired	Trincomalee
3.	Hydro (Upper Catchment)	Maduru Oya
4.	Coal Fired	Kerawalapitiya
5.	Wind Generation	Puttalam
6.	Dendro and Hydro	Up Country

4. Water Resource

Objective

Protect water catchments, water resources and tanks to improve water quality and ensure sufficient supply of water for domestic, agricultural, industrial activities and power generation.

Context

Water is an important resource for domestic, industrial, agricultural activities and power generation. Sri Lanka has both surface and ground water resources. These water resources are supplemented by direct rain water harvesting in the hill country and dry zone. Population growth and the expansion of urban areas are putting more pressure on the country's water supplies and other water uses. Water availability is further complicated by climate change which may mean warmer conditions, less rainfall and higher evaporation rates, and leading to more urgent need to manage water resources more efficiently.

Water cycle management is an important consideration for urban development that contributes to an ecologically sustainable city. Water cycle management covers:

- drinking water
- stormwater run-off
- water catchment and waterway health
- sewage treatment
- re-cycling

Water Sensitive Urban Design (WSUD) is about integration of water cycle management into urban planning and design. It also ensures that new development occurs in areas that are free from flooding.

Due to the many demands for water it is important to ensure that there is sufficient supply for all users. It is important to ensure that all people have clean and safe water to drink and that there is sufficient water for economic activities such as agriculture and industry. It is also important to coordinate the many organisations that share the water supply system but use it for a range of different purposes.

Key Issues

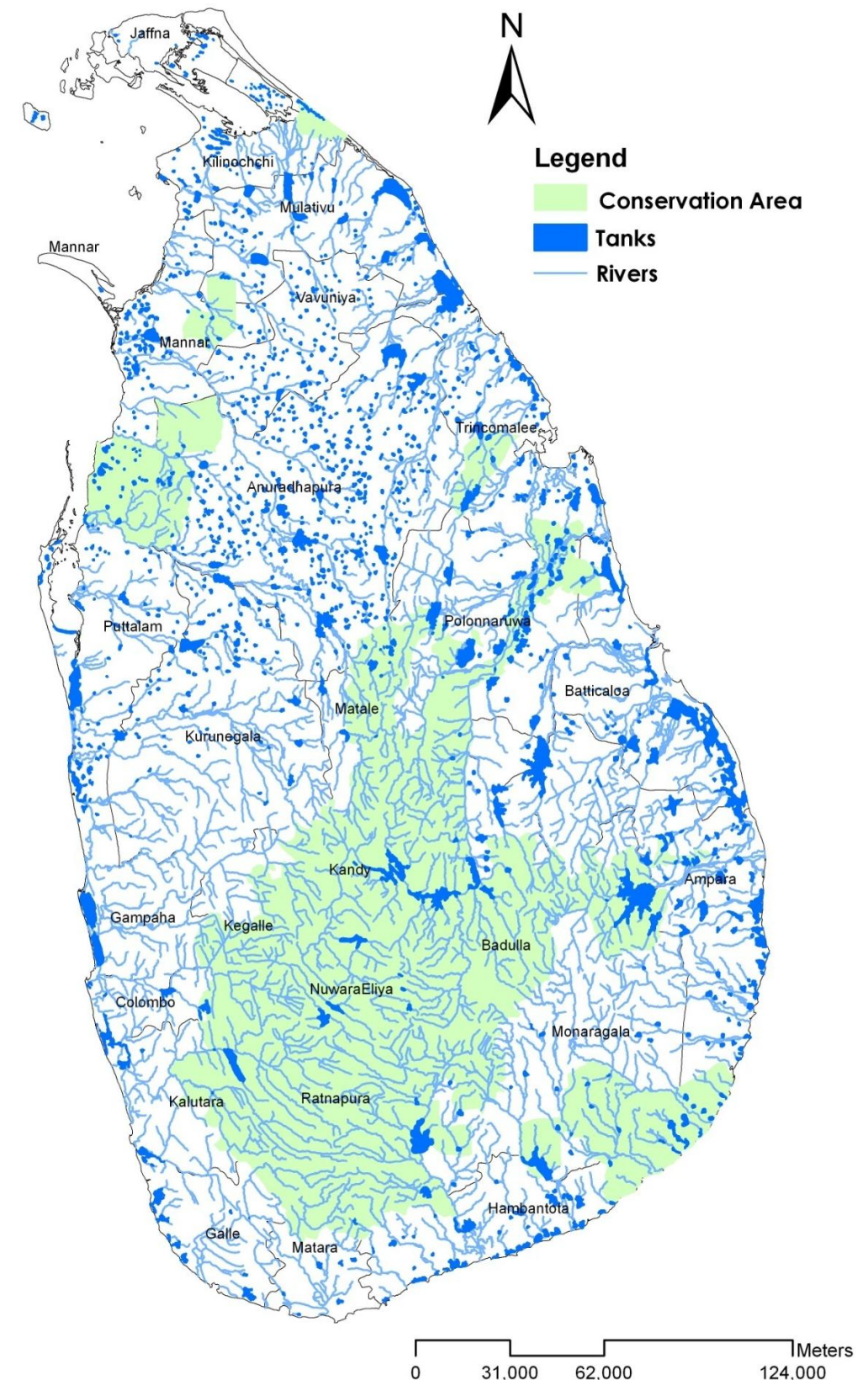
The key issues affecting water quality and supply are:

- encroachments and inappropriate activities in water supply catchment areas affecting water quality;
- sedimentation of reservoirs due to deforestation and agricultural activities in the catchment areas;
- increased demand as a result of population expansion and urbanisation;
- agricultural practices requiring more water;
- threat of over exploiting ground water resources;
- ineffective management of stormwater impacting on water quality and increasing the instances of inundation;
- dumping of solid waste in wetlands; and
- discharge of waste water into the sea, rivers and water bodies.

Principles:

1. **Protect water supply catchments**
2. **Ensure that there is sufficient water supply for agricultural, domestic, industrial and power generation uses.**
3. **Efficiently manage stormwater drainage**

Map 18: Tanks and Rivers of Sri Lanka



5. Economic Development

Objective

Provide an integrated spatial pattern of development that finds the balance between production and protection of natural resources and encourages economic development.

Context

The past few decades have seen major shifts in both domestic and regional economies. In the mid-twentieth century the Sri Lankan economy was largely based around production of tea, rubber and coconut. In more recent times a combination of the remittances from Sri Lankans working abroad, the local apparel industry, and export of tea are some of the major foreign exchange earners. These shifts in economic activities reflect changing global trends towards high productivity in commodity production and expansion of service industries. Despite these global shifts, Sri Lanka maintains a strong domestic agricultural base which contributes to food security and employment and produces significant produce for local consumption.

The development of local oceanic resources such as oil, minerals and fish, while widespread elsewhere across the globe, has not occurred to any great extent in Sri Lankan waters. Sri Lanka is fortunate to have the opportunity to tap into a large portion of the ocean surrounding the country, given that the proposed expansion of the Economic Exclusion Zone surrounding Sri Lanka will be approximately 12 times the area of the country. The potential of the Indian oceanic bed to produce off-shore oil opportunities has led recent studies to suggest that up to 40% of the world's oil could come from the Indian Ocean. Recent explorations in and around Sri Lanka's Exclusive Economic Zone and the Indian Ocean rim suggest that the Government would be well advised to continue these investigations in order to secure domestic oil supplies. Sri Lanka therefore has many opportunities to grow economically. It is well endowed with high quality agricultural lands, natural resources and is well placed to become a stronger player in the South Asian Region.

The effectiveness of the transport network is another factor that directly affects the economy and economic growth. Accessible and affordable transport contributes to reducing regional disparity, and is influential at the local and international level alike, with strong networks and linkages often essential elements of successful and high growth economies.

Key Issues

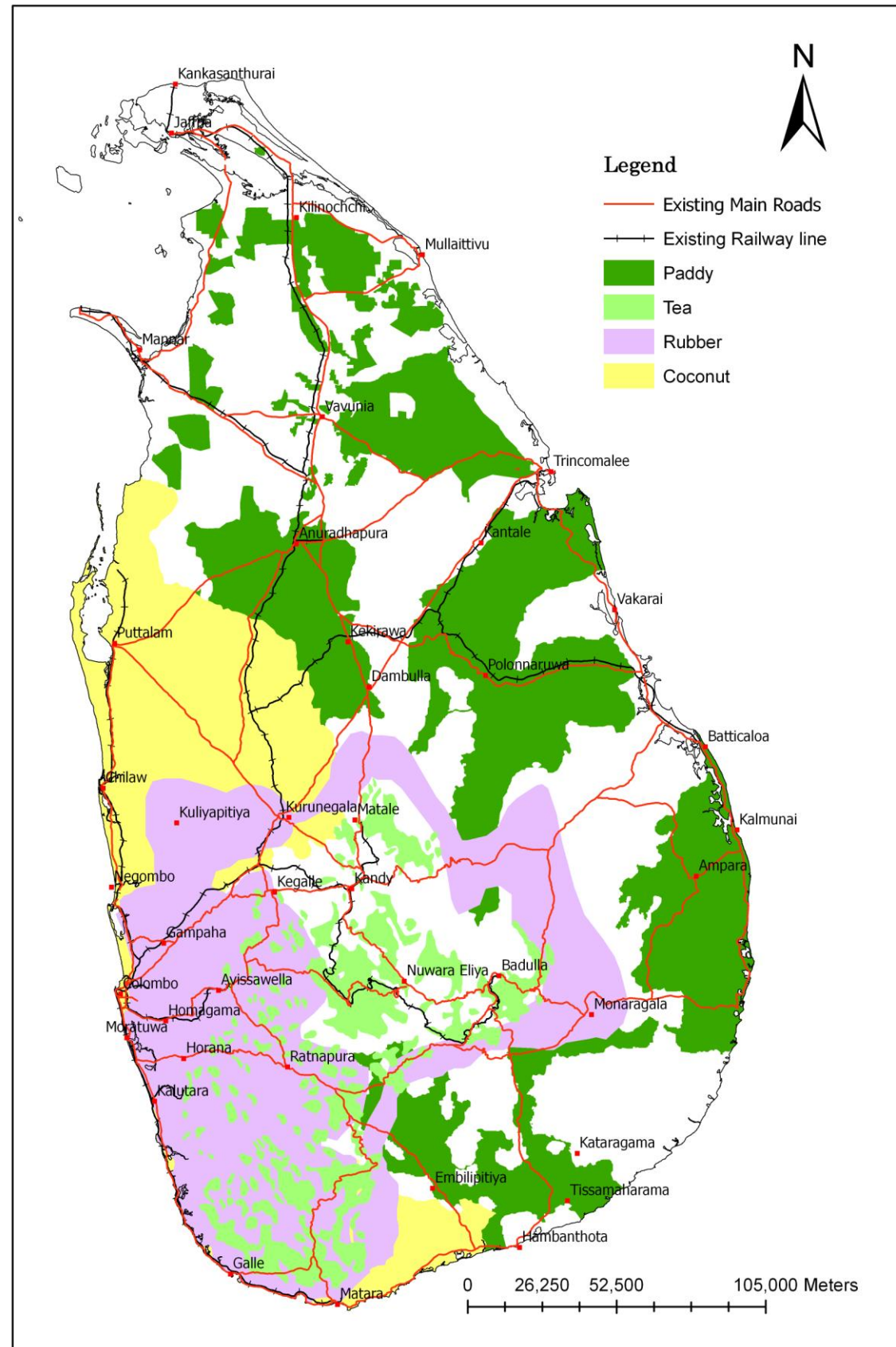
The key issues facing the economy in Sri Lanka are:

- heavy environmental degradation;
- low levels of agricultural productivity;
- a weak industrial sector;
- the neglect of oceanic resources;
- the persistence of poverty;
- weak international links;
- a slow rate of economic growth; and
- widening regional disparities.

