

Sri Lanka's Middle Path to Sustainable Development

through

'Mahinda Chintana - Vision for the Future'

**Country Report of Sri Lanka
United Nations Conference on Sustainable Development / (Rio +20)
20-22 June 2012, Rio de Janeiro, Brazil**

SUSTAINABLE DEVELOPMENT DIVISION
MINISTRY OF ENVIRONMENT - SRI LANKA
June 2012

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Sustainable development ensures the prosperity of the earth: the cover page describes the importance of interlinking the land and the ocean ecosystems for achieving sustainable development and conserving inland ecosystems as well as enriching the ocean and marine ecosystems.

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Message of H.E. the President of Sri Lanka



The United Nations Conference on Sustainable Development - Rio+20 - is a significant step in the global initiative for nature friendly progress. Following the Rio Principles or Agenda 21 adopted at the Rio Earth Summit 1992 we have now moved to building stronger partnerships among countries and major stakeholder groups on the need for sustainable development.

Sri Lanka is fortunate to be associated with these new trends in protection of the environment and the natural assets of our planet, as we pursue the path of development in harmony with nature. In these tasks we draw much from our past that has established important traditions in the care and protection of nature and the environment.

The Mahinda Chintana - Vision for the Future, which is the development policy of our government, gives the highest priority to all aspects of environmental protection, caring for nature in the move towards sustainable development in all aspects of social and economic progress.

Our country is now in a better position to pursue these goals in the context of peace that has been restored and the new moves towards social and communal harmony, contributing to governance that is fair and just by the environment and nature.

Sri Lanka looks forward with much expectation to the deliberations of this Rio+20 Conference which will take forward our commitment towards global sustainable development together with all countries that recognize the importance of environmental protection and value the assets of nature.

I wish this Conference every success in the united quest for global sustainability, and trust it will show the path for further progress in this urgent need for a proper and balanced development that does not exploit nature to the point of destruction. May the cause of global sustainability be heard the world over.

A handwritten signature in black ink, which appears to read 'Mahinda Rajapaksa'.

Mahinda Rajapaksa

The President of Democratic Socialist Republic of Sri Lanka



Message of the Prime Minister of Sri Lanka

The United Nations Conference on Sustainable Development which will be held in Rio de Janeiro, Brazil in June this year (2012), is indeed a landmark event on global sustainability in redirecting our common endeavors at harmonizing environment and development nationally, regionally and globally.

Sustainable Development is nothing new to Sri Lanka. It is deeply rooted in our society as a way of life and as an integral part of our economic pursuits. The unique hydraulic civilization which flourished for over 1500 years was the high watermark reached by our forefathers in applying ecological checks and balances to counter nature's adverse interventions.

Sustainable development is a process. There are mainly three conditions to be satisfied before the process is set in motion; namely, changes in thinking, deciding and executing. In thinking, we have to break away from old concepts, attitudes and approaches. Today, our understanding of human development is materialistic. We should now change the direction of our thinking to higher realms of moral and spiritual upliftment.

Establishment of an institutional framework for sustainable development is the prime important strategy to achieve its goals and objectives. Sustainable institutions are indispensable providing sound organization, management and motivation to cope with countervailing process in different times. By removing counterproductive traits ingrained in the administrative machinery, a high degree of congruence in policies, programmes and implementation could be achieved to mitigate the damage caused to the environment through incorrect policy regimes.

I find the Country Report of Sri Lanka to Rio+20 Conference "Sri Lanka's Middle Path towards Sustainable Development, through 'Mahinda Chinthana - Vision for the Future'" is a remarkable and comprehensive document which described the national efforts that have been taken during the past 20 years to achieve the sustainable development goals and its' achievements.

It is my belief that the global community gather in Rio de Janeiro will find a concrete solution for multiple global crises and the sustainability of our mother-earth.

A handwritten signature in black ink, appearing to read 'D.M. Jayarathna'.

D.M. Jayarathna

The Prime Minister of Socialist Republic of Sri Lanka

Foreword



Twenty years ago in 1992, when the international community gathered in Rio de Janeiro, Brazil, for the United Nations Conference on Environment and Development which is known as the “Earth Summit” expectations were raised and commitments made, anticipating change in how countries the world over manage environmental issues together with economic development. That landmark event put forward the issue of sustainable development backed by the document of “Our Common Future”, the report of the World Commission of Environment and Development. This year, in 2012, when the global community will gather at the same place, Rio de Janeiro, for the United Nations Conference on Sustainable Development (Rio+20) to evaluate where we stand today and to decide the kind of future that we wish to have, it would be under significantly different circumstances than in 1992.

Despite the remarkable achievements made during the past twenty years on sustainable development, critical problems such as depletion of natural resources, imbalances of food security, poverty, energy, water and climate change are yet to be resolved, while new problems such as financial and economic crises are emerging globally. Negative impacts of these issues are spreading worldwide irrespective of their origins. In this context, none of the countries will be able to resolve these problems in isolation.

Despite these external forces, Sri Lanka was able to make significant achievements in the path of sustainable development. Solving the internal conflict that prevailed in the North and the East for nearly 30 years paved the way to a significant extent to enable this journey towards sustainable development. High economic growth in the country is expected which will enable the government to improve the standard of living of all the communities, while conserving its natural resource base.

The document, “Sri Lanka’s Middle Path towards Sustainable Development, through ‘Mahinda Chinthana - Vision for the Future’” presents the achievements we made during the past twenty years playing our role as a member of the global community and indicates our way forward in our journey of sustainable development. Successful implementation of the strategies proposed needs mutual understanding of the global community on the need to have equitable access to knowledge and transfer of technology to achieve sustainable and equitable development of the country.

The Rio+20 Conference is an unprecedented opportunity for the global community to reaffirm the Rio Principles and take collaborative decisions to further mainstream sustainable development at all levels through integrated approaches, incorporating economic, social and environmental aspects and recognising their inter-linkages, that are minimum requirements to ensure global sustainability.

I take this opportunity to express my sincere gratitude to all the stakeholder ministries and other institutions and all other partners for playing their role and providing valuable information to develop this document.

A handwritten signature in black ink, appearing to read 'Anura Priyadarshana Yapa'.

Anura Priyadarshana Yapa M.P.
Minister of Environment



Preface

Sri Lanka has a centuries-long tradition of caring for the environment and conserving its natural resources. Adopting simple lifestyles and adhering to a “middle path” in using nature’s resources, supported by religious beliefs, was ingrained among the people.

In modern times, with the increasing trends of globalisation, unlimited profit-oriented marketing strategies, and an increasing human population, sustaining the traditional practices of caring for the environment poses a challenge to Sri Lanka. The present multiple global crises related to finance, economy, scarcity of natural resources, and the many facets of environmental damage provide ample evidence of the need to adhere to sustainable production and consumption leading to sustainable lifestyles. In today’s context, no country is able to address these problems in isolation.

This document, Sri Lanka’s Middle Path towards Sustainable Development, through “Mahinda Chinthana – Vision for the Future”, is the country report prepared for the United Nations Conference on Sustainable Development (Rio +20) to present the action taken by Sri Lanka during the past twenty years in moving towards achieving sustainable development, and to indicate our way forward.

Since 1992, Sri Lanka has made significant progress by establishing new institutions, strengthening existing institutions, and promulgating environmental legislation in line with the Rio Principles. Inter-agency coordinating mechanisms were also developed to facilitate mainstreaming environmental concerns in the development process. Development of the National Action Plan for Haritha (Green) Lanka programme and establishment of the National Council for Sustainable Development with the highest political leadership to administer the programme, are two key examples. It is noteworthy that Sri Lanka, through its development programmes, has achieved social indicators comparable to that of developed countries, with a per-capita income that is many times lower.

In the aftermath of a nearly 30-year long internal conflict, the government has two major challenges: (1) ensuring economic prosperity in the country and ensuring that the benefits filter down to all Sri Lankan people and (2) laying the foundation for long-term sustainable development to ensure the quality of life of the people, and that the environment is protected. These challenges must be met in the face of a growing population and a globally shrinking environmental space.

Political commitment and positive decision-making by the global community at Rio+20 can provide valuable support to countries such as Sri Lanka in continuing to pursue a course of development with environmental care.

I take this opportunity to express my sincere gratitude to all the stakeholder ministries and other institutions for providing valuable information to prepare this document. The service rendered by the Sri Lanka National Report Writing Team is also noted with high appreciation.

A handwritten signature in black ink, appearing to read 'B.M.U.D. Basnayake'.

B.M.U.D. Basnayake
Secretary
Ministry of Environment



Acknowledgement

At the outset, our great appreciation is extended to Hon. Anura Priyadarshana Yapa, Minister of Environment for the leadership and constructive guidance provided for the preparation of Country Report of Sri Lanka “Sri Lanka’s Middle Path to Sustainable Development through Mahinda Chintana - Vision For the Future” for the United Nations Conference on Sustainable Development (Rio+20). Also, valuable directives and enormous encouragement given by Hon. A.R.M. Abdul Carder, Deputy Minister of Environment during the preparation process of this Report are greatly appreciated.

The productive guidance and invaluable inputs provided by Mr. B.M.U.D. Basnayake, Secretary, Ministry of Environment and Mr. Gamini Gamage, Addl. Secretary (Environment and Policy) , Ministry of Environment to prepare this report are deeply appreciated. Our special gratitude to Dr. (Ms.) L.P. Batuwitage, former Addl. Secretary (Environment and Policy) / the Advisor to the Ministry of Environment and Prof. W.L. Sumathipala, former Director of Climate Change and Ozone Unit/Senior Technical Advisor on Climate Change and Ozone, for their numerous support and valuable comments provided throughout the preparation of the Country Report of Sri Lanka.

Further, our acknowledgement is extended to large number of stakeholders participated in the meetings and workshops representing Ministries, Departments, Intergovernmental Organisations, Civil Societies, Youth Groups and Academic Professionals to enrich the report providing their expertise, information and data. We offer our grateful appreciation to the EML Consultants who undertook the challenge of preparing this report within a period of short time.

We greatly appreciate and acknowledge the United Nations Development Programme (UNDP) for the continuous encouragement and the financial assistance provided for the preparation of this report. In this connection, Dr. Ananda Mallawatantri, Assistant Country Director and Team Leader Energy, Environment and Disaster Management of UNDP in Sri Lanka, is deeply acknowledged and appreciated his continuous support and enormous encouragement to develop this document in the framework of sustainable development.

Finally, it is recorded the fullest support given by the staff of the Sustainable Development Division in this tireless exercise who involve in the whole process of preparation of this document, especially Ms. Pathma Abeykoon, Mr. Asanka Wijewardana, Ms. Navoma Karunarathna, Ms. Hemamali Herath, Ms. Ambika Tennakoon, Ms. Pradeepa Ranaweera and Ms. Chandima Mohottige.

Dr. R.D.S. Jayathunga
Director (Sustainable Development)
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ABBREVIATIONS

ACCA	Association of Chartered Certified Accountants
AirMAC	Air Resource Management Centre
BCAP	Biodiversity Conservation Action Plan
CBO	Community Based Organization
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
CFL	Compact Fluorescent Lamps
CI	Conservation International
CMA	Colombo Metropolitan Area
CMRP	Colombo Metro Regional Plan
DFAR	Department of Fisheries and Aquatic Resources
DOA	Department of Agriculture
DPRD	Disaster Preparedness and Response Division
DS	Divisional Secretariat
DSM	Demand Side Management
DWC	Department of wildlife Conservation
EEZ	Exclusive Economic Zone
ESCOs	Energy Services Companies
ESD	Education for Sustainable Development
ESDP	Energy Services Delivery Project
FMPP	Fisheries Management and Protection Program
GBCSL	Green Building Council of Sri Lanka
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GN	Grama Niladari Division
GOSL	Government of Sri Lanka
ICJ	International Court of Justice
ICT	Information and Communications Technology
IDP	Internally Displaced People
IPCC	International Panel for Climate Change
IUCN	International Union for Conservation of Nature
IUU	Illegal Unreported and Unregulated
MC	Municipal Councils
MCGs	Mahinda Chinthana Goals
MCUDP	Metro Colombo Urban Development Project
MDGs	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MoE	Ministry of Environment
MES	Multilateral Environmental Secretariat
MIC	Ministry of Industry and Commerce
MOA	Ministry of Agriculture
MOH	Medical Officer of Health
MOP	Ministry of Plantation
NAP	National Action Programme
NARA	National Aquatic Resources Agency

NCPC	National Cleaner Production Centre
NCSD	National Council for Sustainable Development
NEREC	National Education Research and Evaluation Centre
NGOs	Non-Governmental Organization
NGRS	National Green Reporting System
NRE	New Renewable Energy
NWSDB	National Water Supply and Drainage Board
OFC	Other Field Crops
PPP	Public Private Partnership
RCL	Regional Centre for Lighting
RERED	Renewable Energy for Rural Economic Development
SAARC	South Asia Association of Regional Cooperation
SACEP	South Asian Co-operative Environment Programme
SACOSAN	South Asian Conference on Sanitation
SAM	Special Area Management
SCCA 2	Sustainable Colombo Core Area
SCP	Sustainable Consumption and Production
SDGs	Sustainable Development Goals
SLCF	Sri Lanka Carbon Fund
SLIC	Sri Lanka Inventors Commission
SLITHM	Sri Lanka Institute of Tourism and Hotel Management
SLSSD	Sri Lanka's Strategy for Sustainable Development
SLTDA	Sri Lanka Tourism Development Authority
SMEs	Small Medium Enterprises
SPPA	Standardized Power Purchase Agreement
TMC	Thousand Million Cubic ft.
TRIPS	Trade Related Aspect of Intellectual Properties
TRU	The Tsunami Rehabilitation Unit
UGSP	Urban Governance Support Project
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
USGBC	US Green Building Council
WSSD	World Summit on Sustainable Development

EXECUTIVE SUMMARY

The year 2012 marks twenty years since *The Earth Summit*, held at Rio de Janeiro where 172 participating countries reached the global agreement, *Agenda 21 - Action Plan for Sustainable Development*. The Government of Sri Lanka has strongly reaffirmed its commitment to the Rio principles and the implementation of *Agenda 21*. Sri Lanka has already recognised that the implementation of the outcome of the summit would bring lasting benefits to all, particularly by sustainable management of resources. The need for addressing social security issues, changing unsustainable patterns of production and consumption, addressing malnutrition and non-communicable disease related issues and protecting and managing the environment and natural resources, have been placed high in the country's development agenda as the key factors that are vital to achieving sustainable development. Implementing such programs has focused more on the welfare of women, youth, children and other vulnerable groups.

In keeping with the salient objectives of the Rio + 20 Sustainable Development Summit, the Sri Lanka Country Report aims at presenting Sri Lanka's contribution to sustainable development. It highlights the strategies of national sustainable development for the next five years. This report has been prepared in line with objectives of the summit as an incentive to harness renewed political commitments to sustainable development, to assess the progress and gaps in meeting the agreed commitments and to address new and emerging challenges.

The concept of sustainability has been in practice in all aspects of development in the country since historical times. Sri Lanka has become one of the first

developing countries to invest in human resources and promote gender equality, since gaining independence in 1948. In terms of the UN Human Development Index, Sri Lanka is among the best in South Asia, with impressive literacy rates and good health indices.

Under the present political leadership, the country's development context has changed dramatically in recent years. The economy grew by 8.2% in 2010, and it is expected this trend to continue. The country's per capita income has increased from US\$1062 in 2004 to US\$2839 in 2011. In view of this remarkable economic growth, Sri Lanka has been classified as a middle-income country.

The government of Sri Lanka has taken a number of innovative initiatives in paving the path towards sustainable development by setting up a very effective framework at national, regional and multilateral levels. Among the far-reaching achievements are the establishments of the National Council for Sustainable Development (NCS) chaired by His Excellency the President of Sri Lanka and formulating and implementing the National Action Plan for Sustainable Development called 'Haritha (Green) Lanka' launched in 2009 by the Ministry of Environment (MoE). The NCS provides policy directions at the highest policy-making level to ensure integration of environmental concerns into the economic and social development processes throughout the country. In order to ensure that Sri Lanka's macro-economic policies are aligned with the imperative need to reach high economic growth with greater equity in a sustainable manner, whilst integrating the process of globalisation, rehabilitation and reconstruction of areas affected by the calamities experienced in the recent past, Sri Lanka's Strategy for

Sustainable Development Framework (SLSSD) was approved in 2009. Among other national initiatives is the launching of a National Green Reporting System to monitor the implementation of Haritha Lanka Programme (which sets green guidelines for the industrial and service sectors). In terms of adopting favourable policies to promote sustainable development, Sri Lanka has formulated and carried out considerable number of policies that ensure environmental safeguard in development. Among them are the "Caring for Environment" 2003-2007 and the National Environmental Policy of 2002.

In pursuing an active role in global environment partnerships, Sri Lanka has ratified 36 Multilateral Environmental Agreements (MEAs) and has adopted major declarations in the field of environment that include the Stockholm Declaration, the Nairobi Declaration, the Rio-Declaration and the Washington Declaration. Sri Lanka also recognises, among others, the Charter of the United Nations, the Statute of the International Court of Justice (ICJ) and the 1969 Vienna Convention on the Law of Treaties. The Government of Sri Lanka (GOSL) accords top priority for the implementation of international legal instruments in the country. National focal points responsible for decision making and implementing respective treaties have been designated for each international treaty ratified.

Energy generation through Renewable Energy (RE) is encouraged in the policy level and the industries are participating enthusiastically, driving the industry towards a green power generating system. The labelling of energy efficient appliances has been introduced to encourage consumers to participate in national energy saving programmes. The public is encouraged by educating in

conserving energy in their daily consumption.

The transport sector is responsible for 50% of the country's total fossil fuel consumption and contributes 30% of the total urban air pollution in the country. Since the transport sector has significant impact on the country's sustainable development, the government introduced several environmental friendly programmes to minimize environmental ill effects in the transport sector. The establishment of the Air Resource Management Centre (AirMAC), a nationwide mandatory annual vehicular emission-testing programme, fuel quality improvement programmes including removal of lead in petrol and reducing sulphur in diesel are significant milestones. The introduction of electric and Compressed Natural Gas (CNG) vehicles for urban transport is seriously pursued.