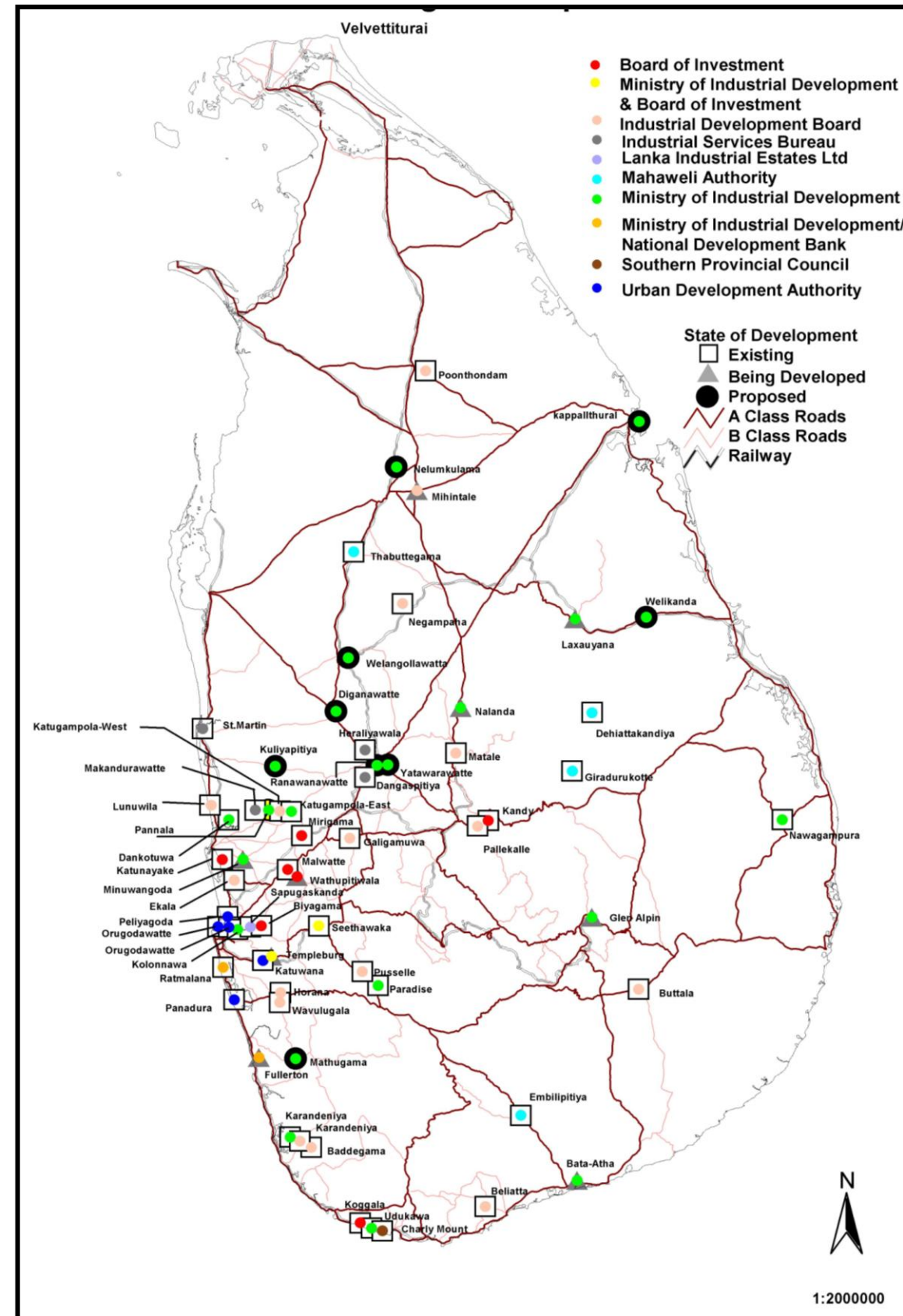
Principles:

1. **Improve the global advantage of Sri Lanka.**
2. **Improve agricultural productivity.**
3. **Encourage industrial development within Metro Cities.**
4. **Make optimum use of minerals and other non-agricultural resources.**
5. **Expand the tourist sector**
6. **Encourage the sustainable use of offshore resources**
7. **Expand the fishery sector.**

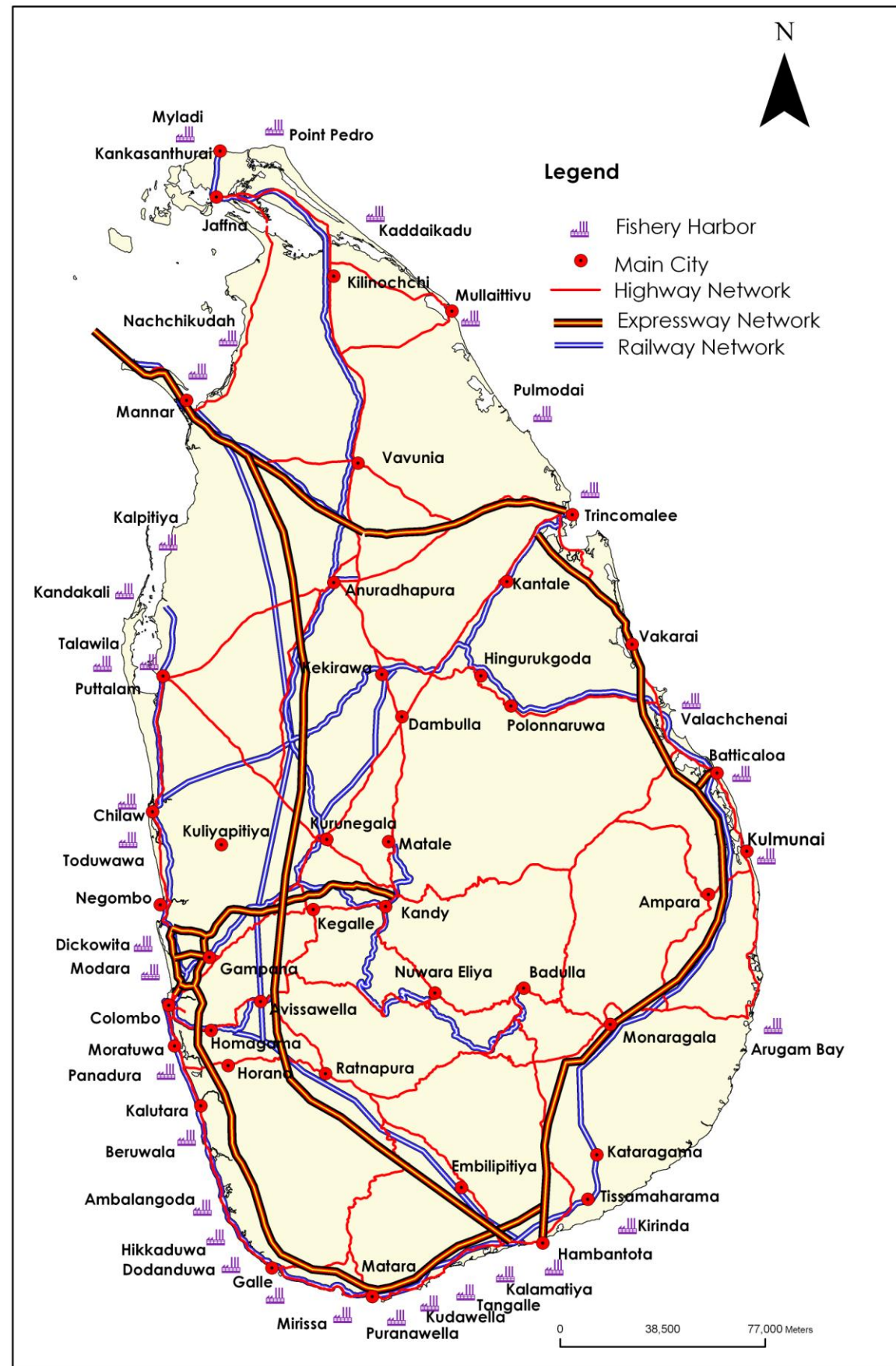
Map 19: Highly Productive Agricultural Areas



Map 20: Existing and Proposed Industrial Estates



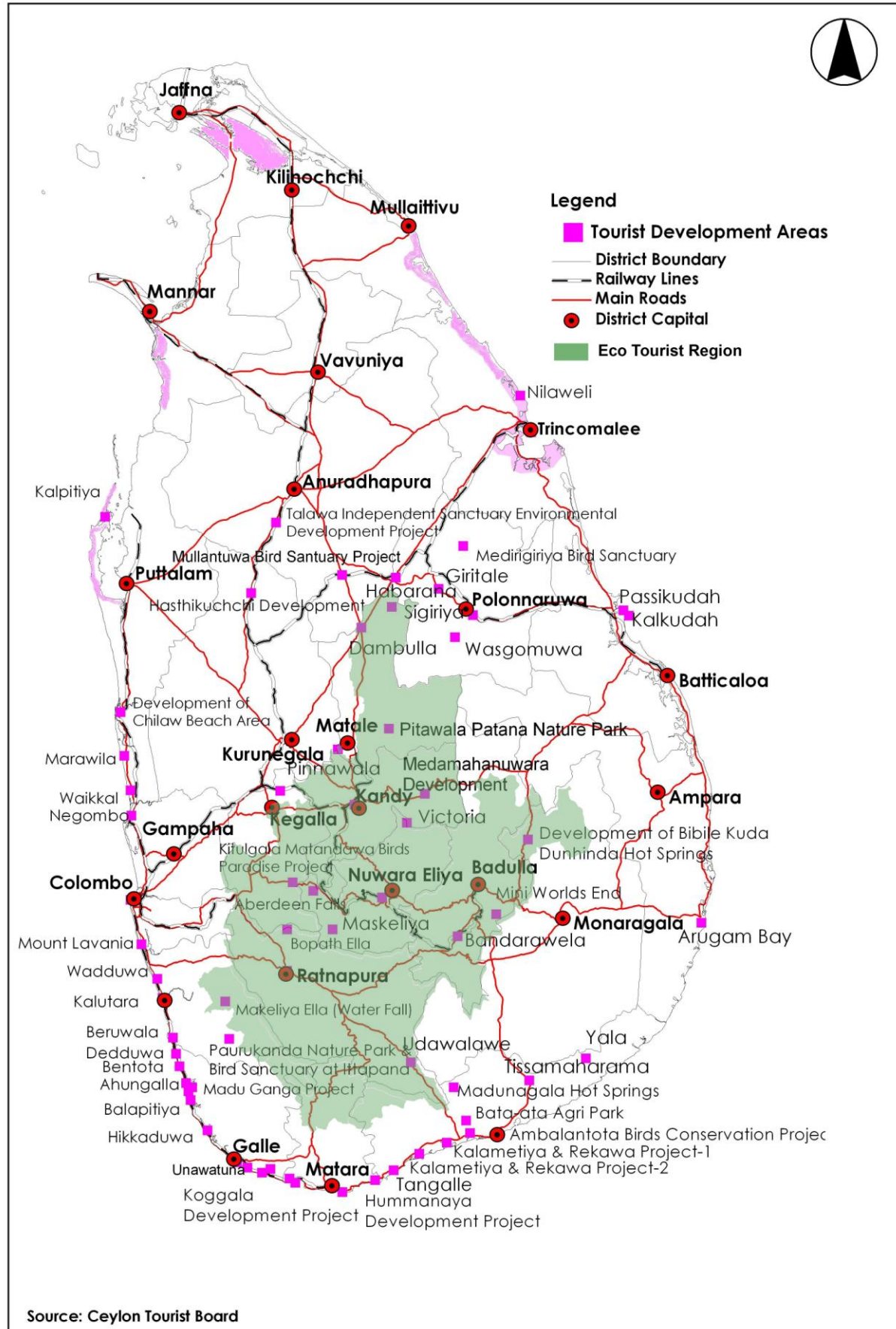
Map 21: Existing and Proposed Fishery Harbours