Sri Lanka is very concerned about its water security. The country has been practicing sustainable water resource management for over 2500 years. Although the per capita water supply in Sri Lanka is greater than that of many other countries, Sri Lanka is cognizant to the fact that the water security may not continue to prevail in the future. From the annual rainfall of 118,000 Thousand Million Cubic ft. (TMC), around 43,000 TMC is usable. However, from this usable water the country has only been using about 15,000 TMC, which amounts to about 36% of the usable water. Presently the remainder is discharged in to the sea without being used. The target is to increase use to 50% of the usable water in 2020. Therefore, the current policy strategies are mainly focused on improving water productivity and irrigation efficiency by rehabilitating existing systems, investing in new irrigation systems, watershed

management, improved water allocation systems and small and minor tank rehabilitation. The prevention of water pollution and improving the water quality has been given high priority.

Sri Lanka is also committed to utilize marine resources in its 517,000 sq.km of exclusive economic zone and its inland fisheries in an ecologically sustainable manner. The fishery sector already has adequate policy instruments, regulation and institutional infrastructure to promote the principles of responsible fisheries as stipulated in international conventions and treaties. In the marine sector, particularly with regard to the exploitation of coastal resources, ecological considerations are being promoted through extension services predominantly to conserve endangered species, mainly through awareness programmes initiated by the National Aquatic Resources Agency (NARA) and the Department of Fisheries and Aquatic Resources (DFAR). Although there are increasing incidents of Illegal, Unreported and Unregulated (IUU) fishing activities taking place by the foreign fishing vessels, which are detrimental in terms of loss of fishery resources, the country is well prepared to monitor these activities by enforcing the existing regulations.

With regard to the Agriculture Sector, the Government's agricultural policy aims at realising multiple goals that encompass food security, ensuring higher and sustainable income for farmers, environmental conservation, efficient farm management techniques and improved water management. The Department of Agriculture has bestowed high priority to soil conservation and rainwater harvesting programmes to address the issue of land degradation and climate change. The Soil Conservation Act of 1951 was amended

in 1996 for better control of land use. Regulations have been introduced to manage land use practices, especially in areas where there are very steep mountains.

The Ministry of Industry and Commerce (MIC) has created an environment conducive for commercially competitive manufacturing entities producing value added products and a sustainable process capable of contributing to enhance standards of living. One of the major tasks of the MIC is the provision of industrial facilitation and guidance emphasising environmentally friendly industries. The Ministry of Environment established a Green Job Awards Programme in 2009 to recognise and reward the individuals and organisations based on their activities to promote sustainability and their performance.

Sri Lanka's Tourism policy articulates the use of natural resources, socio-cultural attractions and national attributes to support sustainable development through niche markets. Some of the objectives of the Sri Lanka Tourism Development Authority are to improve tourism while safeguarding the environment for its sustainability. Promoting adequate, attractive and efficient tourist services, integrating green building guidelines on energy and environment, are key initiatives taken to ensure sustainable development.

Sustainable urban development is promoted in Sri Lanka through environmentally friendly shelter programmes such as Urban Service Improvement Project and the 'Nagamu Purawara' Programme, which are aimed at improving the standard of living of the urban poor. The government of Sri Lanka is also implementing 'the Urban Vision' which encapsulates connectivity improvements and the launch of urban renewal and green city initiatives in the

Colombo metropolitan region and its suburban cities.

Sri Lanka's schools have been the centre for early environmental education for children. The Environmental Pioneer Brigades programme introduced by the Central Environmental Authority (CEA) in national schools includes creating greater awareness on environmental protection and management and engaging in field studies and observation tours. The need for Environmental Education has been specifically recognised in setting up government policies, and policy directives exist for the incorporation of environmental education into mainstream education. Formal education has perhaps been the first to respond to the new awareness about the environment (which came about after the Stockholm Conference in 1972 and the Tbilisi Conference in 1977.) The prescribed school curriculum lays emphasis on environmental education throughout the 13 year school education span, and the approach at all levels is essentially multi-disciplinary.

Sri Lanka's Health Sector has recorded impressive progress in terms of almost all the health indicators. Maternal and child mortality reduction, control of preventable diseases such as measles, diphtheria, whooping cough, pertussis and tetanus are key achievements that have contributed to sustainable development. Sri Lanka's early investment in public health and expansion with the free healthcare delivery system forming a sound foundation enabling all people to access medical services, and high Female literacy levels are thought to have contributed to this achievement. The control of malaria has also contributed to the reduction in overall death rates. Good progress has been achieved in

reaching health related Millennium Development Goals (MDGs).

The ecosystem diversity in Sri Lanka is very significant as it consists of forests, grasslands, inland wetlands, coastal and marine ecosystems. Marine ecosystems include sea-grass beds, coral reefs, estuaries, lagoons and mangrove swamps. Sri Lanka has been identified by Conservation International (CI) as one of 25 biodiversity hot spots in the world in view of the country's wide range of topographic and climatic variation which contributes to greater biodiversity. Sri Lanka is world renowned for its high degree of endemism, which is observed in several taxonomic groups. While sharing common features with the neighbouring subcontinent, the fauna exhibits very high endemism among less mobile groups. The distribution patterns of the endemic fauna and flora are similar: the wet zone has many more endemic species than the dry zone. In terms of mammals, birds and fish, the three major groups that are well researched in Sri Lanka, each group has a different distribution pattern. In order to protect Sri Lanka's unique biodiversity, the GOSL has taken a number of steps, including the establishment of the Biodiversity Secretariat under the MoE. Since Sri Lanka ratified the United Nations Convention of Biological Diversity in 1994, the MoE conducted many activities to implement the Convention at country level such as the preparation of a Biodiversity Conservation Action Plan, which strengthened the key institutes in the forestry, wildlife and agriculture sectors.

In order to address the cross-sectoral nature of major environmental challenges caused by climate change, the MOE, which is the National Focal Point for the United Nations Framework Convention on Climate

Change (UNFCCC) and the Kyoto Protocol), has taken the initiative to establish a Climate Change Secretariat under its purview. The Climate Change Secretariat in the MoE adopts a comprehensive national approach to address climate change challenges. The MoE established the Sri Lanka Carbon Fund (SLCF) to actively participate in the carbon trading business and to facilitate Clean Development Mechanism (CDM) project development within the country.

As a signatory to the Vienna convention for protection of the Ozone layer and the protocol on substances that deplete the ozone layer, Sri Lanka fulfilled the requirements before the deadlines and was recognised at the 20th anniversary celebration in 2007 by being presented the Implementer's Award.

Appropriate actions have been taken by the government, the private sector and civil society to establish a healthy system of waste management, including e-waste.

The Constitution of Sri Lanka recognises gender equality and child rights. This constitutional pledge has been honoured by creating a separate Ministry for the subject of Child Development and Women's Affairs and the Sri Lanka Women's Bureau, the National Committee on Women, the National Child Protection Authority, the Department of Probation and Child Care Service and the Children's Secretariat. The prime objective of formulating national policies is to ensure that the country's five million of youth population is gainfully employed and developed as future leaders by providing the necessary vocational and technical training, improving their entrepreneurial and leadership skills and enhancing their socio-cultural activities. The responsibility lies with the Ministry of Youth Affairs and Skill Development and the National Youth Services Council. Sri

Lankan youths are actively involved in environmental protection, natural resource management, social development and social safeguard activities through Non-Governmental Organizations (NGOs) and public agencies. The Constitution of Sri Lanka also accords equal rights and privileges to indigenous communities. Special attention is given to the indigenous people during development initiatives under the National Involuntary Resettlement Policy.

The Government of Sri Lanka has strongly reaffirmed its commitment to the Rio principles and implementing Agenda 21, by introducing a comprehensive sustainable development programme within the current development framework. As a result, Sri Lanka has already achieved an impressive human development indices; for example, from 2004 to 2011, the following achievements have been made. Per capita income rose from US\$ 1062 to US\$ 2836; Life expectancy from 73.2 years to 74.9 years; Infant mortality from 11.2 per thousand live births to 8.5; School enrolment from 95% to 98%, Net enrolment in primary education from 96.3% to 97.5%; General literacy from 95% to 98%; Computer literacy from 10% to 35%; Adult literacy rate from 91% to 91.4%; Women's participation in the labour force from 32.6% to 34.3%; Overall human resource index from 0.740 to 0.759; with increased access to electricity from 75% to 91%; Safe drinking water from 80% to 85%; Telecommunication from 23% to 86%; Road access from 93% to 95%. Unemployment rate is declined from 7.4% to 4.2%; Poverty is reduced from 15.7% to 8.9%, Population living on less than \$1.25 a day is decreased from 14% to 7%.

Impressively high level of political commitment to the Rio principles and the

implementation of Agenda 21 has become an integral part of Sri Lanka's development since 1992. HE the President of Sri Lanka has reiterated his and the country's commitment to sustainable development by formulating and implementing a comprehensive sustainable development programme. The political leadership in totality is also strongly committed to achieving the internationally agreed upon development goals, including those contained in the United Nations Millennium Declaration and the major United Nations conferences and international agreements since 1992.

Although Sri Lanka has made significant progress in poverty reduction in the recent past, the eradication of malnutrition and reduction of non-communicable diseases are the main challenges faced. In addition, several other challenges lie ahead of Sri Lanka in its path to sustainable development. The need for up scaling and updating the knowledge base, the provision of equitable access to science and technology skills to all sectors of society, the addressing of deficiencies in technology transfer and adoption, the preparedness for climate change and disaster management, the creation of climate smart and disaster resilient communities, the mainstreaming of environmental considerations further into the development process, skills development/capacity building, and improved human and financial resources are among them.

During the past two decades, a better institutional framework was established to manage the environment and natural resources. Sound national policies were developed providing opportunities for the implementation of regional and local level projects to uplift the living standards of the people and to conserve

the environment and natural resources in the country. A solid foundation to achieve sustainable economic growth, strongly integrated with social development and environmental protection, while safeguarding the natural resource base was laid. All the country's sectoral policies and the national development policy framework have focused on the protection of the environment and the conservation of the rich natural resource base as well as social integration and national reconciliation. The policy framework, based on the Mahinda Chintana - Vision for the future also envisaged to implement large infrastructure development initiatives (electricity generation, the development of sea ports, airports, water supply and irrigation, roads and transport, agriculture and domestic enterprises), strengthening of public services and state owned enterprises, promoting private sector and SMEs and implementation of rural centric integrated development initiatives aiming at empowering villages.

In the coming years, much effort and energy will be directed towards achieving targets that are yet to be accomplished with regard to the Millennium Development Goals. It has already been planned to take the appropriate measures that need to be incorporated into the development sectors in this respect. For example, the National Energy Policy places renewable energy development as a high priority and considers it to be a key policy element, setting a new enhanced target of generating 20% of electricity from New Renewable Energy (NRE) sources by 2020. In the Industrial Sector, Sri Lanka has signed the Green Industry declaration and will position itself to compete in the global market. In the Urban Sector, the sustainability of urban

water supply systems is at risk, and water quality needs improvement. The largest cities, in particular the tourist destinations, need a sewerage system to cope with increasing population density. Urban transport remains a key contributor to city-competitiveness. Land degradation and soil conservation are issues to be addressed while increasing production in agriculture sector

The thrust of the vision has been to reposition Sri Lanka in the global arena as a knowledge-based strong middle-income country with better and improved living standards which continues to preserve cultural values and traditions. 'Mahinda Chintana vision for the future' envisages that Sri Lanka '*has an economy with a green environment and rapid development; Aspires to be a stable society with a high quality of life for all of its people having access to decent living, electricity, water, schooling and health facilities; Maintains the best of Sri Lankan culture, traditions and long standing global identity; Aims to consolidate as an emerging market economy, integrated into the global economy and is competitive internationally;*

Intends to have the characteristics of a middle-income economy with a knowledge-based society”.

The MoE has already taken action to accomplish key initial tasks, such as the refinement of Haritha (Green) Lanka Programme, Sri Lanka Strategy for Sustainable Development and Sustainable Development Goals (SDGs) and setting up of the Multilateral Environmental Secretariat (MES) and the Participatory Green Results Monitoring Mechanism.

Action has already been taken to develop an effective institutional setup at each key sector level. This includes the provincial and local government levels, as well as the private sector and communities to deal with sustainable development. The proposed sustainable development institutional mechanism would function under the National Council for Sustainable Development (NCSD) already set up and functioning under the Chairmanship of HE the President, and convened by the MoE.

CHAPTER 1

1 Introduction

1.1 Earth Summit, Rio+ 10 and Rio+ 20

The first United Nations (UN) *Conference on the Human Environment*, held in Stockholm, Sweden, in 1972, set out the principles pertaining to multiple environmental issues, including natural resource management, pollution prevention and the relationship between the environment and development. In 1992, two decades after this ground-breaking event, a landmark global agreement was reached at the UN *Conference on Environment and Development*, held in Rio de Janeiro, Brazil. This international agreement – The Agenda 21 – reflects the highest level of global consensus and political commitment on development and environment cooperation. Agenda 21 further reaffirmed that sustainable development was delimited by the integration of the economic, social and environmental pillars, as illustrated in Box 1.1.

In accordance with, and as a follow up to the fundamental principles and programme of action for achieving sustainable development, the following conventions relating to various issues on sustainable development were adopted at the United Nations;

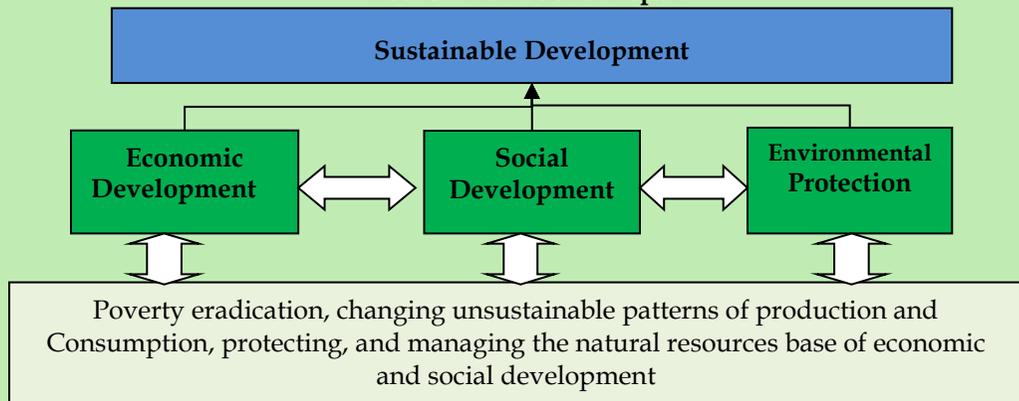
- 1 The Convention on Biological Diversity.
- 2 The Convention to Combat Desertification.
- 3 The Framework Convention on Climate Change.

The World Summit on Sustainable Development (WSSD) (Rio+ 10) took place in Johannesburg, South Africa, in 2002, ten years after the first Earth Summit in Rio de Janeiro. At this summit, Sri Lanka submitted its National Report – *Sri Lanka's Middle Path to Sustainable Development* – presenting a comprehensive analysis of Sri Lanka's achievements in the field of sustainable development since the *Earth Summit 1992*. This report will also serve as the future guide line for decision makers in policy formulating for sustainable development.

The *Johannesburg Declaration* was the

Box 1.1 Substratum and three pillars of sustainable development

“Sustainable development is development which meets the needs of the present without compromising the ability of the future generations to meet their own needs” Brundtland Report



main outcome of the summit. The Johannesburg Plan of Implementation of the World Summit on Sustainable Development was also agreed upon as an action plan for sustainable development. (See box 1.2)

Box 1.2 Expectation of Rio+ 20

All countries are expected to review:

- Progress made towards the accomplishment of sustainable development.
- Difficulties associated with moving towards sustainability.
- Assess responses to the newly emerging challenges faced by countries.

And take action to:

- Strengthen political commitments to sustainable development initiatives.
- Focus on sustainable cities, decent jobs, food security and sustainable agriculture, energy, oceans and disaster readiness.
- Address underlying themes including finding ways to use the green economy to foster sustainable development and poverty eradication, and setting up of an effective institutional framework for sustainable development.

In June 2012, the United Nations will convene the United Nations Conference on Sustainable Development, also known as Rio 2012 or 'Rio+20', hosted by the Brazilian government in Rio de Janeiro,.

The objectives of the Rio+20 conference is given in box 1.3 below. The United

Nations Conference on Sustainable Development would focus on two themes as illustrated in Box 1.4 below.

Box 1.3 The objectives of the Rio+ 20 Conference

"To secure renewed political commitment for sustainable development,

assess the progress to date as well as the remaining gaps in the implementation of the outcome of the major summits on sustainable development, and,

address new and emerging challenges."

1.2 Sri Lanka: Country Profile

Sri Lanka, an island country with a land area of about 65,610 sq.km located in the Indian Ocean, lies between 5.34N and 9.52N latitude and between 79.39E and 81.5E longitude. There is a significant temporal and spatial variation in the island's climate. The mean annual temperature in the coastal belt ranges from 26.0°C to 28.0°C, while in the central highlands it ranges from 15°C to 19°C. The total land area of Sri Lanka is divided based on the elevation, as low country, mid country and up country. The highlands - over 1000m above mean sea level - constitute 3% of the land mass. The island is divided into three climatic zones, based on the annual rainfall: the Dry Zone, Wet Zone and Intermediate Zone.

The country profile of Sri Lanka is presented in Box 1.5.

Box 1.4 Rio+ 20 - Themes

Green Economy in the context of Poverty Eradication and Sustainable Development

Indicated by:

- Protection and enhancing the natural resource base
- Increased resource efficiency
- Promoting sustainable consumption and production patterns
- Moving the world towards low carbon emission.

Institutional Framework for Sustainable Development

Indicated by:

- Governance (at local, national, regional and global levels)
- Integrated decision making at all levels
- Progress monitoring of outcomes of Agenda 21 at all levels
- Coherence among these agencies, funds, programmes, and (UN) carbon development.

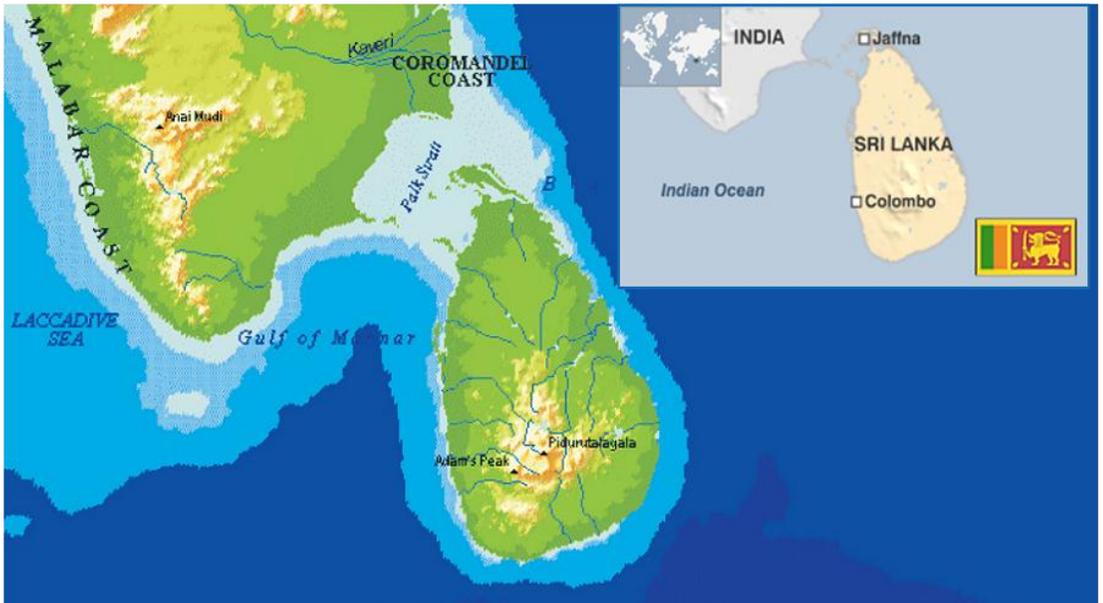


Figure 1.1 Location Map

Box 1.5 Sri Lanka Profile at a Glance

NAME OF THE COUNTRY:

Legal - Democratic Socialist Republic of Sri Lanka

Conventional short form: Sri Lanka

GEOGRAPHIC PROFILE:

Location: Southern tip of Indian sub-continent - Strategic location near major Indian Ocean sea-lanes.

Total Extent: 65,610 sq.km. **Land:** 64,630 sq.km. **Water:** 980 sq.km. **Coastline:** 1,585 km.

Territorial sea: 12 nm. **Contiguous zone:** 24 nm. **Continental shelf:** 200 nm or to the edge of the continental margin. **Exclusive economic zone:** 200 nm.

Climate: Tropical - Mean annual temperature: Low lying areas: 26°C to 28°C. Central highlands 15°C to 19°C. Mean Annual Rainfall: 1000mm to over 5000mm. Monsoon: Northeast monsoon (December to March), Southwest monsoon (June to October)

HISTORIC PROFILE:

Ancient civilisation - "Serendip" / "Pearl of the Indian Ocean" to Arab geographers, the island fell under Portuguese and Dutch rule and finally came under British rule when it was called Ceylon.

ADMINISTRATIVE PROFILE:

Administrative System: Unitary State with provincial bodies. Provinces -9, Districts -25, DS Divisions - 327, GN Divisions -14500.

Capital: Legislative -Sri Jayewardenepura; Commercial - Colombo.

Official Languages: Sinhala & Tamil; **Link Language:** English.

DEMOGRAPHIC, HUMAN AND SOCIAL PROFILE:

Population: 20.869 Mill. **Population in urban areas** 15.0%

Annual population growth rate: 1.0%

Rate of urbanisation: 1.1%.

Age structure : 0-14 years: 24.9%, 15-64 years: 67.2%, 65 years and over: 7.9%. Overall adult literacy rate: 91.4% (Male 92.8%, Female 90.0%)

Literacy Rate : 91.9%. **Educational Enrolment Rate:** 98%.

Dropout Rate : Primary 1.6%. Secondary 14%.

Ethnic Groups : Sinhala 74.5%, Tamil 16.8%, Muslim 8.9%, Others 0.7%.

Religions: Buddhist 69.1%, Islam 7.6%, Hindu 7.1%, Christian 6.2%, others 10%.

Poverty Head Counter Index: (2002): 22.7 (2006/2007): 15.2 (2009/2010): 8.9(b)

Education and Health: *Free for all citizens*

Economy: Open Market

Contribution to the Economy: Agriculture Sector - 11.2%, Industrial Sector - 30%, Service Sector -58.8%

The concept of sustainability has been providing the building blocks for the development of the country since ancient times. Substantiation is available from written history as well as from archaeological evidence and folk tales on how sustainable development concerns were incorporated into the lifestyles of civilization. On track to meet most Millennium Development Goals, Sri Lanka has already reached near universal literacy, with female literacy rates almost on par with male literacy. Poverty is still an issue in rural areas. However, compared to the rest of South Asia, poverty levels are relatively low, dropping from 15.2% in 1995 to 8.9% in 2011.

Under the leadership of the current President, H.E. Mahinda Rajapakse, the country's agenda for development has changed dramatically in recent years. Sri Lanka today emerges as the Wonder of Asia, for a country that is able to enjoy peace and development following the eradication of the scourge of terrorism that lasted for three decades. Post conflict challenges that the country encountered in the immediate aftermath have been manifold. Having rescued and resettled over 290,000 innocent civilians held hostage by the terrorists, with livelihood support within two and a half years, the government is presently rehabilitating the ex-combatants and reintegrating them into society, reconstructing the areas affected by the conflict and providing reconciliation for aggrieved parties. Amidst these priorities and challenges, and also having faced the devastating Asian Tsunami in 2004, Sri Lanka has been upgraded its status in to a middle income country and has been able to record a Gross Domestic Product (GDP growth of 8% for 2011. (The International Monetary Fund classified Sri Lanka as a middle-income country in 2010.)

1.2.1 Sri Lanka's Commitment to Sustainable Development and Sri Lanka National Report

The year 2012 marks twenty years since *The Earth Summit*, held at Rio de Janeiro, where 108 participating countries including Sri Lanka reached the global agreement *Agenda 21* action plan for sustainable development - the blueprint for a sustainable future. Since signing the agreement Sri Lanka have taken extensive efforts to ensure sustainable development measures are implemented, not only by the government, but also by all stakeholders, including the general public. The country has now been able to lay a solid foundation for sustainable development by establishing a solid framework for economic and social development duly incorporating environmental and social safeguard management. The substratum of this framework would be based on poverty eradication, changing unsustainable patterns of production and consumption with a well-managed natural resource base and human development, without compromising the ability of future generations to meet their own needs.

Sri Lanka has already recognised that the implementation of the outcomes of the Summit would bring benefits to all. Furthermore, this implementation should involve all relevant stakeholders through active partnerships.

The Government of Sri Lanka has strongly reaffirmed its commitment to the Rio principles, the full implementation of *Agenda 21*, by developing and implementing a comprehensive sustainable development programme within the framework of 'Mahinda Chintana'- the vision of H.E. the President of Sri Lanka.

1.2.2 Sri Lanka National Report - Objectives and Structure:

Sri Lankan Report aims at presenting its status in achieving sustainable development, specifically the achievements at present and the challenges faced in achieving sustainable development within a socio-economic context. It also highlighted the way forward strategy for national sustainable development, integrating combined economic and social development together with environmental protection by eradicating malnutrition and poverty, changing unsustainable patterns of production and consumption, and protecting and managing the natural resource base of the country.

The Report consists of an executive summary and five chapters. Following

the Introduction in Chapter 1, Chapter 2 outlines the overall progress achieved at national level and the thematic areas and cross sector strategies to move towards sustainability. Chapter 3 presents progress made in key sectors in sustainable development. The results of sustainable development, including the overall outcomes and impact of its initiatives, issues, challenges and promising practices as well as the strong political commitments are presented in Chapter 4. The Way Forward Strategy, which proposes a pathway for Sri Lanka to realise herself as 'The Emerging Wonder of Asia,' is presented in Chapter 5. This chapter also presents the strategies to address key cross sector thematic issues and challenges and a Sector Specific Sustainable Development Road Map.

CHAPTER 2

2 Overall Progress Achieved in Sustainable Development

2.1 Innovative Strategies and Programmes

2.1.1 Introduction

Sri Lanka has achieved much positive development during the period of 2005 to 2009 with the policies implemented under *Mahinda Chintana*, which are aimed at creating a new Sri Lanka. This development in the country has provided a solid foundation for sustainable development. A strong base has also been created for achieving high and sustainable economic growth integrated with social developmental and environmental protection safeguarding the natural resource base. The *Mahinda Chintana* Policy framework has focused heavily on the protection of the environment and the conservation of the rich natural resource base of Sri Lanka, as well as social integration and reconciliation at both local and national levels.

Within the Mahinda Chintana development framework, Sri Lanka has taken a number of innovative initiatives in paving the sustainable development pathway for the country by establishing high political commitment and setting up a very effective framework at the national, regional and multilateral levels. Exceptionally effective policy development and coordination mechanisms for sustainable development were set up with the establishment of the *National Council for Sustainable Development (NCSD)* under the Chairmanship of H.E. the President. With the initiation of the Ministry of Environment, a National Action Plan for sustainable development was formulated

and implemented under the title of Haritha (Green) Lanka Programme. Sri Lanka's Strategy for Sustainable Development was developed in 2008, and the National Green Accounting Mechanism was introduced in 2010. (See Box 2.1)

Box 2.1 Novel and Innovative Initiatives towards sustainable development

- Established "*The National Council For Sustainable Development*" (NCSD)
- Developed *Sustainable Human Development Index (SHDI)* in 2008
- Launched "*Haritha (Green) Lanka*" in 2009
- Developed "*National Environmental Action Plan*" under the Haritha Lanka Programme
- Developed "*Sri Lanka Strategy For Sustainable Development*" in 2009
- Developed "*National Green Accounting Mechanism*" in 2011
- Established "*National Cleaner Production Centre*" (NCPC) & *Sri Lanka Carbon Fund (SLCF)*
- Established "*Green Job Awards Programme*" (2009) and "*National Green Reporting System*" (2011)

2.1.2 Haritha (Green) Lanka Programme

The 'Haritha (Green) Lanka' Programme was launched by the MoE in 2009 with the objective of addressing environmental issues in economic development, incorporating an environmental dimension into the economic development process and to ensure the long term sustainability of human development. The Programme was initiated with the establishment of a National Council for Sustainable

Development (NCSD), and the development of a National Action Plan for the Haritha Lanka Programme aiming at greening economic development within the framework of sustainable development.

Box 2.2 Ten Missions of Haritha (Green) Lanka

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

The National Action Plan of the Haritha Lanka Programme was developed through an interactive process, involving all the key ministries. A high-level participatory process was followed during its preparation to ensure that sustainability would not merely remain a concept but translate into practical reality. This action plan covers ten broader missions (See Box 2.2) and is a product of the concerted efforts of all relevant ministries. It includes short term, medium term, and long term visions (See Box 2.3) targets spanning the years 2009 to 2016, with 82

comprehensive, achievable and measurable strategies, and 375 actions.

The National Council for Sustainable Development (NCSD) obtains policy directions at the highest level and ensures integration of environmental concerns into the economic and social development processes throughout the country. The MoE acts as the convener, providing secretariat facilities to the NCSD and coordinating its follow up recommendations. All cabinet ministers, representing key sectors with close connections to the sustainable development agenda, are members of the NCSD.

Box 2.3 Sri Lanka's vision for Sustainable Development

"Achieving sustained economic growth that is socially equitable and ecologically sound, with peace and stability "NSDS"

The successful integration of sustainability criteria into different development sectors has been coordinated successfully through this mechanism and these achievements are summarised in the *sector report* in chapter 3.

2.1.3 National Sustainable Development Strategy

One of the challenges facing Sri Lanka as an emerging economy is the achievement of high economic growth with greater equity in a sustainable manner, whilst integrating the process of globalisation, rehabilitation and reconstruction of areas affected by the recent calamities. A sustainable economic growth must not cause irreversible damage to the environment. Macroeconomic policies for sustainable development need to be

developed through an environmentally responsible macroeconomic framework.

Sri Lanka's *Strategy for Sustainable Development* (SLSSD), approved in 2009 seeks to achieve the vision for sustainable development by achieving five goals:

1. Eradication of poverty
2. Ensuring competitiveness of the economy
3. Improving social development
4. Ensuring good governance
5. Ensuring a clean and healthy environment

These five goals prioritise the challenges that have to be faced in the path to achieving sustainable development. Seventeen objectives and 65 strategies with targets and indicators have been identified under the SLSSD goals.

2.1.4 The National Green Reporting System

Mission 09 of the National Action Plan of the Haritha Lanka Programme is 'greening the industries.' Under this mission, strategies and actions have been developed for greening the manufacturing and service sectors and minimising environmental degradation, while promoting the application of sustainable and cleaner production practices. In this vein of promoting transparency of an organisation's sustainability performance, the MoE, being the convener of the NCSD, has established a '*National Green Reporting System*' (NGRS), which is the framework for enabling organisations to become transparent through **sustainability reporting**. (See Box 2.4 & 2.5)

The objective of NGRS is to:

'Facilitate the manufacturing and service sectors to periodically measure and report their sustainability performance with respect to economic, environmental and social aspects, in order to

continually improve their production processes and services, relationship with stakeholders and enhance their image, while contributing towards the sustainable development of the country.'

Through the Sustainability Report, an organisation will enable to measure, disclose and be accountable to both internal and external stakeholders with regard to its organisational performance in achieving sustainable development. The Report should give a balanced account of the sustainability performance of the organisation. The National Green Reporting System of Sri Lanka is based on the Global Reporting Initiatives (GRI) and G3 Guidelines. It suggests the use of ISO 26000 Standard for Guidance on Social Responsibility for the design and implementation of internal sustainability mechanisms.

2.2 Achieving Millennium Development Goals

Sri Lanka is a signatory to the United Nations Millennium Declaration of 8 September 2002, which required developing countries 'to do more and join forces in the fight against poverty, illiteracy, hunger, lack of education, gender inequality, child and maternal mortality, diseases and environmental degradation.'

The Declaration, comprising of 32 resolutions formulated into Millennium Development Goals (MDGs), was expected to reach pre-determined sets of targets by 2015 and 2020, with a baseline of 1990.

In 2005, the United Nations reviewed the progress achieved thus far in order to formulate further measures if necessary, to support the efforts of participating countries. The achievements of Sri Lanka as observed from the Country Study can thus be summarised as shown in the table 2.1.

Box 2.5 National Green Reporting System

Vision: Ecologically sustained healthy and prosperous Sri Lanka.

Mission: To promote the integration of environmental aspects into the socio-economic development process encouraging self-monitoring and reporting of the performance.

Goals

Goal No 1: To raise awareness among the state, and private, manufacturing and service sectors and the community on the need for integrating environmental aspects into socio economic development for their long term sustenance and the importance of taking responsibility and being transparent about their economic, environmental and social performance towards achieving sustainable development.

Goal No 2: To build the capacity of organisations/entities in the manufacturing and service sectors of the country in quantifying and reporting on their sustainability performance, to reflect their continual improvement in the journey towards achieving sustainable development.

Goal No 3: To promote continual improvement among organisations/entities beyond compliance for sustainability.

Box 2.4 Benefits for engaging in Sustainability Reporting

Improved operational performance: Reduction in operating costs, optimum resources utility and improvement in operational efficiency.

Improved stakeholder relationships: Building of trust and improved communication through continuous engagement with various interest groups.

Improved risk management: Better understanding of and dealing with non-financial risks appropriately saves an organisation's time, money and loss of reputation. It also leads to a reduction of liabilities through integrated risk management.

Improved investor relationships: As a result of a growing demand for ethical investment funds, a sustainability report helps an organisation to reach the aim through its practices of transparency and accountability.

Identification of new markets and/or business opportunities: Development of innovative products and services for access to new markets.

Improved public value of organisation: Enhancement and maintenance of reputation and brand value.

The summary of each goal and the reported standing is given below. It is worth mentioning that there is further progress in reaching these goals over the last 7 years and an official report is yet to be released.

Goal 1: Eradication of Extreme Poverty and Hunger: The proportion of

population below the national poverty line had shown a sharp decline in the major urban centers. However, the country is seen likely to fall short of reaching the target of halving the proportion of people below the national poverty line by 2015.

Goal 2: Achieving Universal Primary Education: In respect of this goal, Sri Lanka is seen to be well on track in achieving the targets with reference to new enrolments in primary schools, literacy rates among 15-24 year olds, and the percentage of pupils in grade 1 who reach grade 5.

Goal 3: Gender Equality and Empowerment of Women: Sri Lanka is on track in respect of 4 out of the 6 indicators, but is expected to miss the targets in respect of employment of women in the non-agricultural sector, and in the proportion of women in the national parliament.

Goal 4: Reducing Child Mortality: Sri Lanka is well on track in achieving the targets for reducing the under 5-year-old mortality rate, infant mortality rate, and the proportion of 1 year old children immunised.

Goal 5: Improving Maternal Health: Sri Lanka does not seem to be in a position

Goal 6: Combating HIV/AIDS, Malaria and Other Diseases: Since Sri Lanka is considered a HIV low prevalent country, and because of its higher quality of health services, the country is well on track to achieving this goal by 2015.