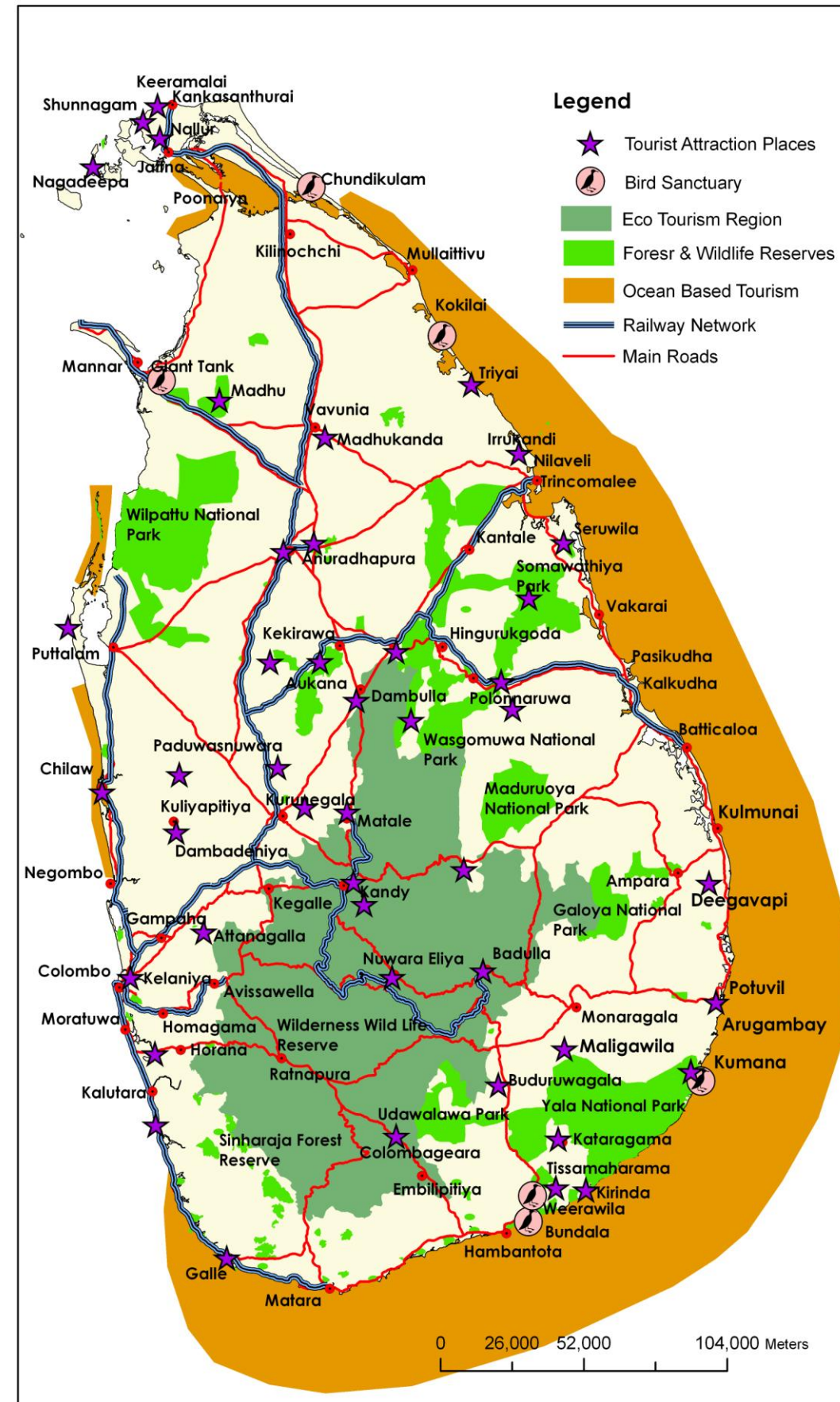
Map 22: Areas Reserved for Mineral Exploration



Map 23: Tourist Development Areas



Map 24: Potential Ecotourism Development Areas



6. Summary of National Projects

No.	Category	Project	Priority
1.	Cities and Settlement	Regulate development in the Protected Area Network	1
		Protect and retain land with environmental values	2
		Create new Cities and settlements and encourage an outward movement of population and plantations from the PAN and CFA	3
		1. Northern Province Regional Structural Plan	
		2. North central Metropolis	
2.	Infrastructure	Maintain and rehabilitate the existing road network and construct regional highways to urban regional centres	1
		Develop bus networks to improve inter-city and intra-city connections	2
		Upgrade and extend the railway network for passenger and freight travel	3
		Develop regional and international ports and supporting infrastructure to reinforce sea based economic gateways to Sri Lanka	4
		Improve domestic and international aviation linkages for passenger transport and expand capacity for air based cargo transport	5
		Enhance telecommunications networks	6
		Ensure the sustainable management, treatment and disposal of solid waste and sewerage	7
3.	Energy	Coal Fired Station at Noraicholai	1
		Coal Fired Station at Trincomalee	2
		Hydro (Upper Catchment) at Maduru Oya	3
		Coal Fired Station at Kerawalapitiya	4
		Wind generation at Puttalam	5
		Dendro and Hydro-electricity Up Country	6
4.	Water Resources	Ensure that there is sufficient water supply for agricultural, domestic, industrial and power generation uses	
		Efficiently manage stormwater drainage	
5.	Economic Development	Improve the global advantage of Sri Lanka	
		Improve agricultural productivity	
		Encourage industrial development within Metro Cities	
		Make optimum use of minerals and other non-agricultural resources	
		Expand the tourist sector	
		Encourage the sustainable use of offshore resources	
		Expand the fishery sector	

7. Implementation of National Projects

Project	Responsible Agencies
1. Implement forest replanting programs in areas that are currently under cultivation, have slopes with a gradient of over 60% and have been identified by the NBRO. Land that meets these criteria is located in the following Districts. <ol style="list-style-type: none"> Nuwara Eliya (15870 ha) Ratnapura (66780 ha) Kandy (32080 ha) Kegalle (18890 ha) Any additional land with that meets the above criteria will also be included in the program.	Ministry of Environment Ministry of Agriculture Ministry of Plantation National Building Research Organization Department of Forest Conservation
2. Provide facilities and amenities for ecotourism activities, including hotels, access roads, information centres etc, in areas: <ul style="list-style-type: none"> identified by the Ceylon Tourist Board and National Physical Planning Department and located in the fragile areas. 	Ministry of Tourism/Ceylon Tourist Board Provincial Councils Ministry of Environment National Physical Planning Department
3. Relocate settlements in areas vulnerable to natural disasters to risk free areas identified by Regional and Local plans	National Physical Planning Department Provincial Council Local Authorities
4. Prepare town plans for relocation of identified settlements in accordance with the guidelines prepared by the National Building Research Organisation <ul style="list-style-type: none"> Ginigathhena Haldummulla Nildandahinna These town plans will be completed within 5 years.	National Physical Planning Department Urban Development Authority Provincial Councils/Local Authorities National Building Research Organisation District Secretaries/Divisional Secretaries Relevant infrastructure agencies
5. Prepare zoning plans and development guidelines to guide new development in the fragile areas.	Ministry of Land/LUPP Department National Building Research Organization Provincial Councils/Local Authorities Secretaries/Divisional Secretaries
6. Prepare town development plans and zoning guidelines for Metro Regions, Metro Cities and District Capitals.	National Physical Planning Department Urban Development Authority Regional Planning Communities
7. Construct the following Railway lines: <ol style="list-style-type: none"> Matara – Batticaloa (via Hambantota, Monaragala, Oluvil and includes extension to Ampara) Kurunegala – Habarana (via Dambulla) Chilaw - Habarana 	Ministry of Transport
8. Construct the following Highways <ol style="list-style-type: none"> The Southern Expressway (Colombo – Matara) Extension of Southern Expressway (Matara – Hambantota – Monaragala) Kandy Expressway (Colombo – Kandy) 	Road Development Authority
9. Improve the minor road net work to increase access between rural areas and urban centres.	Provincial Councils
10. Establish 10 IT parks at Hambantota, Anuradhapura, Polonnaruwa, Dambulla, Trincomalee, Jaffna, Kandy, Battcoloa, Ampara, Nuwara Eliya	Ministry of Science and Technology
11. Prepare detailed plans and cost estimates for provision of following infrastructure facilities to Metro Regions and Metro Cities. <ol style="list-style-type: none"> Water Supply Sewerage treatment Electricity Supply Solid waste management Transport facilities 	National Water Supply and Drainage Board Ceylon Electricity Board Provincial Councils Ministry of Transport Ministry of Environment
12. Construct 12 fishery harbours at Arugam Bay, Point Pedro, Thoduwawa, Kandakuli, Chilaw, Dickwella, Ambalangoda, Dodanduwa, Kalametiya and Negombo.	Ministry of Fisheries.
13. Develop tourist related activities in the Eastern Coastal belt between Panama and Thiriyaya	Ceylon Tourist Board.
14. Establish rice based food processing industries in Anuradhapura, Polonnaruwa, Ampara and Hambantoa.	Ministry of Industries

Project	Responsible Agencies
15. Establish fish based food processing industries in proposed Fishery harbours	Ministry of Fisheries
16. Undertake actions identified by the Coastal Management Plan to prevent sea erosion in the following areas: a. Beruwala to Bentota b. Bentota to Robolgoda Headland c. Seenigama to Coral Garden Headland d. Coral Garden Headland to Dodanduwa	Coast Conservation Department
17. Implement the Coastal Conservation Management Plan	Coast Conservation Department
18. Construct an international port at Hambantota and a regional port at Oluvil.	Ministry of Ports
19. Improve the regional ports of Trincomalee, Kankasanturei and Galle.	Ministry of Ports
20. Construct airports at Mattala and Hingurakgoda	Ministry of Ports and Aviation
21. Improve Katunayake International airport	Ministry of Ports and Aviation
22. Establish a oceanic wave power generation plant at Tricomlee	Ministry of Power and Energy Ceylon Electricity Board
23. Establish a wind power generation plants at: a. Chilaw b. Nuwara Eliya c. Oluvil d. Mulativu	Ministry of Power and Energy Ceylon Electricity Board
24. Establish coal power plans at: a. Kalpitiya b. Hambantota	Ministry of Power and Energy Ceylon Electricity Board
25. Dredge reservoirs to increase their capacity for water supply and power generation	Ministry of Irrigation Ministry of Power and Energy
26. Undertake a feasibility study for establishing a oceanic security network within a specified distance	Ministry of Defence Ministry of Fisheries Natural and Aquatic Resources Agency
27. Study the global air traffic patterns to determine the best approach for integrating with the South Asian transport hubs	Airport and Civil Aviation Ceylon Tourist Board.
28. Undertake a technical and financial feasibility study to connect Sri Lanka to the Trans Asia Highway	Ministry of Highways Ministry Foreign Affairs Ports Authority Sri Lanka Railways
29. Submit area of territorial waters under international laws	Ministry of Foreign Affairs Natural and Aquatic Resources Agency
30. Exploit oil resources	Ministry of Power and Energy Natural and Aquatic Resources Agency
31. Undertake a feasibility study for a range of alternative energy sources and negotiate with industrialised nations to finance the energy program	Ministry of Power and Energy Natural and Aquatic Resources Agency Natural Resources Engineering and Science Authority
32. Research the effects of global warming and sea level rise and identify the areas that are likely to be affected. Prepare a strategy to mitigate identified impacts of global warming.	Ministry of Science and Technology National Physical Planning Department Meteorological Department