Goal 7: Ensuring Environmental Sustainability: Sustainability in access to safe drinking water, basic sanitation, improving the lives of slum dwellers and waste management has been the primary considerations of consecutive governments. Hence, progress in respect of these issues is well on track in achieving the targets. However, the following areas are not on track in achieving the set targets: the proportion of people using solid fuel, energy consumption, CO₂ emissions and the decline of forest cover. While environmental safety has been ensured in some areas, there remain some concerns about achieving the targets in respect of sustainability in environmental safety.

Table 2.1 Sri Lanka's Progress in Achieving MDGs

No	MDGs	Progress -(2002-2010)
Goal 1	Eradicate Extreme Poverty and Hunger	On Track
Goal 2	Achieve Universal Primary Education	On Track
Goal 3	Promote Gender Equality and Empower Women	On Track
Goal 4	Reduce Child Mortality	On Track
Goal 5	Improve Maternal Health	On Track
Goal 6	Combat HIV/Aids, Malaria and Other Diseases	On Track
Goal 7	Ensure Environmental Sustainability	Satisfactory Progress
Goal 8	Develop a Global Partnership for Development	Satisfactory Progress

(UNDP, Sri Lanka)

to achieve the target for maternal mortality rate per 1000 population by 2015, but achieving the target for the proportion of births attended by skilled health personnel will be reached.

Goal 8: Developing Global Partnerships for Development: The process of globalisation requires Sri Lanka to establish global partnerships to enable the achievement of MDGs. The country is considered currently to be well

integrated with global partners, which should facilitate the achievement of MDGs by 2015 (Millennium Development Goals – Sri Lanka Country Report – 2005, UNDP).

2.3 Regulatory, Institutional and Policy Measures to Ensure Sustainable Development

The implementation of policy measures for sustainable development requires specific institutional arrangements and actions. Many changes were introduced by establishing regulatory bodies to implement the environment related policies more effectively.

There are about 80 laws and other regulatory measures relating to environmental protection. Of these, the most cited legislations are the *Fauna and Flora Protection Ordinance* (of 1937 with its subsequent amendments), the *Forest Ordinance* 1907, the *National Environment Act* No 47 of 1980, the *National Heritage Wilderness Areas Act* 1981, the *Felling of Trees (Control) Act*, the *Botanic Gardens Ordinance*, the *National Aquatic Resources, Research and Development Agency Act*, the *Fisheries and Aquatic Resources Act*, the *Plant Protection Ordinance*, the *Animal Diseases Act* and the *Customs Ordinance*.

The National Environment Act facilitated the creation of the Central Environmental Authority (CEA) in 1980. The CEA's mandate is to function as the regulatory and coordinating agency in respect of all matters pertaining to the protection and management of the environment. The creation of a ministry with the subject of environment in 1991 was the next landmark event. This strengthened the government's commitment to have an overriding influence on environmental concerns by bringing the state institutions responsible for subjects that have impacts on the environment, under its portfolio. These institutions include

forestry, wildlife, timber, minerals and mines, as well as agencies responsible for preventing pollution. In addition, the Biodiversity Secretariat was established as recommended in the government's policy document of 1998 (Biodiversity Conservation in Sri Lanka – Action Plan [BCAP]), the Sustainable Development division 2008 and the Climate Change Secretariat (2008).

Under the Provincial Council Act (No 42 1987) the environment is a concurrent subject which assigns responsibility and authority to safeguard matters relating to the environment to provincial councils.

In relation to policy issues, the *National Forest Policy* adopted by the Government in 1995 provides an integrated and coordinated approach to the management, conservation and sustainable utilisation of forests, and provides for their multiple and complementary functions and use, and recognizes the need for participatory approaches and development of partnerships for forestry activities. On the other hand the *Forestry Sector Master Plan (1995-2020)*, which was developed to implement the *National Forest Policy*, is a comprehensive long-term development framework to ensure that the valuable natural forests and the related wildlife and other biodiversity resources will be conserved and the forests and agro-forestry systems will provide sustainable environmental services and forest products to meet the needs of the people.

In compliance with the Convention on Biological Diversity, which Sri Lanka ratified in 1994, the government provided the basis for a policy framework through the document *Biodiversity Conservation – A Framework for Action of 1998*. It is relevant to mention at this point that in order to accommodate many new environmental concerns that have surfaced since the formulation of

BCAP, the Ministry through its Second National Experts Committee on Biodiversity, published an Addendum to BCAP in 2007.

The *National Policy on Wildlife Conservation (2000)* is the commitment of the Government to conserve wildlife resources, and consequently protect faunal biodiversity for the benefit of the present and future generations and for purposes of research.

The *National Environmental Action Plan (NEAP) (1998)*, as a national sustainable development strategy, addresses environment-related development issues.

The *National Environmental Policy of 2002* was developed "to achieve a healthy and pleasant environment sustaining nature for the well-being of the people and the economy". Protection and conservation of the integrity of the nation's environment and natural resources through ecologically sustainable development, with due recognition of the contribution of natural resources to economic development and to the quality of life, are the goals expected to be achieved.

One of the Action Plans formulated to implement the National Environmental Policy was the document - *Caring for the Environment 2003-2007 - Path to Sustainable Development*. It is a comprehensive 5-year sector based programme of action tailored to each institution (government and non-

government), to readily identify its responsibility and to ensure that the environment is afforded adequate protection.

2.4 Private Sector Initiatives in Sustainable Development

Apart from the innovative strategic initiatives taken by the public sector as discussed in the previous sections, the private sector has taken a series of novel strategic initiatives to mainstream sustainable development by incorporating initiatives developed by the public sector, and thus proving a true public private partnership (see Boxes 2.6 and 2.7.)

Through public private partnership (PPP), a policy document with 8 policy instruments was developed and submitted to the MoE. They are as follows:

- Loans for preparation of bankable projects
- Organic fertiliser subsidy
- Research and Development for Sustainable Consumption and Production (SCP) funding
- Industry code of practices
- Taxes, duties and fees
- Preferential government procurements
- Environmental Management Accounting
- Corporate environmental performance rating

Box 2.6 Private Sector Initiatives in Sustainable Development

The Sri Lankan private sector is identified as the engine of growth, propelling the country forward. The combination of sustaining high economic growth rates whilst not compromising on environmental conservation and restoration is one of the biggest challenges facing the country. There have been several initiatives made by the private sector towards making investments in green initiatives and sustainable development. These initiatives, among many others, amply demonstrate Sri Lanka's leadership position in promoting the concept of 'P's; giving equal recognition to the Planet, People and Profit.

In fact, all the Clean Development Mechanism (CDM) projects that have been registered so far have been developed by the private sector. Several companies are also adopting ISO 14000 relating to environmental management on a voluntary basis. Most of the polluting companies have obtained environment protection licenses (EPL.) Several companies have adopted Community Social Response (CSR) practices where they engage in projects related to sustainable development such as community development and environment protection. Some have adopted sustainability reporting using the standards of the Global Reporting Initiative (GRI), voluntarily. The Association of Chartered Certified Accountants (ACCA) conducts an annual award scheme to recognise companies and organisations, which report on triple bottom line reporting. A number of private sector institutions participate in these award schemes, which are conducted at the national level based on sustainability reporting and achievements. The Ceylon Chamber of Commerce, which functions as the focal organisation and the spokesperson of the private sector, annually recognises the 10 Best Corporate Citizens. In addition, some companies, including banks, are voluntarily reporting their carbon footprint.

The private sector has worked closely with the Ministry of Environment to introduce many Policy Instruments one of which was - the 'National Green Reporting' System. They have ambitious plans of working with the Ministry to launch two more initiatives in a Green Procurement System and a Green Jobs Programme. The Ministry of Environment awarded the 2009 National Green Job Awards to recognise the contribution made by both private and public sector organisations and individuals in protecting the environment and reducing environment pollution. Several leading private sector companies have been recipients of these awards.

In addition, the Sustainable Energy Authority conducts Sri Lanka 'National Energy Efficiency Awards.' This award is granted for activities on improving energy efficiency in organisations in general. This recognises successful implementation of cost-effective, transferable and innovative energy efficiency measures taken by small, medium and large organisations in a variety of sectors such as manufacturing, services, hotels, commercial buildings, state sector office buildings and healthcare.

2.5 Implementation of Multilateral and Bilateral Environment Agreements

Sri Lanka actively participates in the global-environment-partnerships and has ratified 36 Multilateral Environmental Agreements (MEAs) over the years. In addition, Sri Lanka has adopted major declarations in the field of environment that include the Stockholm Declaration, the Nairobi Declaration, the Rio-Declaration and the Washington Declaration. Sri Lanka also recognises the Charter of the United Nations, the Statute of the International Court of Justice (ICJ), the 1969 Vienna Convention on the Law of Treaties and the UN resolution 2625 (XXV) of 24th October 1970 on the Declaration of Principles of International Law Concerning Friendly Relations and Co-operation among states in accordance with the Charter of the United Nations. Sri Lanka is an active member of the South Asian Co-operative Environment Programme (SACEP), South Asia Association of Regional Cooperation (SAARC), and the South Asia Regional Seas Programme as well.

The Government of Sri Lanka accords high priority for the implementation of international legal instruments in the country. National focal points have been designated for each international treaty ratified, which are responsible for decision making on actions needed for implementing the respective treaties. The Ministry of Foreign Affairs, Ministry of Trade, Ministry of Fisheries and Ocean Resources, Ministry of Agriculture, Ministry of Labour, Department of Wild Life, etc., are some of the focal points. The respective focal points have taken several important measures with regard to legislation, policies and action plans to implement MEAs in Sri Lanka.

In addition, several National Policies have been developed to implement

MEAs in Sri Lanka. These include the National Environment Policy, National Cleaner Production Policy, Renewable Energy Policy, National Climate Change Policy, National Forestry Policy, National Policy on Wild Life Conservation, National Land Use Policy, and the National Policy on Urban Air Quality Management.

2.6 Natural Resource Management

Land: Sri Lanka ratified the United Nations Convention to Combat Desertification (UNCCD) on 9th December 1998. The MoE serves as the focal point for UNCCD. The National Action Programme for combating land degradation was prepared in 2002. Degraded catchment area restorations, rehabilitation of minor tanks in the Dry Zone and tree planting programmes have been implemented and are continuing. Several donor-funded projects have been undertaken primarily to address issues of land degradation in the critical watersheds.

Though Sri Lanka is not within the range of desert areas specified by the UNCCD, the country still falls within the scope of the Convention because there could be a possibility of deserts developing in the future. In 1998, Sri Lanka acceded to the UNCCD adopted in 1994 to address the issue of land degradation and drought.

It has also been estimated that with the increasing population, the land/man ratio of the island has declined from 0.44 ha/person in 1981 to 0.29 ha/person in 2011. This decreasing trend will continue in the future, as the scarcity of land for human use will further be aggravated due to land degradation. However, due to natural and anthropogenic causes, substantial numbers of hectares of arable land lose its productivity day by day. Improper land management and misuse of land will also lead to widespread land

degradation in the country. Soil erosion; over exploitation of ground water, salinisation, water logging and water pollution have been considered as important contributing elements for land degradation in Sri Lanka.

Considering the critical importance of land as a resource for economic development, the need for a state policy on land uses cannot be overemphasised. The '*Mahinda Chintana* Vision for the Future,' the national policy framework of Sri Lanka and the '*National Action Plan for Haritha Lanka Programme*,' the national platform to launch and promote the process of achieving sustainable development have also emphasised addressing land degradation as a priority area.

Recognising the magnitude of land degradation as well as impacts of drought, the Sri Lankan Ministry of Environment, as the focal point of UNCCD, has formulated a comprehensive National Action Programme (NAP) in 2002 to Combat Land Degradation and the impact of drought in the country. The main programmes of the NAP focused on key issues such as soil and water conservation on degraded lands, forest decline, forest degradation, conservation of grasslands and mitigation of the effects of the droughts. '*Dayata Sevana*,' the annual tree planting programme, was launched by the Government of Sri Lanka covering the entire island, and it pays special attention to the degraded lands and hilltops in the country. Additionally, the state is currently working on developing a project proposal on the '*Rehabilitation of Degraded Agricultural Lands in the Central Highlands of Sri Lanka*' to be submitted for financial assistance of the Global Environmental Facility (GEF) to

mitigate the land degradation in the central part of the country.

Adhering to the UNCCD guidelines and considering the need for implementing the NAP, Sri Lanka has already taken initiatives to formulate the Integrated Financial Strategy (IFS) for Sustainable Land Management (SLM.) Sri Lanka would be able to rehabilitate the lands already degraded and prevent future land degradation with the implementation of NAP together with the assistance of UNCCD.

Water: Fresh water is a precious resource in terms of the sustainable development of a country. The annual water resource of Sri Lanka is estimated at 50 km³. Water extraction for agriculture, industry and domestic needs are estimated as 83%, 6% and 5% respectively. The government is aiming to provide safe drinking water and adequate sanitation facilities to ensure protection of water sources and the environment. Around 80% of the population has access to safe drinking water of which 30% is through piped water supply systems managed by the National Water Supply and Drainage Board (NWS&DB.)

The Sri Lankan government established a Ministry of Water Supply and Drainage for the subject of water supply and drainage in 2007. The NWS&DB under this ministry is conducting awareness programmes in addition to implementing water supply and management programmes.

The MoE commenced a Programme titled '*Clean River (Pavithra Ganga)*' in 1998, to keep the nations' water bodies clean. One of the major objectives of this programme is assisting relevant local authorities to keep the water quality of the main water bodies of the country at acceptable levels for human use. In the face of increasing urbanisation, the downstream areas of rivers are being

seriously threatened. The river banks are eroding and the water quality is deteriorating. A multi stakeholder approach has been initiated to achieve this objective and the onus of implementing the project will lie with the relevant local authorities.

Forestry and Biodiversity: Sri Lanka has been identified by Conservation International (CI) as one of 25 biodiversity hot spots in the world. A noteworthy feature of Sri Lanka's biodiversity is the remarkably high proportion of endemic species amongst its flora and fauna; 23% of the flowering plants and 16% of the mammals in the island are endemic. Sri Lanka has a wide range of topographic and climatic variation and this contributes to the special features of its biodiversity.

Sri Lanka ratified the United Nations Convention of Biological Diversity in 1994, and has since conducted many activities to implement the Convention. These activities include the preparation of a Biodiversity Conservation Action Plan, the strengthening of the key institutes in the departments of forestry, wildlife, agriculture and coastal sectors, the setting up of the implementing mechanism for coordinating biodiversity activities in the MoE, and country capacity assessment for biodiversity conservation. Capacity assessment at national level and self-assessment for global environmental projects are considered to implement the Rio Convention and the preparation of a Capacity Development Action Plan (2005-2007.)

Sri Lanka signed the Cartagena Protocol on Bio-safety on 24th May 2000, during the fifth meeting of the Conference of Parties to the Convention on Biological Diversity in Nairobi, Kenya, when it was first opened for signatories. The country ratified Cartagena Protocol on 28th April

2004 and consequently the Protocol came into force on 28th July 2004.

The MoE has taken action to facilitate sustainable use of biodiversity through benefit sharing mechanisms by developing a database on marine shells, with updating of such data due to the on going identification of marine shell activities, on faunal observation, and the information input by island wide surveys.

The National Science and Technology Policy formulated in 2008 by the National Science and Technology Commission for the Ministry of Science and Technology has developed several initiatives for scientific investigations on biodiversity conservation.

Fauna, Flora and Eco Systems: Sri Lanka is world renowned for its high degree of endemism, which is observed in several taxonomic groups. Even more interesting is the distribution of endemics. A large proportion is found in the Wet Zone in the South-western region of the island. 23% of the flowering plants are endemic and most of them are confined to the wet evergreen and wet mountain forests of the Central and South-western parts of the country. The fauna of Sri Lanka is also as diverse as the flora. While sharing common features with the neighbouring subcontinent, the fauna exhibits a very high endemism among the less mobile groups. The faunal endemic species distribution patterns are similar to that of the flora; the Wet Zone has many more endemic species than the Dry Zone. Mammals, birds and fish, are the three major groups that have been studied extensively in Sri Lanka, and it has been found that each group has different distribution patterns.

There is a wide range of ecosystem diversity in the country. The major natural ecosystems in the country are forests, grasslands, inland wetlands, and

coastal and marine ecosystems. Marine ecosystems include sea-grass beds, coral reefs, estuaries, lagoons and mangrove swamps.

Coastal Resources: Sri Lanka is a small island, enjoying a total extent of approximately 489,000 sq.km of maritime waters, consisting of Internal Waters, Historic Waters, Territorial Seas, a Contiguous Zone and an Exclusive Economic Zone (EEZ.) The majority of the area (437,000 sq.km) belongs to the EEZ. The island has a relatively small land area of 65,610 sq.km, which gives a land to ocean ratio of 1:7.5. The coastal zone is therefore of strategic significance to the populace due to accessibility to the vast resource base surrounding the island, from any point of the 1585 km long coastline.

Sri Lanka has set up a well-established administrative mechanism to protect the coastal belt and maritime waters under the Ministry of Fisheries and Aquatic Resources. Sri Lanka is one of the few island states which has a fully operative national Coastal Zone Management Plan. The Coast Conservation Department, by an act of parliament, has full responsibility for the implementation of the plan. The government authorities have undertaken a wide range of projects with the assistance of international agencies for improved coastal zone management.

2.7 Climate Change and Disaster Management

Article 1 of the UN Framework Convention on Climate Change, (UNFCCC)(1992) defines climate change as, 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.'

The UNFCCC perspective lays firm emphasis on climate change being due to human activities altering the atmospheric composition, while International Panel for Climate Change (IPCC) definition also embodies natural processes as a cause of climate change. In the Global Assessment Report, 2009, the UN International Strategy for Disaster Reduction (UNISDR) published a risk model that assesses a country's exposure to natural disasters in terms of mortality. The assessment is based on historical data and known vulnerability information. A risk classification of 10 points signifies extreme mortality risk. On an average, all South Asian countries are positioned above five in the scale. Bangladesh and India are classified as 9 (major risk) Pakistan and Afghanistan as 8 (very high risk), Nepal and Bhutan as six and Sri Lanka at five (medium risk.)



Flood Disaster

Although assigned medium risk, Sri Lanka is very vulnerable as a small island state. Different types of natural disasters such as floods, landslides, slope failures and rock falls, cyclones, droughts, coastal erosion, ground settlements, forest fires, tsunami, minor earthquakes, lightning strikes, sea surges, high winds, rainstorms, etc., are affecting Sri Lanka. Except tsunamis and earthquakes, all the other natural disasters are hydro meteorological disasters. Among them, landslides, droughts and floods are the most

dominant problems. Climate change has a direct bearing on most natural disasters, especially of the hydro meteorological type (IPCC - Climate Change 2007: Impacts, Adaptation and Vulnerability Report.)

The impact of sea level rise (SLR) is one of the consequences of climate change in Sri Lanka. Over the next two decades, the sea-level around Sri Lanka will rise by half a meter with dry areas becoming drier and wet areas becoming wetter, leading to longer droughts in some areas and floods in others. The consequences would include: Increased vulnerability of coastal areas to destruction of mangroves and coral reefs, decline of ecosystems and marine habitats and damage to shelter, infrastructure and human safety. In addition, the adjacent areas of the coastal regions will also experience gradual but intense salinisation of inland fresh water sources. The most frightening prospect for Sri Lanka is in agriculture: Studies carried out by the Department of Meteorology have shown increased temperatures and less availability of water content. This could result in paddy farming output falling by 20-30 percent in the next 20 to 30 years.

In order to address the cross sectoral nature of major environmental challenges caused by climate change, the MoE, which is the National Focal Point for the UNFCCC and its Kyoto Protocol, has taken the initiative to establish a Climate Change Secretariat in 2008, under its purview. The Climate Change Secretariat adopts a comprehensive national approach to address climate change challenges, as these concerns are categorised not only as environmental concerns, but also are development issues for Sri Lanka.

The MoE of all the eight nations of the SAARC have adopted a three-year Action Plan on Climate Change at the

SAARC Ministerial Meeting on Climate Change held in Dhaka in 2008. The Action Plan covering 2009-2011 focuses on seven thematic areas - from adaption of climate change to a regional stance for international negotiations. The Cabinet of Ministers in Sri Lanka granted the approval to implement the national obligations under the SAARC Action Plan on Climate Change in collaboration with the relevant line Ministries and other agencies. The year 2009 Action Plan was prepared and submitted to the SAARC Secretariat and 2010-2011 Action Plans were prepared in collaboration with the line Ministries and Agencies. Commitments made under the Thimphu Statement on Climate Change for implementation in the 10th SAARC Summit were communicated to the relevant line agencies.

Sri Lanka ratified UNFCCC by a cabinet decision in November 1993, becoming one of the first 50 countries to ratify the convention. As an obligation of UNFCCC, Sri Lanka is required to prepare the National Communication on Climate Change periodically. Accordingly, the Initial National Communication on Climate Change was prepared and submitted to UNFCCC in the year 2000 and the Second National Communication report was submitted in January 2012.

The Government of Sri Lanka has taken the initiative through 'Strengthening Capacity for Climate Change Adaptation' to develop a National Climate Change Adaptation Strategy and to formulate a Public Information and Awareness Strategy. Preparations are on the way for the National Climate Change Adaptation Strategy for years 2011 - 2016 for Sector Vulnerable Profiles (SVPs) namely agriculture and fisheries, water, human health, urban development, human settlements and economic infrastructure,

biodiversity and ecosystem service sectors in consultation with the stakeholders.

These measures are expected to contribute to developing sector strategies while ensuring sustainable food security, energy security, health and sanitation and human settlements. These strategies are directly related to the MDGs to which Sri Lanka is a signatory.

2.8 Sustainable Consumption and Production

Sustainable Consumption and Production (SCP) was an age-old tradition that has been practiced in Sri

Lanka. The 9th Conference of the Asia Pacific Roundtable for *Sustainable Consumption and Production (APRSCP)*, the regional network of the professionals, academics and industrialists to promote Sustainable Consumption and Production in the region was held in Sri Lanka in June 2010 under the theme of 'A Strategy to meet Global Challenges in Business and Industry'. The theme was elaborated under the main topics such as sustainable production, sustainable consumption, water and sanitation, energy, sound chemical management, sustainable building and construction, new marketing strategies for SCP and life cycle management of products and

Box 2.7 Sri Lanka Carbon Fund Private Limited (SLCF)

Establishing the Sri Lanka Carbon Fund Private Limited (SLCF), registered under the Companies Act No 7 of 2007, as a state owned private company under the Ministry of Environment, is one of the major initiatives taken by the Climate Change Secretariat. SLCF's main objectives are to be engaged in Carbon trading and to provide technical and financial assistance to the CDM Project developers for the preparation of project documentations. It was also intended that SLCF would facilitate the bundling of small CDM projects and subsequently provide investment capital for said projects.

Key Objectives of SLCF: To undertake environment related all commercial activities, such as:

1. Implementation of Kyoto protocol and UNFCCC including CDM and Green House Gas Verification.
2. Provide consultancy services to the private, public and non-government organisations on the CDM project development activities and to facilitate the validation and verification of the CDM projects undertaken by the private and public sectors and to deliver financial resources to greenhouse gas emission reduction projects.
3. Purchase and sell certified emission reductions (CERs) under the CDM project and verified emission reductions (VERs) under any programme including voluntary mechanism.
4. Environmental audits and carbon foot print calculations.
5. Environmental research and studies including environmental valuation.
6. Assist private companies and agencies to improve green reporting.
7. Invest funds in sustainable development activities.
8. Undertake any other activities related to converting Sri Lanka to a Green Economy.

services.

The Ceylon Chamber of Commerce initiated the SWITCH Asia Programme in 2009, on sustainable consumption and production for the food and beverage sector and the leisure sector among the SMEs to optimise the usage of natural resources. This programme has encouraged the SMEs to adopt best practices of SCP which has had a favourable impact on the environment.

Furthering the effort Sri Lanka hosted the SWITCH-Asia sub regional meeting in June 2011 at Colombo, Sri Lanka. The main emphasis of the SWITCH Asia Programme is sustainable consumption and production which directly contributes to sustainable growth and the fight against poverty. The major theme of the event was to present the progress of the SWITCH Asia projects and to assess their impact. The Sri Lanka government has ensured its participation to sustainable consumption and production by developing and implementing policies such as *National Cleaner Production Policy* and *Sectoral Cleaner Production Policies for Health, Fisheries and Tourism*.

Some of the key players of the private sector are voluntarily and actively contributing in SCP efforts. With respect to consumer/customer education there has been many initiatives at secondary and tertiary level educational institutions on a small scale. However, it is not widely shared across these sectors, and also not with other sectors, such as the consumption and production sectors. As far as capacity building is concerned one would notice various efforts taken by the government and the NGOs to develop institutional capacities with regard to sustainable development. However, the present status with respect to capacity building efforts appear to be somewhat satisfactory at the central level and rather weak at the

provincial/regional/district/village levels.

2.9 Food Security

Food security is of great importance to sustainability; hence at the World Food Summit of 1996, it was defined as follows: 'When all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life.' Definitive availability and accessibility of food and nutritional and sanitary use of food ensures food security. Therefore, the availability, accessibility, and utilisation are called the three pillars of food security.



Figure 2.1 Three Pillars of Food Security

Food security is directly linked to the four main sectors discussed in later chapters: they are agriculture, fisheries, health and water. In relation to the three pillars, 'availability' is ensured by the sectors of agriculture and fisheries. Health and water are mainly concerned with the utilisation. Accessibility is in two parts: physical and economic. While sectors such as transport, energy and industry play major roles in making food physically accessible, all sectors contribute to economic accessibility.

The national policy framework in Sri Lanka has given great priority towards ensuring food security. The National Agriculture Policy has given deserving emphasis on the topic of food security by making it a policy direction. Also, *Mahinda Chintana* 2005 and 2010 emphasised the strategies and programmes required to achieve sustainable food security.

Sri Lanka has made many accomplishments towards ensuring food availability to everyone in the nation by increasing food production and ensuring equal distribution (discussed under the agriculture sector in chapter 3.) As a result, the country now has a surplus of rice, the staple food of the nation. Further initiatives, such as *Divi Neguma*, are encouraging people to grow their own home gardens, which is not only ensuring an increase in food availability but also directly reflects on practicing sustainability by making strides towards eliminating the need for product transport, thus reducing greenhouse gas emissions.

Malnutrition, which is a main theme to be addressed in the Rio + 20 summit, goes hand in hand with food security. Absolute food security will effectively eliminate malnutrition. However, it is of vital importance to understand the difference between food being available in adequate quantities and food not used in a calorific or nutritionally suitable manner. This will not amount to food security and hence will not fulfil the requirements for eliminating malnutrition.

Successes in complying with proper food use under the two relevant sectors, health and water, are discussed in chapter 3. Sri Lanka is self-sufficient in its staple food supply, rice, and has many noteworthy achievements in nutrition. Nevertheless, there are still issues

regarding proper food habits with regard to consuming a balanced diet.

It is argued globally that the problem lies not in a shortage of food, but that it is instead a problem of distribution, and proper nutritional balance in consumption. Similarly Sri Lanka also has no shortage of food; it is a question of nutritionally sensible consumption and distribution.

Climatic conditions play a major role in food availability, one of the pillars in food security. The impacts of climate change in the form of extreme climatic conditions experienced in the country caused Sri Lanka to lose tons of potential harvest in crops. It is therefore imperative to have programmes, which safeguard the food supply against potential situations of such devastation. Efforts in implementing new technology in weather resistant crops, short term varieties and storage and processing technology are avenues to be explored in addressing crop losses due to natural disasters. Research in crop biotechnology and post-harvest mechanisms is very important and should be given precedence in future planning.

2.10 Waste Management

Solid waste management is an obligatory function of all local authorities in Sri Lanka. The Central Environment Authority, in its effort to resolve this problem, has planned to take legal action against local bodies that fail to take proper steps to manage solid waste disposal. The Government of Sri Lanka has taken steps to ban polythene products - bags and sheets less than 20 microns in thickness.



Political commitment in Waste Management

Sri Lanka ratified the Basel Convention on the Control of Trans boundary Movements of Hazardous Waste and their Disposal in 1992. To implement this Convention at country level Sri Lanka has developed and published Guidelines for the Implementation of Hazardous Waste Management Regulations and Harmonised System Codes. Under the Basel Convention, in collaboration with Department of Customs, a Guidance Manual for Safe and Effective Detection and Investigation of Illegal Traffic and Trans boundary Movement of Hazardous Waste and Other Waste.. The CEA has established a programme titled 'Pilisaru' which commenced in 2008 to solve the solid waste problem. Under this programme waste management is done by adhering to a reduction of waste generation by reuse, recycling and resource recovery to the maximum extent possible, followed by appropriate treatment, and finally, the disposal of residual waste in an environmentally sound manner. A leading local cement manufacturer uses waste material as a source for fuel in its kilns and has developed a strong waste supply network.

Regulations with respect to hazardous waste management were gazetted in 1996. Having identified the difficulties and draw backs and to facilitate the easy

implementation, this regulation was further amended as the National Environmental (Protection & Quality) Regulation No. 01 of 2008 by Extra Ordinary Gazette Notification in 2009.

The National E-waste Management Programme was also developed by the CEA with the active co-operation and assistance of a few leading private companies involved in selling and assembling electronic equipment in Sri Lanka. Under this Programme launched in the year 2010, electronic waste (e-waste) is collected island-wide in order to dispose of it in a proper manner. The Mobile Phone Waste (m-waste) Project was a private sector initiative with the same objective as the e-waste programme, launched by a leading mobile phone service provider in Sri Lanka in 2007 to collect, transport and store mobile waste within the country as an extended product responsibility of the company. A few other electronic vendors with an extended responsibility initiative offer rebates in exchange for new appliances to encourage planned disposal of used electronic appliances.

2.11 Ensuring Good Governance

It is widely recognised that good governance is essential for sustainable development. Well-functioning legal institutions and governments bound by the rule of law are, in turn, vital to good governance. Governance cuts across all sectors of development activity. The current political-administrative arrangement for performing public functions is based on central Ministries, Departments and Public Enterprises at the apex operating a decentralised district and divisional network of sub-national offices. Provincial Councils provide for a devolved political system modifying the centralised structure. Devolution introduces a multilevel (three-tiered) system of government with

Local Government at the third tier. It allows participatory decision-making and a bottom up approach in planning and decision making regarding service delivery in respect of devolved functions at the provincial and local levels. Through the process of striving towards good governance, Sri Lanka has already taken steps in developing participatory plans for sustainable development at local government and/or district level whilst supporting transparency and accountability, stringent environmental and social regulations and control. Starting at the third tier and upwards, Sri Lanka's objectives towards ensuring good governance entails improvement of the governance framework for sustainable development with peace and justice ensured for all communities.

The introduction of city consultations including all stakeholders of major cities resulting in implementation of participatory planning and budgeting are new and successful approaches of the local government sector. The establishment of good governance resource centres, introduction of the Citizens' Charter, the establishment of a Federation of Sri Lankan Local Government Authorities & Mayors Forum and social auditing programmes are some of the achievements towards good governance. This has resulted in improved rule of law, gender and equity, participation, transparency and responsiveness at local levels.

2.12 Strengthening the Role of Major Groups

During the last two decades, Sri Lanka has taken a comprehensive programme of action to strengthen all major groups, covering women, children, youth, indigenous people, non-governmental organisations, workers and trade unions, business, scientific and technological

community, etc., for sustainable development.

The Constitution of Sri Lanka recognises gender equality and child rights. This constitutional pledge has been honoured by creating a separate Ministry for the subject of Child Development and Women's Affairs and the establishment of the Sri Lanka Women's Bureau, the National Women and Child Protection Authority, the Department of Probation and Child Care Service and the Children's Secretariat. The legal system in the country is also supportive of women's rights, and free legal assistance too is available. The ministry plays a key role in policy and strategy development, planning, coordination and implementation of programmes on child development and empowerment of women. A Charter for Women has been approved by the Government to ensure gender equality and freedom from sex discrimination. Its provisions can be enforced in the courts of law. This Charter embodies special provisions for protection against gender-based violence. A National Women's Committee, appointed by the President, continuously monitors the implementation of all provisions in the Charter. The Children's Secretariat and Sri Lanka Children's Authority functioning under the Ministry are responsible for safeguarding the rights of children. The school going children come under the purview of the Ministries responsible for education. The achievements in the advancement of women and children are related to health, literacy and educational enrolment, all of which are considered major responsibilities of the state in its effort to ensure the wellbeing of its people and human development.

Sri Lanka has a youth population of 5 million, amounting to 26% of the total population. Each year about 150,000 and

130,000 students leave the school education system after sitting for the GCE (O/L) and GCE (A/L) examinations respectively. Hence 92% of the youth is seeking alternative avenues leading to productive employment opportunities. The Ministry of Youth Affairs and Skills Development and the National Youth Services Council are the main decision making bodies in advancing the role of youth and their active involvement in the protection of the environment and the promotion of economic and social development. The prime responsibility of the Ministry is to formulate national policies and implement youth development programmes to create youth who will be future leaders by providing the necessary vocational and technical training, developing their entrepreneurial and leadership skills and enhancing their socio cultural activities. The Ministry has 18 institutes under its purview to achieve these objectives.

Youth are actively involved in environmental protection, natural resource management and social development through NGOs and public agencies. A few such organisations are the Sri Lanka Wildlife and Nature Protection Society (WNPS), the Young Zoologists Association, the Field Ornithology Group, the Ceylon Bird Club, the Environment Foundation Limited, the Ruk Rakaganno (Protectors of Trees), the Sri Lanka Wildlife Trust, the Wildlife Heritage Trust, the Environmental Journalist Forum, the Bio-diversity and Elephant Conservation Trust, etc. These organisations are capable of acting as conduits of public opinion. In addition, there are hundreds of NGOs at grass root level having programmes focused on awareness creation and activity implementation in conservation.

There are Environmental Brigades in most of the schools set up with the assistance and guidance of the Central Environmental Authority. Most of the work in relation to these Brigades is performed by NGOs through awareness building programmes and through promoting the participation of youth in conservation-oriented activities. Over the last two decades the Wildlife and Nature Protection Society has implemented a Programme to Promote School Nature Clubs (SNCs.). There are more than 1000 local NGOs working with youth for sustainable development and there are about 1250 school environmental clubs.

The Constitution of Sri Lanka provides equal rights and privileges to indigenous communities. With regard to important matters regarding various aspects relevant to the indigenous people of Sri Lanka, it is the Government of Sri Lanka and the Indigenous Communities themselves who collaborate in making decisions. There are specific arms of the key relevant public agencies in dealing with indigenous people.

Special attention is paid to the indigenous people during the preparation of any development initiatives under the National Involuntary Resettlement Policy. The Department of Forest Conservation and the Department of Indigenous Medicine under the reforestation programme encourage indigenous communities on reforestation and growing medicinal herbs and plants. The Department of Wild Life Conservation is following up on these activities in collaboration with local administrative authorities and nongovernmental organisations. There is information available in this regard with the Department of Wild Life Conservation and also with the Divisional Secretaries in the relevant areas. Any interested party could gain

access to the information required through the Sri Lanka Government Information Department as well as through the National Museum. The indigenous communities have now been allowed access and participation in the religious ceremonies and festivals at national level with their cultural practices also being incorporated. There is a vast range of literature on the various aspects of the life style and social organisation of these communities and there is a great deal of interest on indigenous communities in Sri Lanka.

The MoE has recognised the contribution of the NGOs in the decision making process of sustainable development issues and included a NGO participation provision in the National Environmental Action Plan, Biodiversity Action Plan, Forestry Sector Master Plan, Solid Waste Management Strategy, National Wildlife Policy, National Forestry Policy, etc.