Implementation of National Projects

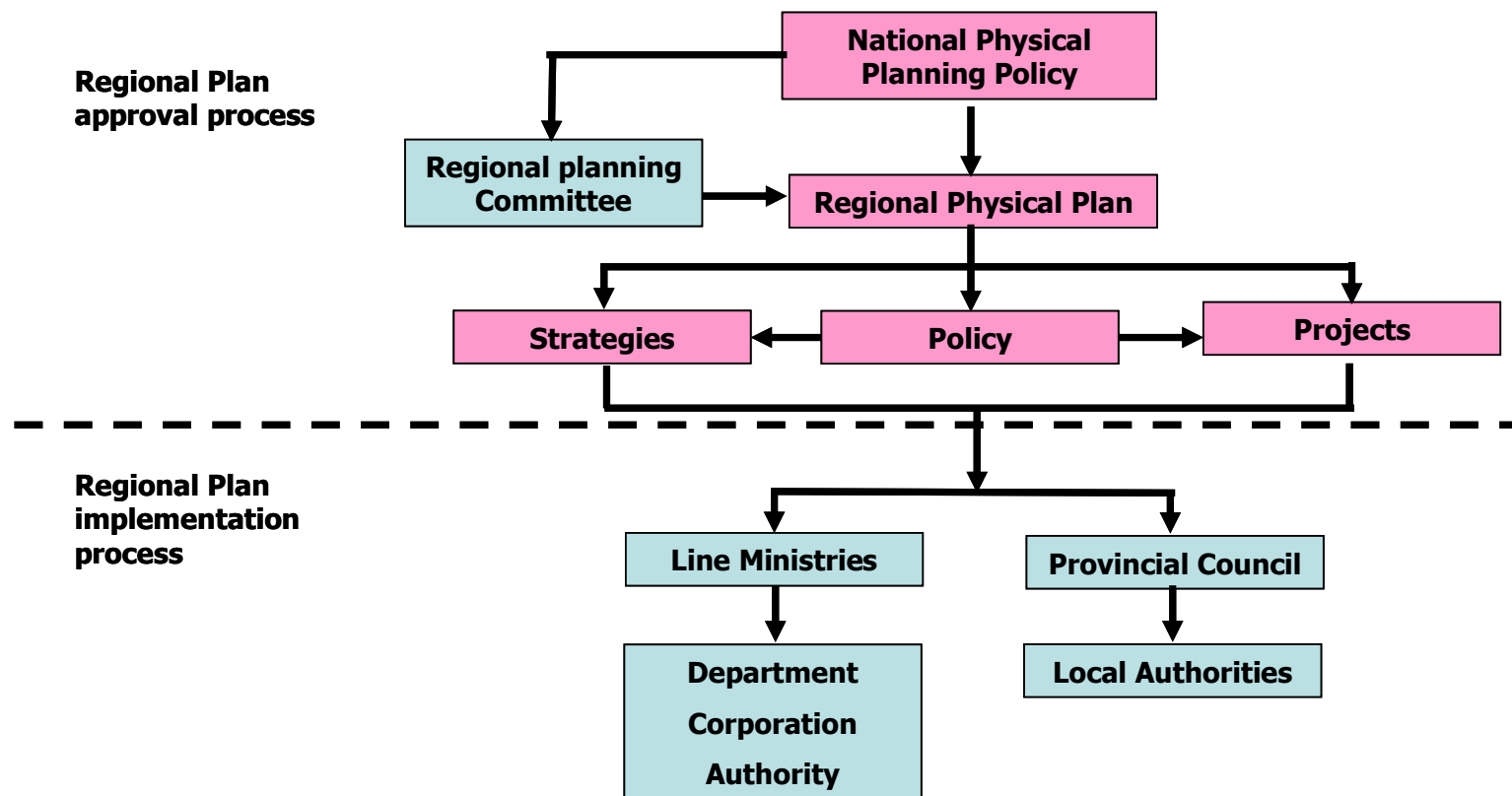
The success of the National Physical Plan lies in its implementation. Effective implementation requires cooperation of community, stakeholders and coordination of government activities, policies and plans. This will involve coordinating and reviewing a range of policies, plans, infrastructure and services across all Government sectors. Implementation of the National Physical Plan will occur through:

- the preparation, gazettal and implementation of Regional and Local plans;
- coordination of government policy; and
- projects.

Preparation, gazettal and implementation of Regional, District and Local Plans

As part of the Town and Country Planning Amendment Act No. 49 of 2000 the provinces were declared as regional development areas and directed to prepare a Regional Plan. The National Physical Planning Department will be responsible for ensuring that Regional Plans, District plans and Local plans reflect adopt the principles and strategies in their own planning. Consequently the implementation of the National Physical Plan relies on the preparation and implementation of the Regional, District and Local plans.

Figure 3: Regional Plan Implementation Process



Coordination of Government Policy

The policies in the National Physical Plan provide the framework for promoting and regulating integrated planning. The integrated nature of the National Physical Plan means that principles and strategies are implemented by a number of line ministries and specialist authorities. The National Physical Department has a key role in ensuring that any new or amended policy or plan of Government takes account of and is consistent with the National Physical Plan. In the instances where there is an inconsistency in policies, line ministries and specialist corporations may need to amend their legislation in consultation with the National Physical Planning Department. Any issues in this process will be resolved by the National Physical Planning Council. Figure 4 documents the process for implementing the strategies of the National Physical Plan.

Figure 4: Implementation Process for through Government Policy

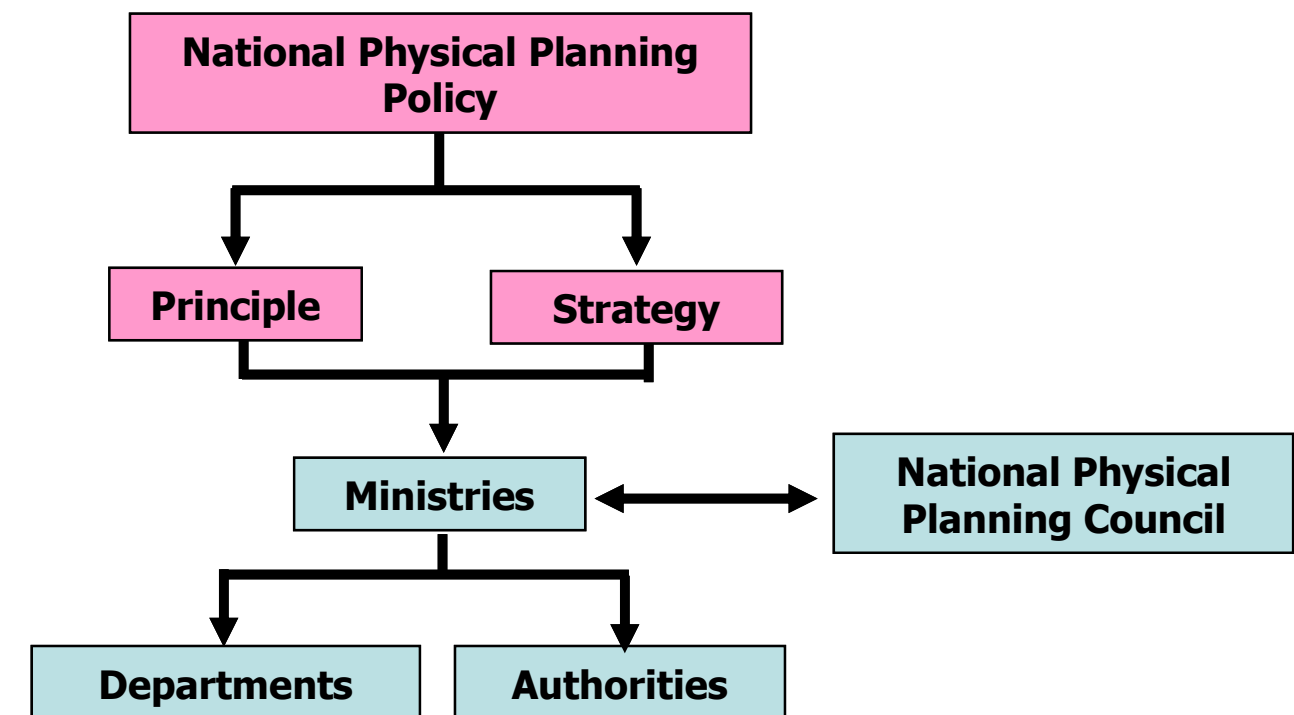
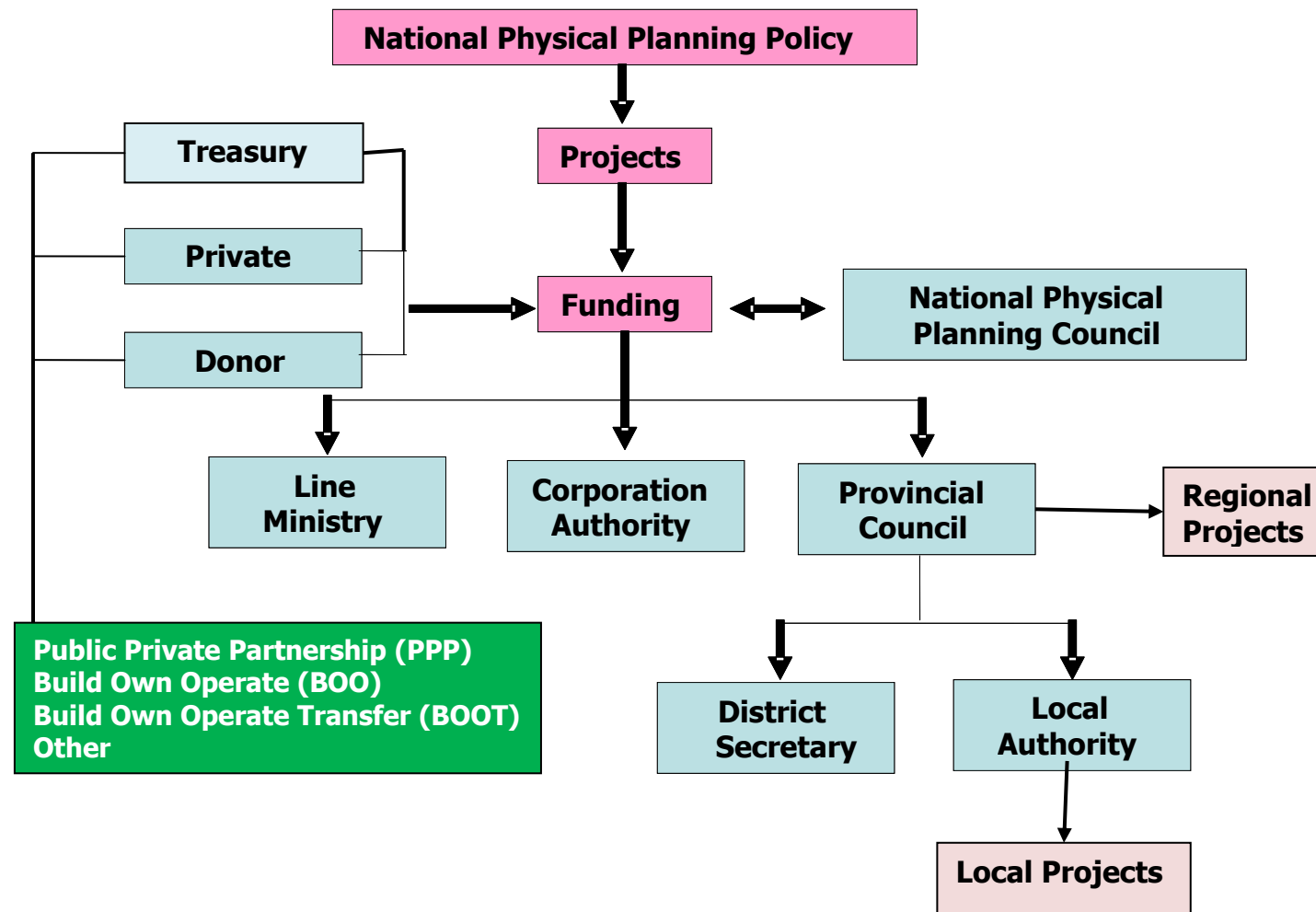


Figure 5: Project Implementation Procedure



Conclusion

Projects have been identified on the basis of following criteria:

1. Consistent with guiding principles
2. Achieve objectives
3. Implement policies and strategies

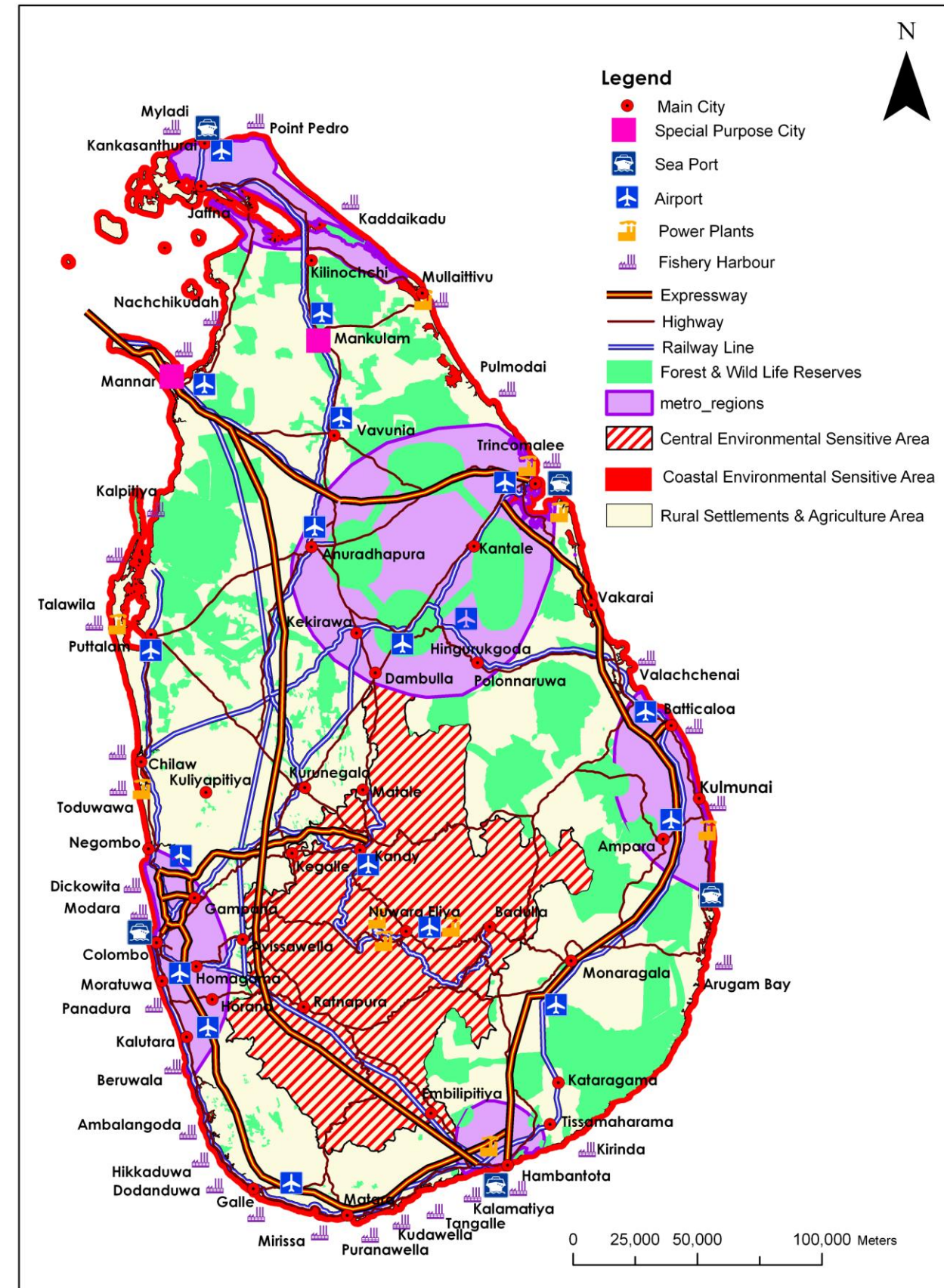
Projects form a key element of the implementation of the National Physical Plan. Projects include major projects undertaken by central agencies and local projects undertaken by line agencies. Some projects identified by the National Physical Plan may also be implemented by provincial, district or local government.

8. National Spatial Structure Plan

The National Physical Plan identifies the interrelationship between the fragile areas, Metro Regions, Metro Cities and their supporting infrastructure networks. Together this spatial structure will provide the means of achieving the key elements of the National Physical Planning Policy. The spatial pattern promoted by the National Physical Plan will provide the framework for the economic development of the whole of Sri Lanka, by protecting important environmental areas, encouraging urban centres that will be the focus of economic and social activity, and providing an infrastructure network that will support the settlement structure and economic activities. Together, these elements will contribute to the integration of communities, land use, transport and economic activity and reduce regional social and economic disparities.

The provision of international air and sea ports will assist in promoting Sri Lanka's role in the South Asian Region. In addition, domestic transport infrastructure such as road and rail will facilitate the demand for movement of goods and people. Proposed major transport infrastructure will be located outside the identified fragile area, in response to the importance of these sensitive areas as environmental, social and economic assets. The identification and protection of fragile areas contributes to a strong environmental sustainability component to the National Physical Plan and will enable all Sri Lankans to enjoy these areas, now and in the future.

Map 25: Spatial Structure Plan



APPENDIX A: Regional Structure Plans (examples)

1. Northern Province Regional Structure Plan

Scope

The scope of the Northern Province Physical Structure Plan will cover the following:

1. A Structure Plan to guide all development activities identifying cities, towns and urban service centres, settlement areas, highway/railway network, agricultural and conservation areas;
2. Interpretation and adoption of the National Physical Structure Plan in regard to the Northern Province;
3. Guidelines for development of cities and towns and identification of their roles in the national and regional hierarchy;
4. Planning of cities and infrastructure, environment and agriculture-irrigation locations;
5. Identification of major projects;
6. Identification of sources of funds and implementing agencies.

Background

Northern Province consists of Jaffna (166,930 ha), Mannar (199,600 ha), Mullaitivu (261,700 ha), Vavuniya (196,700 ha) and Killinochchi (63,530 ha) Districts covering an area of 884,460 ha, which represent 13.46 percent of the total landmass of Sri Lanka.

The population of the Northern Province stood at 1.13 million in 2004 according to the Northern Provincial Council.

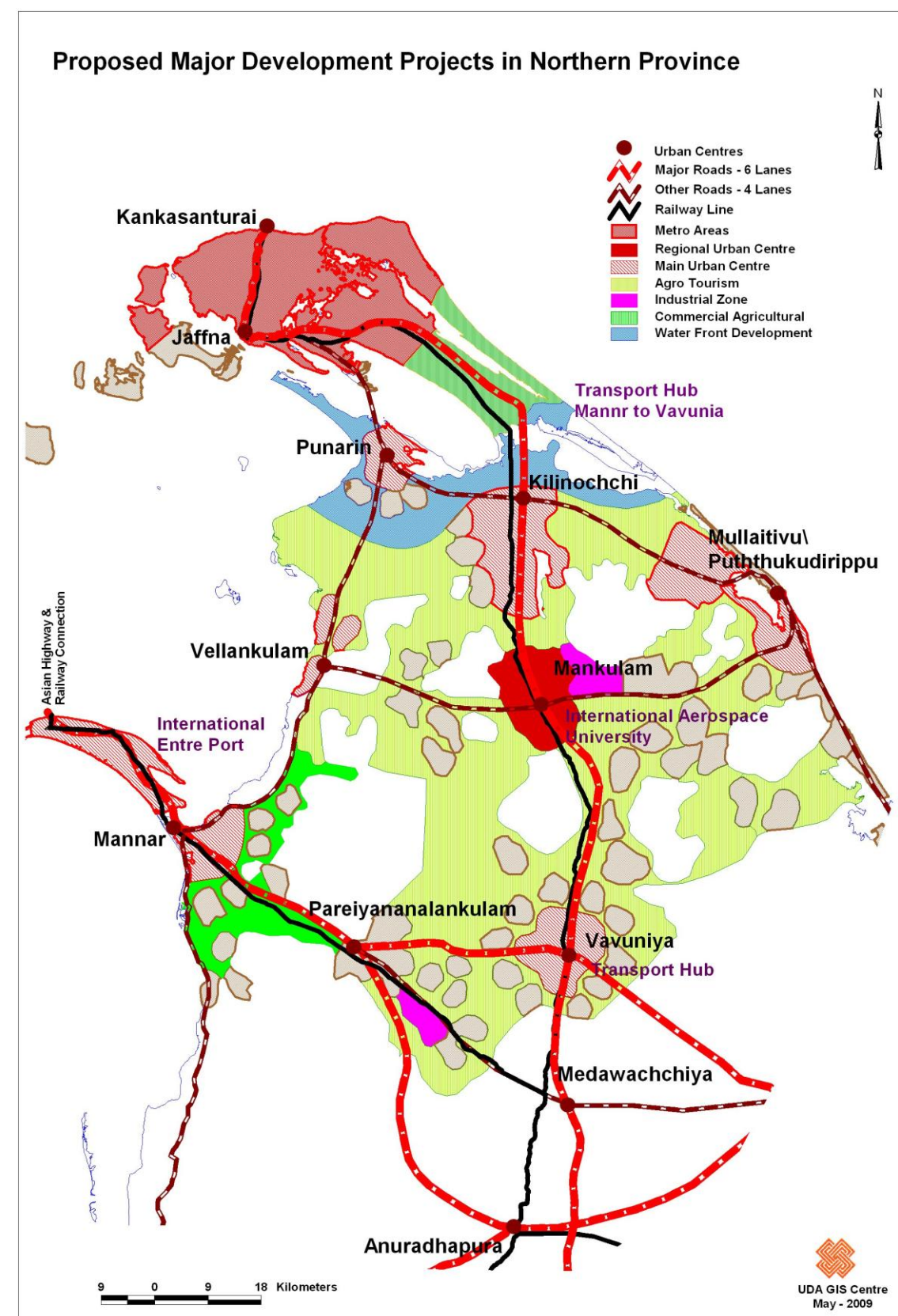
Northern Province Physical Structure Plan

The Northern Province Physical Plan is the plan that will have a rapid effect on the Northern Province, which will help to bring it up to the development levels of other regions: it will launch a sustainable development pattern that will make it one of the well balanced developed regions of the country.

The Physical Plan consists of 8 elements:

1. Asia Highway/Railway
2. The Urban Areas and Rural Settlements;
3. Road and Railway Network;
4. Conservations Areas;
5. Water Bodies;
6. Agricultural areas;
7. Industrial Sites
8. Inter – Nodal transport centres at Mannar and Vavuniya

North Province Physical Structure Plan:

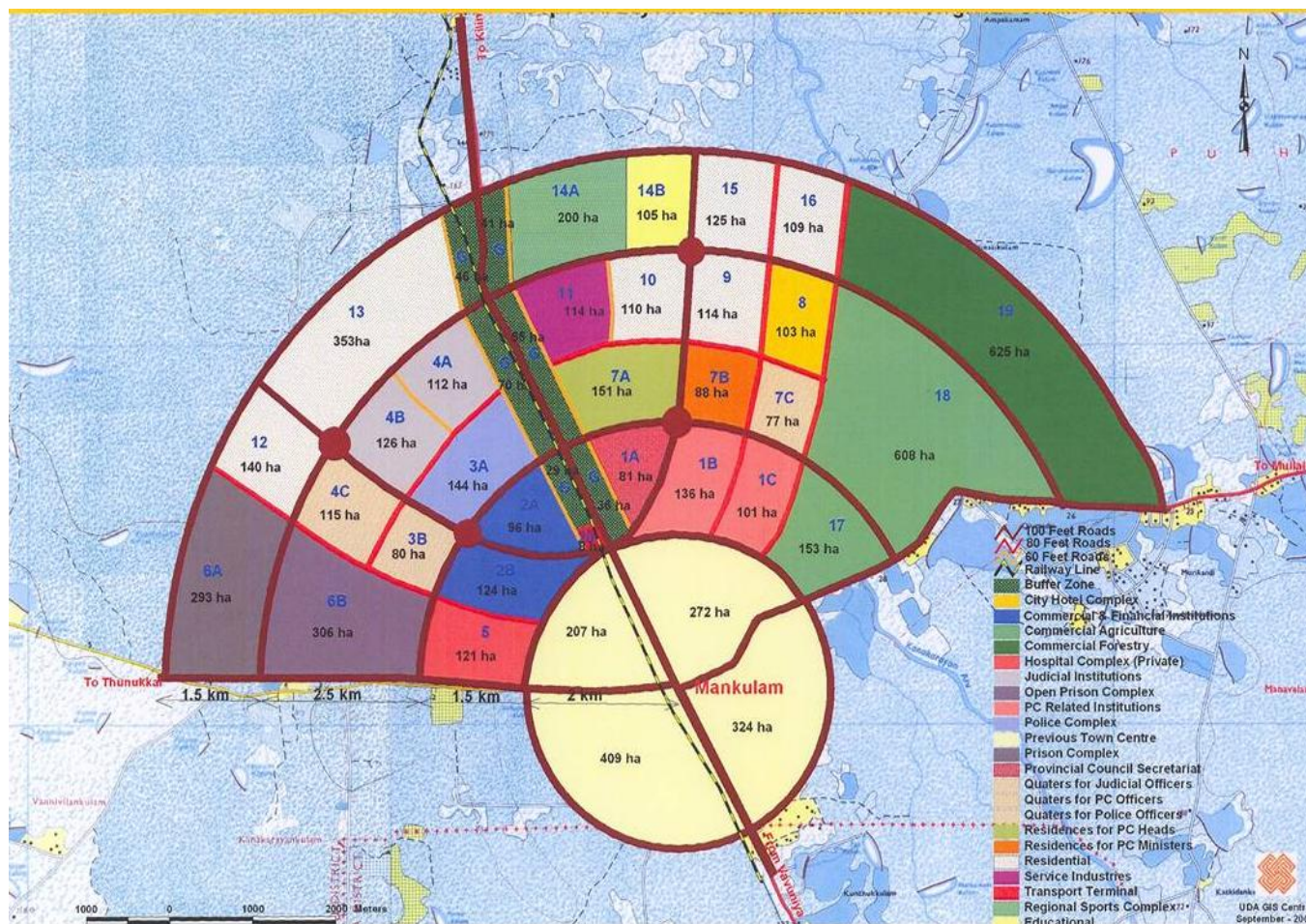


Mankulam City Development

The Northern Regional Structure Plan identifies a new spatial hierarchy structure with consideration for the future sustenance of the northern region. There is a need to identify administrative centres which fulfil the regional requirements as well as the national requirements with better service provisions, connectivity and better infrastructure. The location of Mankulam is a focal point which connects all parts of the country by having better road network.

Therefore Mankulam was selected as an Administrative Regional Centre of the northern region.

Proposed Mankulam Township Development Plan:



Objectives

To develop Mankulam city as an administrative centre while providing all required infrastructure and services.

Physical Infrastructure Development:

- Lay down new road network
- Provision of water supply network
- Provision of electricity network
- Housing schemes
- Improving or construction of schools, hospitals, post office and other social infrastructure facilities.
- Construction of administrative buildings (Provincial council head office and other social services providers regional head offices)

Infrastructure Development:

- Construction of 4 primary and secondary schools (Accommodate 50,000 students)
- Construction of town hall
- Construction of provincial council complex
- Playgrounds
- Regional police station complex
- Public library

Livelihood Development:

- Establish industries which utilizes local resources
- Establish vocational training centres

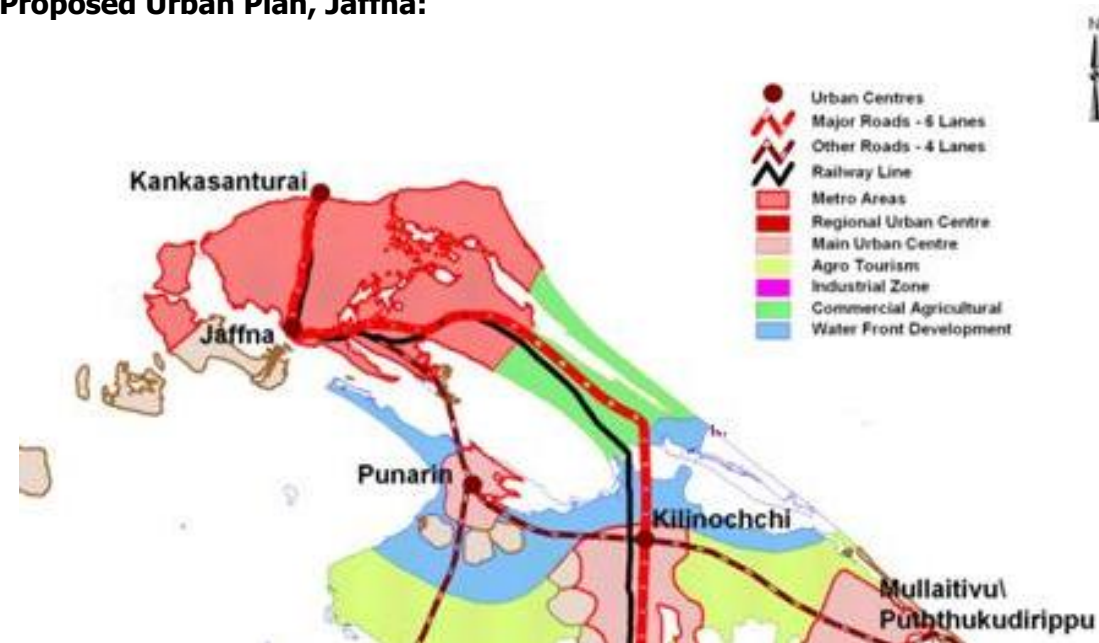
Social Development:

- Provision of playgrounds, recreational places, community centres, religious places
- Provisions of assistances for livelihood development

Jaffna City Development

Jaffna was known as distinct cultural centre of Northern part of Sri Lanka. National Physical Planning Department identified Jaffna as a Mega City in National Plan for 2030. In addition to that seven regional transportation routes connect town centre with other surrounding satellite town centres. The popular schools and Jaffna University are located in town. All of the physical infrastructure facilities are not in proper manner. Therefore, there is need to revitalize this infrastructure within town by providing all of the facilities. Revival of Northern Province considers the development of Jaffna as a fully fledged cultural and educational centre.

Proposed Urban Plan, Jaffna:



Objective

To revitalize Jaffna as the major centre it once was providing all required infrastructure and services.

Infrastructure Development:

- Improve road network
- Construction of Municipal Council and Town hall
- Reconstruction of Railway station & railway tracks
- Development of commercial complex
- Development of water based recreation and beautification of Vannan Kulam in town centre
- Development of Pullukkulam
- Improvement of sewerage and drainage system
- Upgrade of water supply network
- Upgrade of electricity network
- Providing telecommunication facilities
- Providing parking facilities

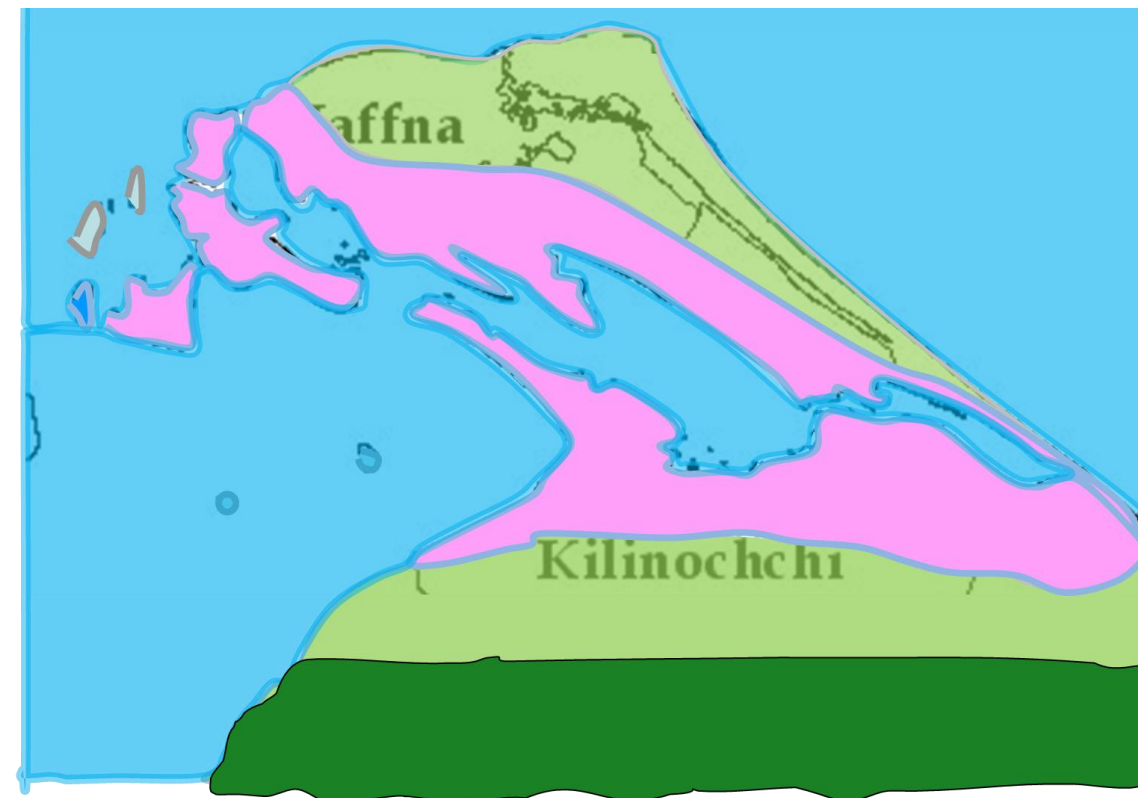
Social Development:

- Development of cultural centres
- Establishment of vocational training centre
- Providing community centre, cinema, conference hall, playground, museum
- Providing adult educational programmes
- Improving of Jaffna Teaching Hospital

Economic Development:

- Development of small scale fishing activities
- Development of storage facilities
- Providing fishing equipments

Proposed Water Front Development, Jaffna:



Mannar City Development

The transport hub development is main feature of the Mannar city development. Mannar is located very closed to India with minimum travelling distance. Asian super highway and Sethusamudra projects add more value to Mannar town and have a potential to act as an entre port connects the other ports of the country and India.