The Central Environmental Authority has registered around 3000 environmental NGOs. Many environmental NGOs in Sri Lanka have been involved in discussions, debates and activities related to sustainable development at local, national and international levels. However, a strong understanding and conceptual modelling for sustainable development exists only among a few environments based NGOs in the country. For many it has become a part of environmental activism and thus, the concept of the essential integration of the other two broad dimensions of economic and social aspects have been neglected. There is also criticism that environmental NGOs have kept the subject of sustainable development

within their own agendas and not been able to educate and involve other stakeholders, including non-environmental NGOs. This could be due to the lack of a holistic understanding of the subject and also because such an approach requires socio, economic and political integration of the solutions. In fact, most NGOs have been under the impression that Sustainable Development is merely an environmental issue and concern. Hence, the interest by non-environmental NGOs has been extremely limited in sustainable development. On the initiative of several environmental and development NGOs, a multi-stakeholder dialogue has commenced for the first time in the country.

The workers and their trade unions have been identified as one of the social groups with immense potential to undertake promotion of sustainable development needs. They are placed in a tripartite structure premised on the principles of tri-partism, constituting the workers, the employers and the government. This influential link can be beneficial in awareness programmes and assistance in legislation formulation with stakeholder participation.

In this field, decision-making is largely done by the Ministries of Industry and Commerce, Economic Development, Science and Technology as well as the National Science and Technology Commission (NASTEC), the National Science Foundation (NSF) and the Sri Lanka Association for the Advancement of Science (SLAAS), the premier non-governmental scientific body.

CHAPTER 3

3 Sector Specific Progress Achieved in Sustainable Development

3.1 Energy

Overview

The primary energy supply in Sri Lanka is approximately 268,440 TJ/year, dominated by biomass, accounting for a share of 46.5%, followed by petroleum and renewable forms such as hydropower and other renewable energy sources. Electricity is a main secondary source of energy, which accounts for 9%. The highest energy consumer categories are household and commercial businesses, which is approximately 157,557 TJ/year, a share of 45.3%. The balance is consumed by transport, 97,847 TJ/year, 28.1% and industries, 92,653 TJ/year, 26.6%.

Firewood is an important form of cooking fuel in the household sector. The use of firewood in the urban sector is 42%, while it is 88% in the rural sector. The use of LPG is 46% and 10% in the 2 sectors respectively. With the increase in economic activities and income generation within families, it is expected that the usage of firewood would further decrease, while the latter would increase. The use of kerosene as a cooking fuel is 1% and 10%, in the economic and household sectors respectively. Box 3.1 highlights the current status of the energy sector succinctly.

Electricity Supply Industry

The industry that supplies electricity is dominated and largely owned by the Government, which owns a large segment of the plants that generate electricity. A small number of thermal

power generating plants and grid connected renewable energy plants are operated and owned by the private sector.

Box 3.1 Ensuring Energy Security

Sri Lanka progressed well to provide the basic energy needs of individual citizens by extending the national grid to 92% of homes by end 2012. Widespread use of efficient fuel wood stoves has contributed to averting cooking fuel shortages in all regions of the country. Integration of the whole value chain in renewable energy generation and utilisation is being attempted on two major technological fronts.

A net metering scheme is in operation throughout the country, paving the way to wean away the buildings from electricity supplies and to making buildings energy generators.

A Long Term Renewable Energy Development Plan (LTREDP) and a Long Term Energy Efficiency Improvement Plan (LTEEIP) were developed, setting the pace for a full scale sustainable energy drive from 2010 onwards. Since 2012, the energy sector performance is closely monitored and reviewed in an annual publication of the National Energy Balance which is available in a web portal:

<http://www.info.energy.gov.lk>

The overall annual electricity demand grew at an annual average growth rate of 7.5% over the last 3 decades and is expected to grow at 8-9% in the future. The gross generation of electricity is 10,800 GWh. The rate of electrification was 92% by 2011. The total installed capacity of the grid is approximately

4,000 MW, while the maximum peak demand was 1954 MW. The system load factor is 63%. The Government has taken measures to maintain an uninterrupted electricity supply 24 hours a day, 365 days a year.

Grid generation is dominated by non-indigenous resources, which include oil based petroleum products, and indigenous resources such as mega hydros. Due to its geo-climatic settings, Sri Lanka is blessed with several forms of renewable energy resources, such as hydro, biomass, solar and wind. Some of these renewable energy resources are widely used and developed to supply the energy requirements of the country. Others have the potential for development when technology becomes sound and economically feasible for use. The National Policies and Strategies of Sri Lanka (2008), proposes the following energy mix for power generation.

Table 3.1 Energy Mix for Power Generation

Year	Conventional Hydrolytic (%)	Maximum from Oil (%)	Coal (%)	Minimum from New Renewable Energy (%)
1995	94	6	-	-
2000	45	54	-	1
2005	36	61	-	3
2010	42	31	20	7
2015	28	8	54	10

The Mahinda Chintana Idiri Dekma, which documents the Government's vision for national development, envisions a further increase in the share

of New Renewable Energy (NRE) to 20% by 2020.

New Renewable Energy Industry

The renewable energy industry supplements over 50% of power generation in the country. Although there were several hydro power capacity additions, the share of this form continued on a reducing trend since the mid-1990s, due to the accelerated development of all economically feasible major hydropower resources. The second oil crisis in the 1980s renewed the interest in small-scale hydropower, as a response to the rising cost of grid electricity. 'Estate Hydros' as these plants were

Box 3.2 Increasing Indigenous Energy

Significant development took place in the New Renewable Energy (NRE) industry in the country during the last few years in Sri Lanka. A comprehensive resource mapping programme is now in place for hydro, wind and solar energy resources, leading to the declaration of Energy Development Areas, an exclusive area secured for development of NRE projects. A detailed guideline and planning approval process was introduced in 2009 to accelerate the NRE development. This has yielded capacity additions of more than 250MW by end 2011, which include 217MW of hydro, 30MW of wind and 10MW of biomass power plants. The latest addition to this fleet of NRE plants are two solar energy plants providing a combined capacity of 1.3MW.

known, proliferated in the previous century and later went into disuse by about the late 1950s, due to the advent of grid electricity. The renewed interest paved the way for a lot of rehabilitation projects which enabled the build-up of valuable technical capacity locally, which

was later scaled up to projects outside the plantation sector. Hydroelectricity generation has played a major role in power generation since the commissioning of the first hydroelectric power plant in 1950. At present, the share of major hydro plants accounts for 46% of the total generation.

The share of thermal power is at 47%. The first small hydropower plant was commissioned in 1996. The share of NRE stands at 7%, which includes technological genres such as mini hydro, wind, biomass and solar

Village Hydro Schemes. By end of 2010, there were more than 300 village hydro schemes in operation, benefitting approximately 7,000 rural families.

The state owned electricity utility, the Ceylon Electricity Board (CEB), extended further cooperation by developing a robust technical and legal framework to connect non-dispatchable embedded generators through a Grid Code and a Standardised Power Purchase Agreement (SPPA), based on avoided cost principles. The SPPA has also been considered the key driver of the early success of the hydropower sector. This is

Table 3.2 Grid Capacity Additions in MW and Percentages of Power Generation Technologies (1996 - 2010) Mini Hydropower Sector

Type	Unit	1996	2000	2005	2007	2008	2009	2010
Major hydro	MW	1,137	1,137	1,207	1,207	1,207	1,207	1,207
Thermal	MW	309	685	1,115	1,115	1,455	1,475	1,660
NRE	MW	1	16	89	115	146	182	217
Total	MW	1,448	1,838	2,411	2,437	2,808	2,864	3,084
<i>Source: Sri Lanka Sustainable Energy Authority, 2010</i>								

To date, the NRE industry has contributed to saving up to LKR 26.8 billion, in the form of foreign exchange, over the last 15 years. Today, the development of small hydropower alone has reached great heights in Sri Lanka, paving the way for its successful replication in other parts of the world. The early development of the hydro power industry created a significant opportunity for knowledgeable technocrats, local investors and financial institutes to forge an alliance to launch many more small hydro projects. The know-how was gainfully utilised by non-governmental organisations operating at grass root levels which commissioned many community owned micro hydro projects which were later identified as

applicable for power plants having capacities less than 10 MW based on renewable sources, waste or co-generation facilities. The salient features of the SPPA include:



Mini hydro sector: leader of the renewable energy industry of Sri Lanka

- 1) A complete averting of market risk: the Ceylon Electricity Board assures the purchase of all what is produced by Small Hydro Projects (SHPs) projects.
- 2) A floor price of 90% of the tariff: ensuring a steady and predictable cash flow.
- 3) A long term commitment: the SPPA which was for a period of 15 years is now offered for 20 years and is based on sound legal provisions in resource allocation assured through an Energy Permit.

The SPPA, which offered a tariff based on avoided cost principles, saw a dramatic surge in the number of small hydro projects being developed, due to the steep rise in fossil fuel prices, which pushed the avoided cost to a higher level, making many a small hydro project financially a very attractive investment. The resultant dynamism created an ever growing industry, teeming with project developers, service providers and consultants, which would eventually grow into a formidable force, commanding a total capacity of 217 MW by end 2011.



Locally manufactured hydro turbine

The country possesses its own high-quality hydro turbine manufacturing plant, with energy conversion efficiencies reaching world-class levels. Turbines manufactured in Sri Lanka are used in local power plants and also exported to

other countries. There are also initiatives to manufacture wind turbines, and wind blade manufacturing is already taking place in two enterprises.

Other Forms of Renewable Energy

The evolution of the small hydropower sector and the stagnation of the development programmes focusing on other renewable energy sources such as biomass and wind required a fresh perspective. This provided a window of opportunity for biomass projects through a financing mechanism identified as the Sri Lanka Energy Fund. This fund managed to bridge the gap between the avoided cost tariff paid to biomass projects and the bare minimum tariff, which would make these projects viable, making the dream of biomass power driving rural poverty out from rural Sri Lanka a reality. The success of this mechanism led to the introduction of a new tariff regime known as the cost based, technology specific tiered tariff in 2006. Introduction of this tariff regime saw the rejuvenation of several wind and biomass projects, which were in abeyance for many years, due to the viability gap issues.

Wind Energy



Wind Energy plants in the North Western Province of Sri Lanka

Wind energy attracted the attention of engineers who were responsible for water management in the Dry Zone of Sri Lanka. Via foreign expertise, many wind-pumping stations were set up on the flat terrain of the Dry Zone, along with the accumulation of a wealth of local knowledge of the wind regime of Sri Lanka.

The perseverance of a handful of committed practitioners planted the first seeds of wind energy development in Sri Lanka through an ambitious programme of wind measurement in many locations of the country. Armed with this valuable long-term wind data, the CEB managed to convince a development partner to provide grant funds to construct the first wind energy plant in Hambantota in 1998. The success of this project led the CEB's Alternative Energy Unit to initiate a modern wind resource assessment programme, yielding many years of quality wind data, which was required to launch commercial projects. This promising wind data attracted the attention of a development partner, which led to the development of a wind Atlas for Sri Lanka in 2003. With the introduction of the cost based tariff regime, the availability of long term ground data, a sound financing programme and experience gained in project development, helped launch the first commercial wind project in 2009. This project was timely, and was followed by several other projects, all of which are yielding 32% of the annual plant factor, the highest-level recorded anywhere in Asia. The commendable accuracy of energy yield estimates provided the much needed drive and stability to this industry, leading to the construction of many more wind power plants, resulting in a capacity addition of 30.15 MW in 2011. A further 89.15 MW of wind power plants are under construction and a 100 MW wind power

plant is being proposed by the Government to reap the winds of the Mannar Island located in North West of Sri Lanka.

Promising Renewable Energy Sources for the Future Issues

It is clear that the NRE industry is on its way forward through the successful implementation of many environmentally sound forms of power generation over the last decade. The three tiered, technology specific, cost-based tariff, proposed by the Government for NRE developers has eliminated the drawbacks of the previous tariff that involved avoided cost. The new tariff, offered to six genres of technology: biomass, hydro, wind, municipal waste, agro waste and waste heat recovery, opened opportunities for efficient development of other genres such as solar and wind. The first solar energy park was commissioned in 2011, with an installed capacity of 1.2 MW.



Sri Lanka's first ever-Solar Park with an installed capacity of 1.237 MWs, at Hambantota

The renewable energy industry has also benefited from generous grants to construct two utility scale solar PV power plants in Hambantota in 2010. The projects are as of 2011, yielding clean energy at an annual plant factor of 17%. The on going market upheavals in solar PV coupled with a special tariff offered for exotic technologies have contributed to create a dynamic industry vying to

develop large utility scale grid tied solar power plants by the end of 2011.

Hydropower and biomass based energy supplies, the only large-scale native primary energy sources available in Sri Lanka, are expected to remain virtually fixed during the near future.

Renewable Energy as a Source of Energy for Off-grid Electrification

However, certain parts of the island still do not have access to electricity, due to inaccessibility to the national grid. Such areas are expected to be served through off-grid technologies with the objective of providing improved energy services and clean energy. There is a strong off-grid electricity generation industry based on village hydro and solar photovoltaic systems, because of many years of work on the part of both the Government and the non-governmental sectors. A special funding programme titled the Energy Services Delivery Project (ESDP) was implemented with donor assistance, providing the much needed debt capital to the evolving industry in 1997.

The success of this 5-year programme saw an extension to the programme by way of another donor funded programme titled Renewable Energy for Rural Economic Development (RERED.) These endeavours have been further strengthened by the ESDP and its extension RERED project. Both these programmes actively supported community owned micro-hydro projects and have evolved into a major success. There are 239 community owned village hydro schemes presently supplying electricity to over 7,000 households in rural communities. Approximately 157,000 remote rural households have been supplied with solar PV systems. A few households are also supplied with off-grid wind turbine systems mainly in the Southern areas of the country.

Demand Side Management

The second oil crisis in the 1980s saw the highest ever oil import bill accounting for nearly 50% of Sri Lanka's export earnings draining out. This created an impetus to make many important changes in the energy sector, aligning it with an energy conservation drive. This era heralded the taking over of poorly managed distribution networks operated by local authorities, the launching of a dedicated fund for energy conservation and establishment of an association of energy management professionals. From this point onwards, Sri Lanka continued to march towards energy conservation with many significant achievements. The journey towards lower energy intensity of economy continues to date, with the valuable efforts of committed energy management professionals and the cooperation of utility engineers

The first known major energy efficiency drive came into being with the introduction of an energy efficient cook stove in 1986. Involvement of a Government institution to promote a fuel wood cook stove could be quite strange to many. However, this affiliation was due to the absence of any other player with such deep permeation to the domestic energy users and also the interest of the state owned utility to reduce the energy load being taken up for cooking activities. This extensive island wide programme, a part of the bigger National Fuel Conservation Programme, targeted low and middle income groups for an improved cook stove which had one hearth providing heat to two mouths, named 'Anagi.' Tests carried out on the stove and numerous field-cooking tests have revealed a near 50% fuel wood saving over the traditional stoves.

Although the results of the programme were not fully evaluated in a post

Box 3.4 Remarkable Achievements

The achievements in the renewable energy industry also created many conflicts and issues, stemming from the sheer rapid growth of the industry. Fully understanding the importance of renewable energy in future economic development, the Government took a bold decision to recognise renewable energy resources as public property and initiated the drafting of legislation to vest all renewable energy resources with the Republic. The need of an entity to champion the cause of sustainable energy was felt stronger than ever before, and through an act of Parliament, the Sri Lanka Sustainable Energy Authority was established in 2007. The renewable energy resources vested with the state was in the custody of this new Authority and a new scheme of resource allocation was introduced in 2008, bringing in the much-needed discipline to the renewable energy industry.

This new Authority managed to accelerate the development of all renewable energy sources through a comprehensive programme spanning the whole value chain from resource assessment, allocation, project implementation to manufacturing of energy conversion equipment.



'Anagi' Stove, being made and installed with insulation

Box 3.4 Improving Energy Efficiency

Several laws, which were provided in the Sri Lanka Sustainable Energy Authority Act No. 35 of 2007, came into force with the framing of regulations. All bulk consumers are now required to appoint an Energy Manager and are required to be periodically examined by an Accredited Energy Auditor. Energy consumption reporting for such consumers was made mandatory, as a means of guiding these consumers to use energy in a more productive manner. Five energy consumption sectors were bench marked, to set the pace of energy efficiency improvement in such energy intense sectors.

The energy labeling programme was elevated from a voluntary scheme to a mandatory scheme with the introduction of the first mandatory label to Compact Fluorescent Lamps. Its scope will be enlarged in a well planned sequence to cover all other appliances which exert pressure on the electricity supply industry.

Consumer awareness has received close attention of the authorities and specific programmes targeting the home owners and future citizens commenced in 2011, and are expected to continue well in the future.

programme monitoring effort, the emergence of the 'Anagi' stove as the preferred stove speaks volumes of the success of the programme. It is estimated that 37.0% of households, which use fuel wood for cooking, now use the Anagi stove and a further 16.6% uses other kinds of efficient stoves. Translated to fuel wood savings, this indicates a 38.3% saving of fuel wood used in Sri Lanka, accounting for all improved cook stoves in use.

It was also decided upon to promote superior quality compact fluorescent lamps (CFL) at a greater expense rather than settling on lower cost models as the dominant tool in demand side management. The higher initial cost of CFLs was not allowed to deter the domestic user from buying a good product, owing to the easy payment scheme introduced by the state owned utility. A separate branch was established to manage demand side management efforts and the easy payment scheme in which the domestic users were given the chance to buy four good quality CFLs and pay in 12 interest free instalments via their utility bill. This scheme paved the way to reduce the peak demand by 380 MW and to win the confidence of users, taking Sri Lanka to become the highest penetrated CFL markets in the world by 2010, reaching 92% of all light sources imported. In addition, realising the urgent need to curtail the disturbing trend of the increasing usage of energy inefficient lamps, a Labelling programme was introduced for CFL in 2000. With the enactment of the Sri Lanka Sustainable Energy Authority Act No. 35 of 2007, CFL provisions to make energy labelling mandatory were available. In year 2008, the labelling standards were revised to make it more accommodative and the labelling scheme transformed from a voluntary to a mandatory scheme. The

country managed to save over LKR 3,710 million per annum by replacing poor quality CFLs which failed to reach the minimum energy performance standard with 'three-star CFLs.'

The Demand Side Management (DSM), the DSM branch of the CEB and many other state agencies and businesses started to realise the value of energy management and entered the arena of providing energy management services to industrial and commercial users. This signalled the birth of several Energy Services Companies (ESCOs) who accumulated knowledge in conducting energy audits and document economics of implementing the plethora of energy efficiency improvement projects found in industries and buildings. Certain ESCOs went further and entered the sphere of project implementation by the early 2000. These developments required a more streamlined approach to energy efficiency improvement and donor assistance by way of technical support and valuable knowledge exchanges provided these pre-requisites, at that critical phase of evolution.

These valuable knowledge and technical inputs saw the compilation of a monitoring and verification (M&V) protocol, which is the backbone of any energy efficiency improvement contract agreement reached by an ESCO and an energy user. This versatile tool provided both simple approaches to verify actual energy savings and also very complex schemes to monitor energy savings under performance contracting agreements.

The dynamic environment created for the ESCO industry faced many setbacks due to lack of access for project financing. At a certain period, the lending interest rates increased to values beyond 20% per annum, making many projects financially unviable. These issues were further

compounded by the fact that financing institutes were unwilling to fund projects due to want of collateral, which is usually absent in a custom designed energy efficiency improvement project effort. This barrier was overcome by introducing a credit enhancement mechanism named the Sustainable Guarantee Facility (SGF), which offered a collateral substitute of up to 80% of the project cost, and also reducing the cost of

defining strategies for end use efficiency improvements.

The domestic users will be prompted into making wise purchase decisions when buying energy consuming appliances through a mandatory energy labelling scheme of all appliances which are having a significant impact on energy demand. The bulk energy users who account for more than 80% of the demand in the relevant sector are

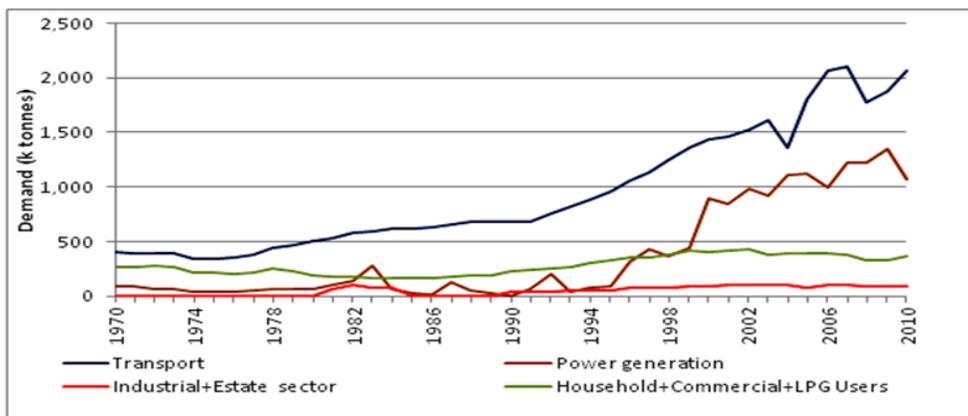


Figure 3.1 The Demand for Different Petroleum Products

borrowings due to reduced risk. The facility was initiated by the Energy Conservation Fund (ECF) and the Government invested in the facility which could technically guarantee projects up to a value of LKR 400 million.

The Code of Practice for Energy Efficient Buildings in Sri Lanka - 2008 (CPEEB) is an initiative undertaken as the first comprehensive approach to reduce building energy, especially in commercial buildings. Energy management, which begins with the keen observation of energy usage, was elevated to new level by defining the activities which goes into the energy management programme along with roles and responsibilities of individual stakeholders. In other words, the programme was divided to cater to different end use segments clearly

targeted through a mandatory energy manager/auditor scheme where these users are required to provide periodic reports on the achievements in energy management. These larger scale operations are subjected to mandatory energy audits by accredited energy managers at specified intervals.

In view of the widespread benefits expected through the introduction of efficient lighting, the Regional Centre for Lighting (RCL) was established in April 2009, with the assistance of the donor funding. The RCL increases awareness and affordability of energy efficient, reliable and clean lighting technologies to reduce the electricity demand in lighting. The centre is expected to develop the cutting edge solid state lighting solutions, better known as LED lighting to reach the affordable price levels .The

centre is equipped with state of the art test facilities and is expected to be the major force in curtailing the demand growth in the South Asian region.

Petroleum Sector

As a country with little indigenous petroleum resources, Sri Lanka totally depends on petroleum imports, either in the form of crude oil or as finished products. The only refinery in the country, converts imported crude oil to refined products to supply approximately half of the petroleum demand of the country. It is owned and operated by the state and has a daily output of 50,000 barrels of crude oil. The demand for crude oil is approximately 1.9million tons. Refined products amount to over 2million tons. The crude oil processed at the refinery is predominantly 'Iranian Light' (92%) while the balance comes from 'Arabian Light' (8 %.) Petroleum has a wide range of applications as a convenient energy source. Transport, power generation, industrial thermal applications, domestic lighting and cooking are the most common uses of petroleum in Sri Lanka (See Figure 3.1 and table 3.3)

3.2 Transport

Transportation is known to have a significant bearing on the sustainability of development, in all three commonly recognised aspects, namely social, economic and environmental. Social development cannot be achieved or sustained without the adequate mobility of people and goods. Transportation provides this mobility requirement. Sri Lanka enjoys very high social quality of life indices, though income levels are not as high as that of developed countries, owing to affordable and wide-spread mobility solutions provided by the state-run public transport services since the late 1950s, according to research conducted at the University of Colombo. The road density of 1.75 per km² of the country is another positive factor that influences this aspect. This mobility of people and goods at competitive costs is also an essential element of economic growth. Transport activities, as a component of the service sector, contributes towards value addition of the economy. The contribution of the transport sector to the Gross Domestic Product in 2011 was 12%, out of which 1% was from rail transport and 11% was from passenger and goods transport by road. A growth of 11.3% was recorded on

Table 3.3 The Annual Demand for Various Petroleum Products

Thousand tons							
Year	2000	2005	2006	2007	2008	2009	2010
LPG	146	165	169.76	180.03	158.50	170.29	187.49
Naphtha		124.92	59.94	97.49	142.33	110.70	54.11
Petrol	224.38	463	471.16	509.1	510.64	539.64	616.55
Kerosene	229.1	208.99	206.24	178.12	151.30	150.69	165.07
Diesel	1,730.44	1,681.27	1,634.41	1,754.20	1626.83	1720.66	1708.76
Fuel Oil	736.71	972.78	911.15	985.25	1010.52	1100.91	994.46
Total Demand	3,066.62	3,615.96	3,452.66	3,704.19	3,600.12	3,792.89	3,726.43

the total transport sector in 2011. This growth could be attributed to the increase of the number of all categories of motor vehicles in the country as well as the expansion of inland transportation with increased economic activities of the country. Improvement of the quality of roads also is another contributory factor.

Out of total passengers, 49% use bus transport, private and public, while railway caters to 4.3%. There are about 26,500 (2010) buses operated for passenger transport, out of which 80% is operated by private bus operators and 20% by the state owned Sri Lanka Transport Board. The Ministry of Transport regulates the operations of the private sector passenger bus service. Such regulations include the organisation of both private and public bus transport in a more orderly manner, with better coordination with the view of providing improved services to the public. This also includes the regularisation of charges of bus fare. The objective of the maintaining the public bus service is not profit earning but the regularisation of public transport systems for the people and the government subsidises the public transport venture.

The rail transport system, which is totally owned and managed by the government, caters to about 110 million passengers (4.3% of the total passengers) and transports about 1.8 million MTs of goods annually, which is only 2% of the total freight transportation. The government subsidises the entire rail transport system.

The private sector plays a vital role in the transportation of goods within the country, the volume of which is 98% of the total freight transportation. The total number of Lorries engaged in freight transport was about 223,000 in 2005, and has risen to 310,000 in 2011. With the improvement of the road network,

lengthwise as well as with regard to physical quality, has resulted in the introduction of heavy vehicles with 10 tons+ containers into the road transport system.

Investments on roads have been one of the factors that have affected the improvement of transport of the country. Investments on roads are being done under a number of categories such as expressways, national roads, provincial roads and rural roads (Maga Neguma.) A total of about US\$ one billion has been invested for the road network development at national, provincial and rural level during 2011.

The Government investment on the development of rail transport has also been significant. US\$ 56 million have been invested in modernisation of the Southern Coastal Railway Line while, US\$ 425 million has been allocated to reconstruct Northern Railway Line up to the Jaffna Peninsula.

In 2010, the *Mahinda Chintana Idiri Dekma* (Vision for the Future) presented the Government's development path, which included making Sri Lanka a regional transportation hub. Accordingly, the priority is now assigned to mega development projects. Building new sea ports and airports have already commenced and are expected to start operations by 2016.

The regulations, cited as the National Environmental (Air Emission, Fuel and Vehicle Importation Standards) Regulation, gazetted on 30th June 2003, under the National Environmental Act No. 47 of 1980, introduced mobile air emission standards, fuel standards, as well as vehicle specification standards applicable for importation. Though some of these standards were meant to become increasingly stringent with time, such periodic revisions anticipated in the

above mentioned Gazette notification have not come into effect.



Road emission monitoring system

The importation of three wheelers with two-stroke engines was banned with effect from January 2008. In addition, with regard to two-stroke engines, the importation of full engines, engine blocks and cylinder heads was prohibited after 2011 in order to prevent the local assembly of two-stroke engines. Phasing out of leaded gasoline by 2003 and the reduction of sulphur content in diesel from 0.5% to 0.3% during 2001 to 2005 were some of the actions taken under the stipulations of the gazette 1295/11 of 30th June 2003.

The Government reduced import duties on private vehicles in 2009, which indicated a significant reversal of this public transport priority policy, and resulted in inundating roads with small capacity private transport vehicles (notably three wheelers and two wheelers.) In fact, what was envisaged was a further increase of import duties on private vehicles in order to induce a modal shift from private modes towards public modes of transport. In this regard, the recent increase (in March 2012) of import duties on private vehicle imports can be considered a welcome measure.

The Ministry of Transportation, together with the MoE, established the Air Resource Management Centre (AirMAC), under which, the Clean Air Initiative

(CIS) was introduced with the aim of ensuring better ambient air quality in Sri Lanka. Further, the Air Quality Management (AQM) Working Group, established in 2000, formulated an action plan with short and long term steps to be taken with regard to the transportation sector.

- 'AirMAC' is a step towards implementation of pollution reduction.
- Vehicular emission testing process with stipulated exhaust standards was made a precondition for obtaining revenue license. The joint initiative of the MoE and MoT together with Department of Motor Traffic to measure and monitor vehicular emissions is a step forward. The required equipment is now in place.
- Investment on Expressways.

3.3 Water

Sri Lanka is considered a country of abundant water resources, with an annual per capita water supply of 2,400m³. An island nation, Sri Lanka ultimately receives all of its water from precipitation. Rivers, streams, lakes, villus (water-holes near the surface), deep seated springs, soil water aquifers (permeable water-bearing geological formations), coastal springs and lagoons are identified as naturally occurring water resources in the island. The predominant source of surface and ground water resources is rainfall, the mean annual of which is around 2000mm, about two and half times the world average. Spatial and seasonal distribution of rainfall divides the country into two zones, i.e., Wet Zone and Dry Zone. The Wet Zone receives rain almost throughout the year while rains are restricted in the Dry Zone

mainly to the period between October and January. Monsoon rains received by the watersheds in the central highlands are the major source of water for the main rivers, the basins of which cover about 90% of the country.

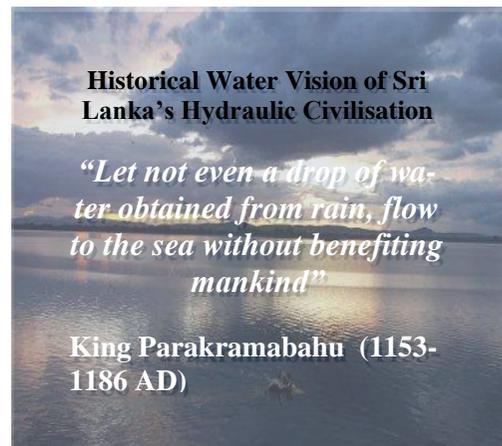
3.3.1 Sector Achievements

Utilisation of water resources is multifaceted and water resources management and development are directly linked with socio-economic growth, poverty reduction, sustainable development, environmental protection and livelihood. Thus water resources are of critical importance in all spheres of development. It sustains agriculture, is the source of a large portion of power generation and is indispensable for the functioning of many industries, besides providing water for drinking and other domestic uses.

Infrastructure in relation to water management in Sri Lanka can be associated with major, medium and minor irrigation to sustain agriculture as well as the industry sector, for the generation of hydro power and for the poverty-targeted water resources interventions (such as potable water supply, sanitation, livestock and for pleasure.) In view of the deepening stress on the water resources due to ever increasing demand for human needs as well as due to impacts on the quality and quantity of water through natural and man-made disasters (Climate Change, Deforestation), the call for more prudent and sustainable approaches are expected from all nations to ensure sustainability of the water resources base. Integrated water resources management has thus become a necessity, and will receive due recognition in Rio + 20.

Sri Lanka has been committed to sustainable water resources management for over 2500 years. Its roots lie in the

ancient hydraulic civilisation, which was founded on the tank irrigation system, and small tank cascade systems that are special features not found in other parts of the world. The ancient irrigation systems of Sri Lanka have been hailed in many international forums as classic examples of sustainable development. Most of the ancient works have been restored, or reconstructed during the last 150 years. In more recent times, new development work has also been undertaken, including the multipurpose projects and river basins development projects, namely the Gal Oya, the Walawe and the Mahaweli River projects. Initially, food production and opening up of the dry zone with settlements were the major objectives of the irrigation schemes where the dry zone had a high potential.



In keeping with local traditions, and infrastructure development needs, the Irrigation and Water Sector has played a key role in the development of the country and the enhancement of the economic status of its people. The water resources of the country have been intensively utilised for securing the livelihoods of the rural community and the food security of the people. This situation is gradually undergoing change with increased demands for water made

from other sectors, in addition to the demands of the agriculture sector.

At present, there are 115 major schemes and 215 medium irrigation schemes and about 27,000 minor irrigation schemes, or village tanks in operation in the island. Some of the schemes provide for flood protection, drainage and salt water exclusion. The existing irrigation infrastructure provides water to an extent of 600,000 ha, of which about 400,000 ha is fed from major/medium schemes and the balance from minor schemes. The total extent of lands under paddy cultivation is around 767,000 ha per year. It is estimated that out of nearly 1.9 million ha of lands available under cultivation of paddy and other food crops (except commercial and export crops), about 1 million ha of land require water as irrigation supplies.

Increased demands for water from other sectors has made it necessary to actively pursue the principles of Integrated Water Resources Management, on which future policies, projects and programmes will be based. Adopting a river basin management approach and the formulation of a National Water Resources Development Master Plan are on the agenda, including revisiting of the Mahaweli Master Plan. Increased productivity from the existing infrastructure under the '*more crops per drop*' principle and providing more storage facilities with new infrastructure for a reliable and timely supply are among the main thrusts of this plan. Introduction of '*micro irrigation*' techniques for greater efficiency of water usage is another strategy that will receive greater attention in the future. Conjunctive use of ground water will be the other policy principle to optimise the resources use.

In this backdrop, over the next 10 year horizon, 41 new projects are listed in the

pipeline for implementation that will both enhance the productivity and provide additional storage facilities. While promoting productivity and increasing cropping intensities, water resources management programmes and new development works would render an additional extent of nearly 100,000 ha to be cultivated during the planning horizon.

Optimisation of water resources so as to improve productivity in agriculture needs to be a major strategic objective of integrated water resource management. Increased productivity will also help to ensure food security at the national level and to reduce malnutrition among the poor. It has been established that on the demand side, the agriculture sector uses about 96% of the total water withdrawals. With 60% of people reliant on paddy cultivation, water plays a powerful social, cultural and political role. Water is used mainly for rice cultivation. While 85% of irrigated paddy is in the dry zone, accounting for the bulk of the water demand, the water availability in the wet zone is higher. Hence, there is need for trans-basin diversion as well as flood control. In the backdrop of the declining trend in the area under cultivation and yields with respect to rain-fed paddy cultivation, the demand for water resources for irrigated paddy farming in the dry zone is likely to increase further in the future.

Water resources for hydro power is yet another area where the demand for water is high in Sri Lanka. Sri Lanka still stands as one of the first countries in South Asia to tap into its water resources to produce hydroelectricity. Sri Lanka initially developed the hydroelectricity potential available in the catchments of two major river basins - the Kelani and the Mahaweli Rivers, and operated an entirely hydroelectric-based generating

system until about 1995, with minimal thermal backup during dry periods. The hydroelectric generating capacity presently in operation in various river catchments has 1,185 MW of major hydroelectric generating capacity, delivering about 4,193 GWh/year under average hydrological conditions. In addition, the operation of the 20 MW of small hydroelectric capacity developed by CEB through small hydro power projects (mainly run-off river projects) use tributaries and several of the small rivers. At present hydropower accounts for around 15% of the 2,032 MW of the daily requirement of power in Sri Lanka. Still half of the hydro power capacity comes from the Mahaweli system where six major dams serve the dual objectives of supplying irrigation and generating electricity. The sources of hydro power are currently under threat from both siltation and reduction in rainfall. Hydropower is highly affected by water releases for irrigation as irrigation receives priority during the cropping seasons. In the case of the Upper Kotmale Hydro Power Project, which was very recently inaugurated, the water is diverted to adjacent river basins even before generating hydro power.