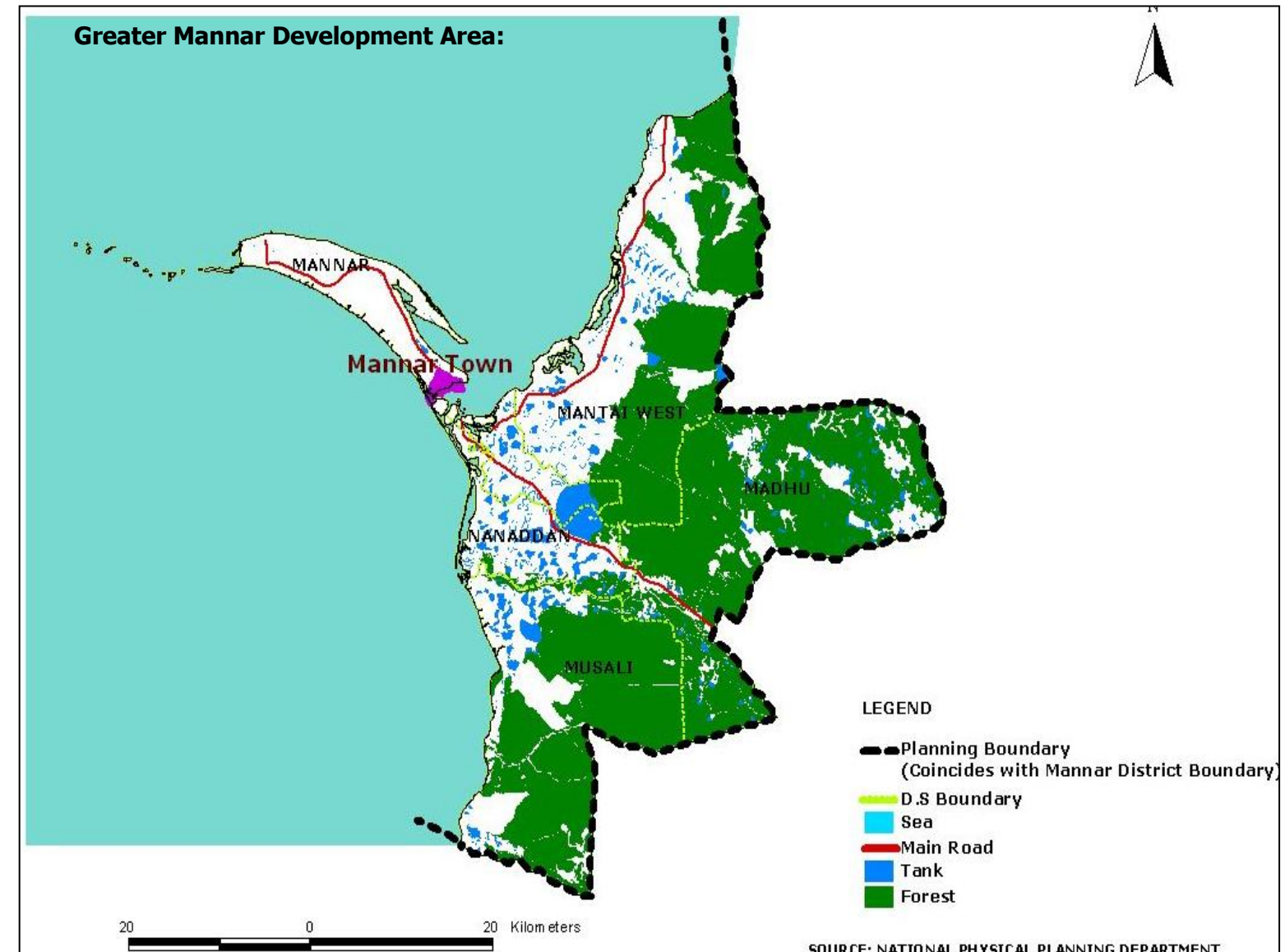
As a whole it would be:

- Gateway to Asia (Indo–Sri Lanka Bridge)
- Enter port (India and other ports of the country)
- Transport terminal (Including bus and railway terminals)

Therefore, it would attract more floating population such as tourist, business peoples and pilgrims comes from other countries through the Indo Sri Lanka, creates more demand for more accommodation places to be located in Mannar.

Objective

To develop Mannar as an International gateway hub of the country with connecting projects such as the Sethusamudram project and Asia super highway.



2. North Central Metropolis

The North Central Metropolis (NCM) is one of the 5 regions earmarked for concentrated development in the National Physical Plan.

North Central Metropolis Structure Plan

The Structure Plan of the NCM has 5 major components:

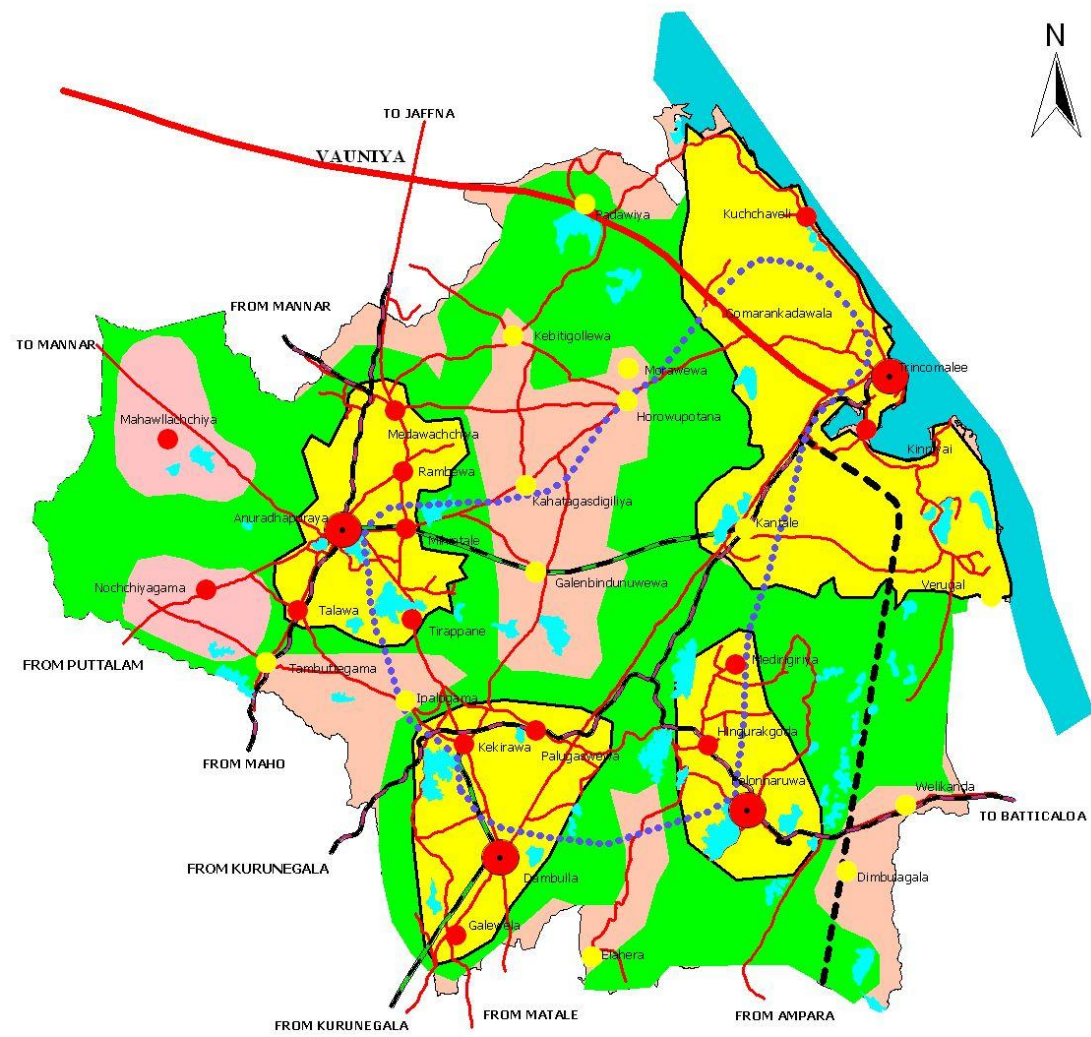
1. **Metro Cities:** These are conglomerations of towns with a central city. Four such Metro Cities have been identified: Anuradhapura, Polonnaruwa, Trincomalee and Dambulla. Inside the boundaries of Metro Cities are high density settlements, towns, agriculture areas, industrial areas, archaeological, forest and wildlife reserves. The total area of Metro Cities will be 23.8%.
2. **Urban area network:** There shall be an urban area network that serves the inhabitants at various levels. These areas include cities, towns and service centres. The service centres cater to the needs of the immediate surrounding rural areas at a basic level; towns do so at an intermediate level and cater to a wider range covering several service centres; cities afford urban amenities at the highest scale to the whole of the Metro City and beyond.
3. **Communication routes:** The urban areas are connected to each other by communication routes consisting of the following:
 - i. Major roads that connect Metro Cities with each other and with other cities and towns outside the NCM.
 - ii. Roads that connect towns and service centres.
 - iii. Roads that connect towns within Metro Cities.
 - iv. Local roads that serve the cities, towns, service centres and the rural hinterlands.
 - v. Railway that connects Metro Cities and towns those lie in its path.
 - vi. LRT network that connects Metro Cities.
 - vii. Sea Port at Trincomalee that connects it to other ports of Sri Lanka.
 - viii. Major air port at Hingurakgoda and local air ports at Anuradhapura and Trincomalee.
 - ix. The IT network that connects all parts of the NCM with each other and with all parts of the world.

4. **Protected Area Network:** This network consists of the following:

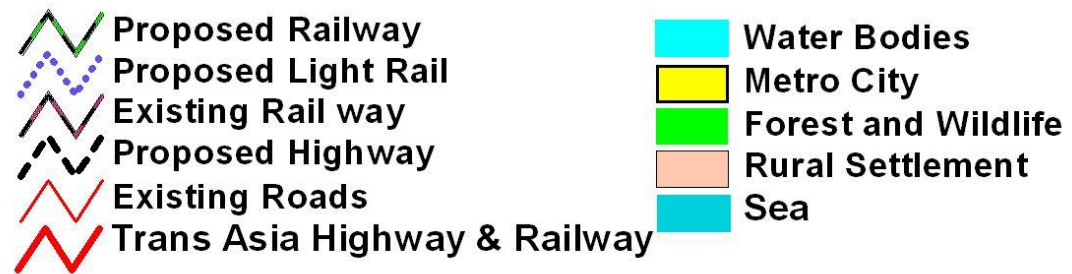
- i. Forest reserves and their buffer zones.
- ii. Wildlife reserves and their buffer zones.
- iii. Archaeological reserves and protected monuments.
- iv. Reservations and buffer zones of roads, railway, tourist reserves, coastal conservation zones.
- v. Irrigation network consisting of the water bodies (tanks, canals) and their reservations.

The total share of the protected area network will be 35.4%.

5. **Rural Areas:** The rural areas consist of low density village settlements, service centres, and agricultural areas, patches of forest and wildlife reserves. The total area of rural areas will be 40.8%.

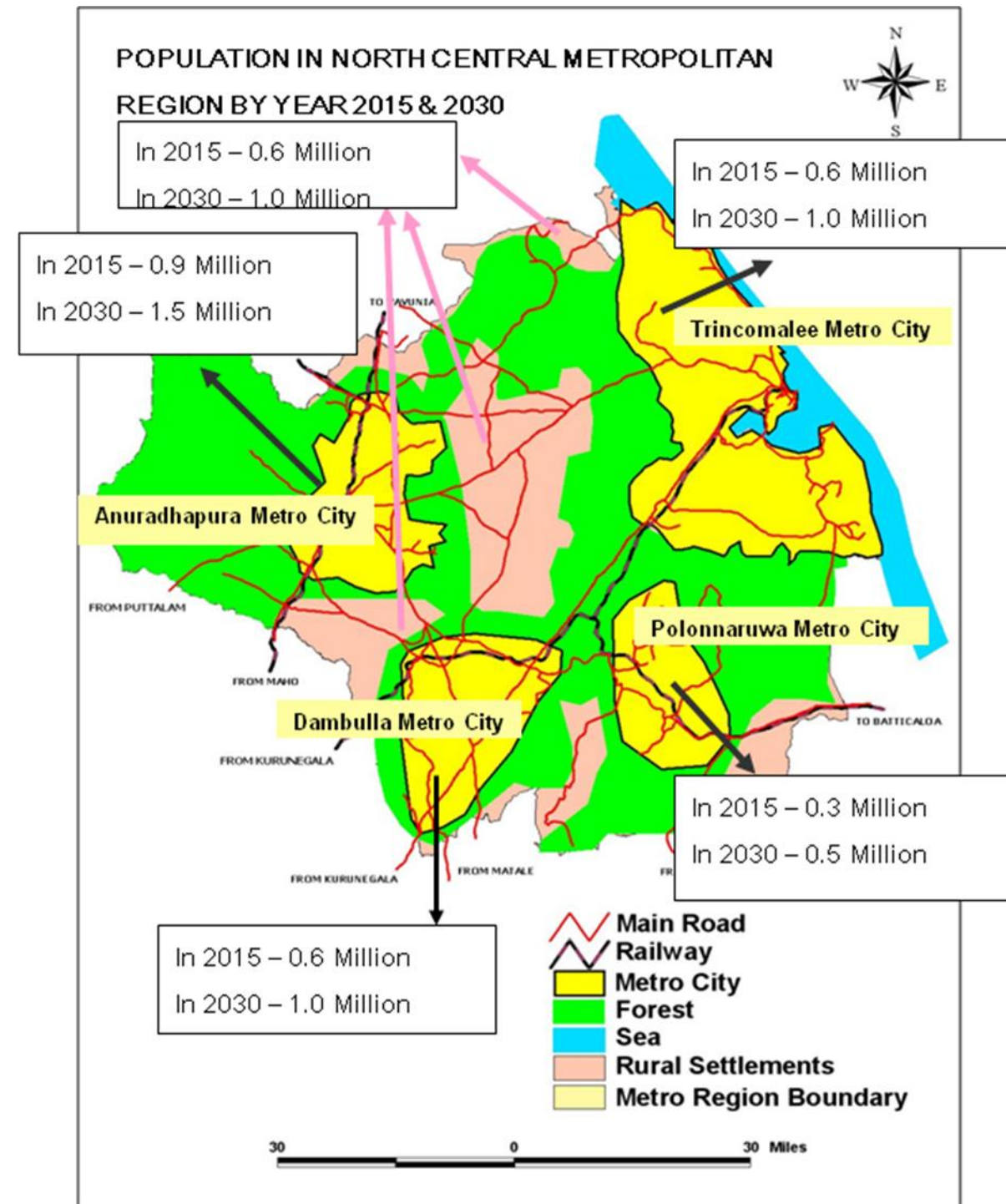


Structure Plan North Central Metropolitan Region

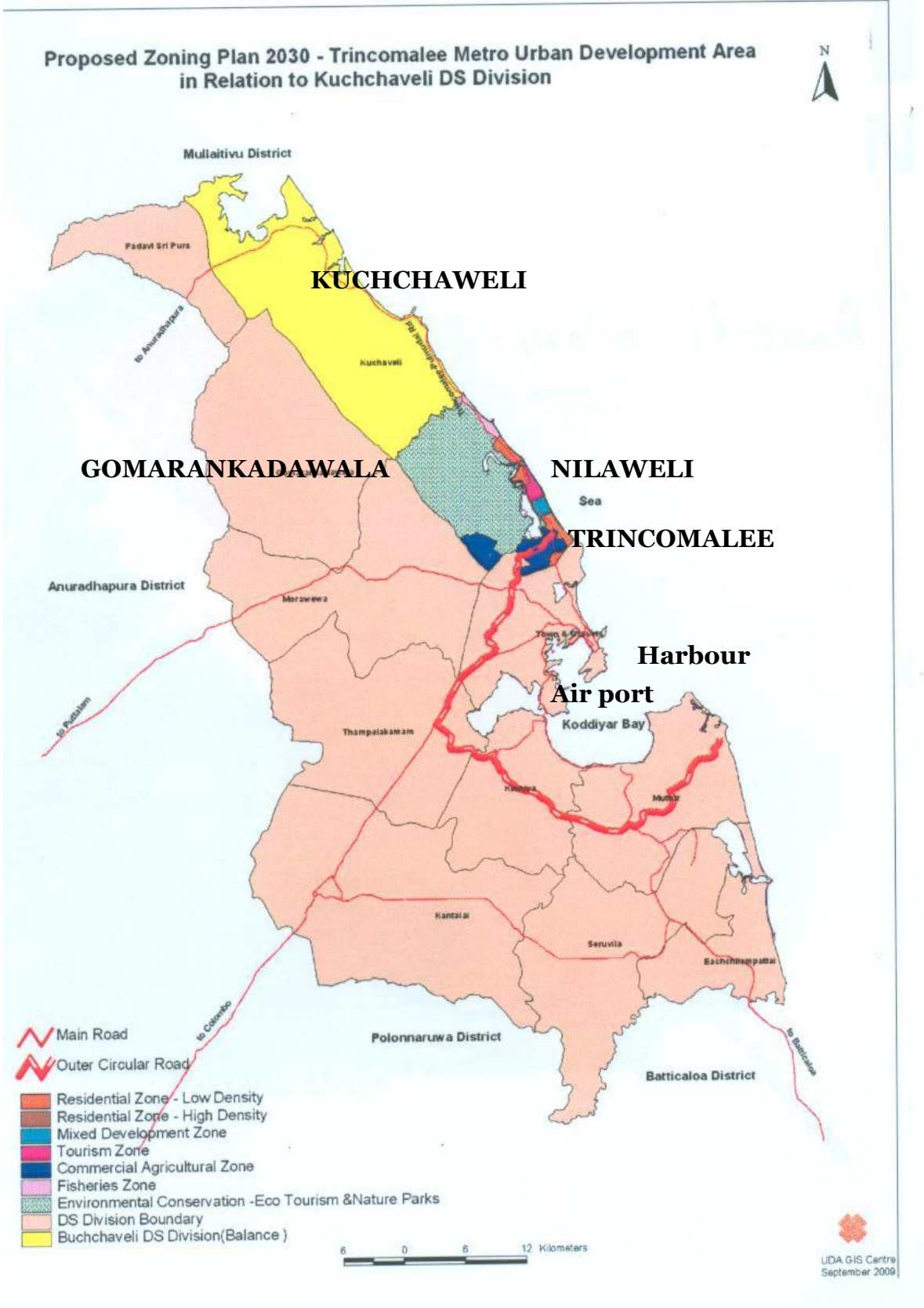


1: 900,000

Anticipated Population in Metro Cities & Rural Areas by 2015 & 2030:



Tourism Development in Trincomalee



APPENDIX B: Categorised Settlements in the Central Fragile Area

No.	Category	Locations			
a.	Settlements that can accommodate a small expansion the built up area in areas that are not environmentally sensitive or prone to landslides	i. Aranayake ii. Badulla iii. Balangoda iv. Bandarawela v. Bulathkohupitiya vi. Dehiowita vii. Deraniyagala viii. Digana ix. Galagedara x. Gampola xi. Hali Ela xii. Hanguranketa	xiii. Hasalaka xiv. Hatton-Dickoya xv. Kadugannawa xvi. Kahawatta xvii. Kalawana xviii. Kandy xix. Keppetipola xx. Kotagala xxi. Kotmale xxii. Kundasale xxiii. Laggala xxiv. Laxapana	xxv. Lindula xxvi. Lunugala xxvii. Madampe xxviii. Menikhinna xxix. Morawaka xxx. Nanu Oya xxxi. Naula xxxii. Neluwa xxxiii. Opanayake xxxiv. Passara xxxv. Pelmadulla xxxvi. Talawakele	xxxvii. Pundaluoya xxxviii. Ragala xxxix. Rakwana xl. Rattota xli. Thalathuoya xlii. Ukuwela xliii. Urubokka xliv. Welimada xlv. Wategama xlvi. Yatiyantota
b.	Settlements that cannot expand the built up area due to the environmental sensitivity and vulnerability of landslides of the surrounding area:	i. Deniyaya ii. Diyatalawa iii. Geliyoa iv. Haputale v. Maskeliya vi. Nawalapitiya	vii. Nivithigala viii. Nuwara Eliya ix. Pusellawa x. Ratnapura xi. Udapussellawa xii. Ulapane		
c.	Settlements that should be moved due to high vulnerability to landslides:	i. Ginigathhena ii. Haldummulla iii. Nildandahinna			

Glossary

Access Restricted Highway - limited opportunities to enter and exit the highway are provided to improve travel speed and minimise interaction between local and regional traffic.

Biodiversity - the diversity of plant and animal species in an environment.

Character - The combination of qualities or features that distinguishes one urban area from another.

Compact urban form - involves development principles such as the promotion of urban regeneration, the revitalisation of town centres, restraint on development in rural areas, higher densities, mixed-use development, promotion of public transport and the concentration of urban development at public transport nodes

Counter magnet - one of the objectives of the Metro Cities proposed in the National Physical Plan is to provide alternate centres for residential and employment growth, and the provision of social and economic infrastructure. In the future, this is intended to create more balanced population dispersal across Sri Lanka and reduce regional economic and social disparity.

Density (population) - population density is the number of persons per unit of area in a city or rural area.

District City – the capital of each district which provides the focus for district level government services and a range of higher order services.

Economic gateways - Economic gateways are the locations which link the domestic activity centres internally and internationally, and can include airports and seaports

Ecosystem - an ecological community together with its environment, functioning as a unit. Ecosystems are characterised by flow of energy through food webs, production and degradation of organic matter, and transformation and cycling of nutrient elements.

Eco-tourism - travel to destinations where the flora, fauna, and cultural heritage are the primary attractions. Many global environmental organisations and aid agencies favour ecotourism as a vehicle to sustainable development.

Exclusive Economic Zone - an area along a country's coastline to which a country claims exclusive rights for economic activities

Flood prone areas – land that may be inundated by water, flood prone areas are often identified as land below the 1 in 100 year flood line or the building line.

Global warming - an increase in the average temperature of the earth's atmosphere, especially a sustained increase sufficient to cause climatic change

Granary areas – land that is used as paddies for the production of rice.

Hydropower - hydroelectric power, a form of energy generated by the conversion of free-falling water to electricity

Inter-city - the connecting of two or more cities. For instance an inter-city bus service operates between separate cities.

Intra-city - connections internally within a city. For instance an intra-city bus service operates only within the city.

Metro City - the National Physical Plan proposes metropolitan cities which are dispersed across the country. A Metro City is generally expected to have a population of 1 million people and provide the highest order social and economic infrastructure. A Metro City has a high quality of life for its inhabitants and will be the focus for cultural, government, financial and educational activities.

Metro Region- a group of urban centres linked by public transport. Each Metro City and urban centre has its own character and identity and is surrounded by rural activities and open space. Combined, the population of the metropolitan area supports a large range of employment, educational, social and recreational opportunities.

Multilateral - involving many nations working together, for instance in trade.

Multi-modal - involving several forms or modes of transport, including rail, bus, air and sea based travel

Physical infrastructure - the roads, rail lines, power-generating facilities, and telecommunications networks that make transport and trade between people easier

Rain water harvesting - the collection and storage of rain from roofs or from a surface catchment for future use. The water is generally stored in rainwater tanks or directed into mechanisms which recharge ground water.

Regional disparity - the spatial distribution of economic and social imbalances

Renewable energy - Energy obtained from sources that are essentially inexhaustible, unlike, for example, the fossil fuels, of which there is a finite supply. Renewable sources of energy include wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Ribbon development - building houses along the edges of roads either between or radiating out from a town

Settlement pattern - the spatial distribution of residential activity across a defined region at a given moment in time

Slopes with a gradient of 60 degrees - land that has a gradient of 60 degrees from horizontal.

Social infrastructure - refers to the infrastructure required for social development including health facilities such as hospitals and education facilities such as schools and universities

Strategic Environmental Assessment (SEA) - is a system of incorporating environmental considerations into policies, plans and programmes. It is sometimes referred to as Strategic Environmental Impact Assessment.

Sustainable development - development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Water supply catchment - area drained by a stream or other body of water. The limits of a given catchment area are the heights of land, often called drainage divides, or watersheds, separating it from neighbouring drainage systems.

Background Papers

The National Physical Planning Policy and National Physical Plan together form the key document that promotes and regulates integrated planning of physical, environmental economic and social aspects of land in Sri Lanka. During the preparation a number of research reports were prepared. These reports are the background documents that support the National Physical Planning Policy and Plan and are as follows:

- National Physical Planning Policy Volume I: Policies, September 2002;
- National Physical Planning Policy Volume II: Detailed policy report, September 2002;
- National Physical Planning Policy Volume III: Defining spatial units for implementing the National Physical Planning Policy, September 2002;
- National Physical Planning Policy Volume IV: Resource base for the preparation of the National Physical Planning Policies, September 2002;
- Protected Area Network: Areas identified for protecting under different categories, November 2005;
- Fragile Area: Proposed Conservation Strategy, May 2005;
- Policies prepared by sectoral agencies that are relevant to the National Physical Plan, November 2006;
- Physical Planning Guidelines and Project Proposals for the 'Vulnerable' Coastal Zone of Sri Lanka, January 2005;
- Coastal Management Plan, 2004.

Acknowledgements

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