3.3.2 Governance and Institutional Frameworks for Sustainable Water Utilisation

Institutional reforms were also undertaken to facilitate better involvement of stakeholders at the community level in accomplishing Integrated Water Resources Management Principles. The achievement of MDG targets, especially in the water sector, was a result of joint decision making at national level with the relevant institutions (including the Ministry of Irrigation and Water Resources Management, the Department of Irrigation, the Water Resources Board,

the Mahaweli Development Authority, the Ministry of Water Supply and Sanitation, the NWSDB, the MoE and the CEA having a stake in accomplishing sustainable water resources management.

3.3.3 Water Supply & Sanitation

Apart from developing the irrigation systems, the current national development policy focuses on improving access to drinking water for all, over the medium term. The government is aiming to provide safe drinking water and adequate sanitation facilities, ensure protection of water sources and environmental equality in the not too distant future.

Access to safe water and adequate sanitation facilities is a universal basic need and it is an essential element of human development, poverty alleviation and social dignity, as well as providing the substratum for the primary health care, living standards, and sustainable economic and social development. The improvement of the Water and Sanitation sector has a close correlation with reaching the MDGs, 5 out of the 8 MDGs being directly linked with water supply and sanitation.

Provision of drinking water supply is a government priority and targets have been set periodically with regards to population access for safe drinking water. On a nation-wide basis, piped water systems and protected wells deliver safe water to 81% of the population. The National Water Supply and Drainage Board (NWSDB), functioning under the overall of policy directions of the Ministry of Water Supply and Drainage (MWS&D) is the principle national agency, among other government and private sector agencies, that is responsible for water supply to the nation (domestic and industrial), and is

the main channel for investment in the sector.

With regard to the number of water supply schemes operated by the principle national agency for domestic water supply, NWSDB, a total of 315 schemes have been initiated by the end of 2011. Piped water is supplied to over 40% of the population, while tube wells provide water to almost 8%. In addition, 32% of the population living in urban and rural areas has been provided with safe drinking water through protected shallow dug wells. Meanwhile, 1% of the population is served with other safe means of water supply such as protected natural springs, rainwater, etc. Accordingly, 81% of the population is provided with safe drinking water facilities at present.

The government objective is to provide safe drinking water to 85% of the population by 2015 and to achieve 100% by 2025. The National Policy on Water Supply and Sanitation (2000) has recognised water as a basic human need, but has also identified it as one which has an economic value. The private sector and community-based organisations, through user financing systems, are expected to play a crucial role in meeting such goals.

Policies, Principles and Reforms

Important policy and institutional reforms that took place in the past decade could be summarised as follows:

- a) Establishment of a separate Ministry for water supply and drainage.
- b) Establishment of a process for adoption of a Rural Sanitation policy.
- c) All rural water supply development projects to include an equal component for hygiene and sanitation.

- d) Establishment of separate divisions for rural water supply and sanitation.
- e) Formulation of the drinking water policy.
- f) Acceptance of a sector wide approach in the water supply and sanitation sector.
- g) Establishment of a National coordination mechanism.
- h) Preparation of the sanitation policy.
- i) National Policy for Rural Water Supply and Sanitation Sector.

The above policy statements broadly aimed at achieving following national goals:

- Providing access to sufficient and safe drinking water to the population of the whole country by 2025.
- Increasing the number of households connected per year to water supply systems to 175,000 by year 2015.
- Improving service levels and the quality of water supplied in urban and rural areas to meet national standards.
- Making rainwater harvesting mandatory.
- Access to improved sanitation for 87% of the population of Sri Lanka by 2015 and 100% by 2025.
- Increase the number of households connected to piped sewerage systems to 800 connections per year by 2015.
- Standard on-site sanitation availability to those are not connected to a sewerage system or other sanitation scheme.

Accomplishments in the Water and Sanitation Sector

The drinking water supply sector has shown continuous expansion in recent years due to the unstinted financial assistance from multilateral and bilateral donor agencies and the Government. The budgetary allocation for the sector has increased progressively over the years demonstrating the Government's total commitment to achieving both MDG and national targets set out for water supply and sanitation.

A series of structural reforms have been carried out both in the Ministry of Water Supply and Drainage and also the National Water Supply and Drainage Board, in order to be better equipped to handle the challenges ahead. The South Asian Conference on Sanitation (SACOSAN (IV) conference organised by the Ministry was held in April 2011 and mobilised commitment to the Colombo Declaration on sanitation among SAARC countries. Sri Lanka is committed to implement the resolution of the Colombo Declaration and supports the Inter Country Working Group (ICWG) process and also assists SACOSAN host countries go through the process.

The GoSL is totally committed to achieving MDGs. The MDG targets blend well with our own sector development strategy and the country is well on track to achieving most of the water and sanitation MDGs by the year 2015.

Over the years, the Ministry implemented a large number of water supply and sanitation projects, applying various strategies to fulfill its commitment to provide safe drinking water and proper sanitation to the people. Currently there are 34 on going foreign funded projects in addition to 47 projects, which are being implemented with Sri Lanka's own resources.

Box 3.5 Secure Water through Demand Responsive Approach, and Enhancement of Women's and Children's Welfare

The availability of water for sanitary requirements at the homestead has greater advantage for women and children. Children need more water for washing and other sanitary requirements, up to several times a day; village women no longer have problems using irrigation channels and public wells for bathing, especially during night hours. Incidences in poor households of stomach-related diseases in children have been reduced in the recent past. The availability of pipe water has been of great social and cultural benefit for women and children. Time saved thereby is used by women in looking after their children, house maintenance, home garden activities and participation in social and religious activities. Some women work longer hours in the field during peak seasons and cases are reported of self-employment at household level, providing additional household income.

Source "Case Study: Kailapathma

The Government has facilitated the implementation of many community water supply and sanitation projects, which had a major impact on the rural communities in Sri Lanka. These projects were implemented with the active participation of the communities and 3500 Community Based Organisations, covering approximately 600,000 families, which have been formed under the project. The responsibility of operating, managing and sustaining the facilities created has already been passed over to them. The government has already taken steps to create a 'Community Water Trust' to assist Community based organizations (CBOs) to strengthen their

management capabilities and also to provide them with technical, legal and procedural support.

Public water services were not subjected to a comprehensive Water Quality surveillance system until 2010. Institutional arrangements have now been established with collaboration between the Ministry of Health and the NWSDB to setup national and district committees for Water Quality Surveillance, under the legal provisions of the Food Act. Public Health Inspectors in all Local Authorities are aware of the sampling, testing and reporting that have to be carried out.

3.4 Fisheries

3.4.1 Sector Achievements

The total national fish production in the year 2011 was recorded as 444,830 metric tons, which is an increase of 15.6% over 2010. Of this sum, an increase of 16% was recorded in marine fishing, 13.6% in inland fishing and the highest growth of 22% was reported in deep sea fishing. The contribution to GDP from the fisheries sector was 1.7% in 2010. Per capita consumption of fish was 11 kg. Per annum as at 2010.

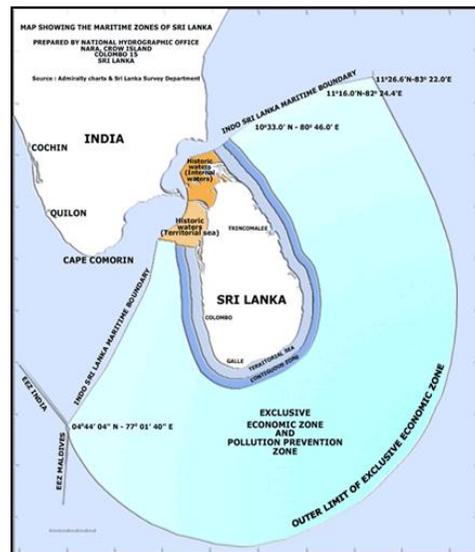
Over the past several years there have been many achievements in the sector to help sustainable development in the country.

In order to develop marine and inland fisheries in an ecologically sustainable manner, team efforts are made by the rural fishing organisations to allocate resources fairly and sustainably.



Traditional Fishing Harbor- Nilwella

Necessary measures are taken to conserve the endangered species by creating awareness through programmes initiated by the NARA and DFAR for the fishermen and relevant stakeholders.



Maritime boundary of Sri Lanka

Awareness has been also created about the importance of adopting measures to conserve the resources through declaring closed seasons and closed areas for fishing. Rural fisheries organisations in certain areas of the country have started practicing and are realising the benefits of these measures.

The long line fishing technology is being promoted in offshore fisheries as a means of reducing pressure on coastal resources and to improve the quality of fish.

Special Bank loans are offered to invest on multi-day boats to encourage the fishing concentration in the coastal areas to be expanded to high seas and deep sea and offshore fishing that will reduce pressure on the shoreline population of fish.

There are at least nine Special Area Management (SAM) Plans that were formulated and in effect for the following fishing areas:

Lunawa Lagoon - Maduganga

Hikkaduwa- Koggala - Unawatuna

Hambantota Sand bar - Mawella Lagoon front

Kalmetiya- Negombo Lagoon (including Muthurajawela marsh)

Kalpitiya bar Reef

The majority of the above plans has been formulated under the Coastal Resource Management Project (CRMP) and was carried out using community consultation approaches. All the above SAM Plans have been gazetted and are implemented with community participation assisted by the field officers of the Coast Conservation Department, the Department of Wildlife Conservation and the Department of Fisheries and Aquatic Resources.

There have been visitor facilities provided in Kalpitiya, Hikkaduwa and Maduganga and the benefits of their operations have been provided to the village level communities. Coastal Resource Management Committees have been established in several places such as Negombo, Kalpitiya Bar Reef, Maduganga and Hikkaduwa.



'Madel' Fishing - Kalpitiya

Beach nourishment measures are implemented in a 1.2 km stretch of beach in each of the beaches in Ulhitiyawa and Negombo. The construction of coastal protection structures has been initiated only where essential in accordance with zoning regulations, without sacrificing the aesthetics of the coastal belt.

Green belts have been established covering 200 meters in Dehiwala, 150 metres in Wellawatte and 4 km in Uswetakeiyawa, Panadura and Crow Island in Mattakuliya. Plant nurseries have been established in Panadura and Uswetakeiyawa with the assistance of the Sri Lanka Navy supported by the communities of the adjacent villages. Plants such as Wetakeiya, Medulla and Gansuriya along with economically important cultivations such as coconut are also introduced to the green belt to be maintained along the coastal stretches to safeguard the sea beaches. Nurseries with a capacity of about 30,000 plants per year have been established in Panadura, Mattakuliya and Wellawatte. Potential sites are being identified by the Grama Niladhari (GN) Division in each of the Divisional Secretariat area, to promote green belt concepts where community participation in implementation and management aspects are being promoted.

Management procedures to deal with IUU fisheries are in place and enforced to ensure the sustainable use of resources in fishing. Monitoring of the illegal use of fishing gear, which will harm the fish stocks and affect its replenishment, impacting on sustainability, will be enhanced through more stringent mechanisms both by land based measures as well as in the sea by enforcing the existing regulations. There is an on going reporting mechanism applicable to deep sea fishing vessels operating from fisheries harbours in Sri Lanka. Poaching is also strictly monitored. A Vessel Monitoring System (VMS) is being introduced by the Ministry of Fisheries and Aquatic Resources Development for the safety of the boat crew which indicates the co-ordinates of the place of fishing as well as gives signals when the vessel is moving to an outside territory of another country.

Inland fishing is promoted by the establishment of hatcheries to produce fish fry and fingerlings that will be released to the reservoirs and seasonal tanks as a means of promoting inland fish production. In addition, coastal aquaculture is being promoted by providing technical assistance to fishermen to take up sea bass culture, as well as other species such as mussels, sea cucumber etc., which can be grown using cage culture practices, and which can cater for export markets.

Two private sector firms are being assisted by National Aquaculture Development Authority (NAQDA) for sea bass culture in cages as a part of sea-water farming technology under a public-private sector participation effort. Obtaining sea bass seeds is a problem due to restricted supply, as they have to be imported. In addition, a sea bass culture project is promoted on a pilot

scale in Trincomalee district with donor funding to promote private sector investments for which the project is providing technology transfer programmes. The Government support is provided through the engagement of the services of an Aqua-culturist. Sustainability is established through conducting feasibility studies in terms of technology, financial, socio-economic and environmental aspects, to ensure replicability of the pilot scale operation. Water management licenses are issued to the private sector firms for exclusive use of lagoon water and sea water by NAQDA.

3.5 Agriculture

The agriculture sector is one of the most important sectors of the economy of Sri Lanka. Agriculture contributed 11.2% to the GDP in 2011¹ and is the largest sector for employment in the country. It employs around 31% of the workforce and thus remains critical to the Sri Lankan economy. Even though its contribution to the gross domestic product (GDP) declined substantially during the recent past, it is the most important source of employment for the majority of the Sri Lankan workforce.

Sri Lankan agriculture consists of three main sub sectors: (a) Food crops (Paddy, Other Field Crops (OFC) and Horticulture Crops), (b) Export agriculture crops (Tea, Rubber, Coconut, and Spice Crops) and (c) Livestock. Out of these, the food crops sub sector gets the priority and paddy is the most important crop included in the subsector. Paddy cultivation is part and parcel of the rural agricultural setting in Sri Lanka. Due to several initiatives by the government, Sri Lanka is self sufficient in rice. Therefore, the government has given

¹*CBSL-Annual report 2011.*

high priority and much assistance to increase paddy production over the years and at present Sri Lanka produces about 4.8 million tons of rice. Approximately 1.1 million hectares of land is cultivated annually, during both the dry and wet seasons. A significant number of farmer families are engaged in paddy cultivation, about 20% of the country's population and 32% of the total employment.

Other important subsectors are export crops (Tea, Rubber, Coconut, Spices, Other Export Crops), Horticultural Crops (Fruits and Vegetables), OFC and Sugarcane. Although these crops are facing problems due to weather anomalies and/or national and international market forces, in general the crop production levels are also exhibiting upward trends.

Although the short-term performance of the agriculture sector is primarily dependent on weather, and local and international commodity prices, in the long-run the growth of the sector is determined largely by research and development efforts, extension services, infrastructure facilities, domestic trade policy, government intervention and international trade policies. Therefore, favorable long-term policies and adequate investment on agricultural research and extension would be the key for sustainable agricultural development in the country.

3.5.1 Ancient Wisdom of Sustainability

Ancient rulers believed that they had three primary duties in the government. They are (a) Protecting the territory, (b) Protecting the religion, (c) Protection of the natural resources and ensuring the food security. With that they developed the civilisations around a concept called 'Vewai Dagebai Gamai Pansalai' which

translates into 'The link between the irrigation tanks, the Dagaba, the village and the temple.' The current government policies have reflected the worthiness of the ancient wisdom by reviving and reformulating the concept into the new initiatives.

Further, the ancient water management and land management systems were extremely environmentally friendly; the farmers were wise enough to refrain from completely drying out a reservoir without ensuring the water supply for the next season of cultivation. They developed a series of catchments with cascading systems. They were also concerned about the surroundings though they did not refer to it as the ecological stability at that time. Reservations for wild animals and other living beings around the fields and even a portion of the harvest were set aside by the ancient people and their rulers.

Box 3.6 Ancient Wisdom of Sustainability

The Tank and the Paddy Field, the Tank next to the Dagaba, this is our social foundation, our very special heritage. I revere Mother Earth. My fore fathers cultivated this fertile land of ours. Through the "Api Wavamu Rata Nagamu" Programme, we have fulfilled the aspirations of the Mahinda Chintana that I presented in the section titled "Ketata Arunella". I sincerely believe that the progress we have thus made in agriculture is as valuable as our victory in the war against terror"

(Mahinda Chintana - 2010)

3.5.2 Sector Achievements

Agriculture production achieved a growth of 1.5% in the year 2011 over a

growth of 7% in the previous year despite the extreme weather conditions experienced in most parts of the country.

The Government's agricultural policy aims at realising multiple goals including: (a) Achieving food security of people, (b) Ensuring higher and sustainable income for farmers, (c) Ensuring remunerative prices for agricultural produce, (d) Uninterrupted access to competitive markets both in Sri Lanka and abroad, (e) Farm mechanisation, (f) Expanding the extent under cultivation, (g) Reducing wastage in transit, (h) Ensuring environmental conservation, (i) Introducing efficient farm management techniques and (j) Using high yielding seeds and improved water management.

Paddy

The most important positive impact on agriculture is through the varietal improvement programme of the Department of Agriculture (DOA). There has been significant contribution for increased production of important crops and commodities in Sri Lanka during last decade. The crop improvement Programme in the country played a leading role in this achievement. The significant improvement was in the paddy sector with high yielding short aged rice varieties, which gave a boost in yield, as well as increased water use efficiency.

The Yaya Programme and the Integrated Pest Management in Rice was the core extension programme implemented by the DOA/MOA, and it contributed immensely to raise the average rice yield up to the mark of 4.5 t / ha.

The Government has taken steps to assist farmers in reducing the production cost by providing a subsidy for fertiliser for all agricultural crops in order to increase the production. In addition the MOA has

implemented a promotional programme to encourage using organic manure to reduce the use of chemical fertiliser with the concept of an Integrated Plant Nutrition System (IPNS.)

Areas for soil conservation were prioritised and conservation programmes launched according to conservation needs. A Conservation Programme under the DOA, efforts under the Upper Watershed Management, and field programmes under the Hadabima Authority, were the key programmes that gave massive positive impacts towards conservation.

Environmental safeguards have been incorporated in several acts and ordinances such as the Land Development Ordinance, the State Lands Ordinance, the Agrarian Services Act, the Mahaweli Authority of Sri Lanka Act and the National Environmental Act. Some of these legislations include measures such as mapping out state land for the prevention of soil erosion and measures to prevent encroachments.

The National Agriculture Policy (NAP) was amended in the past years to include sustainable urban agriculture programmes to ensure the food security through environmentally friendly concepts. The Statement 29 (2003) of the amendment to the NAP states: 'Implement a special urban agriculture promotion programme designed to ensure supply of home consumption needs and environmental protection.'

Similarly in the 2007 amendment (Statement - 17) it lists out two important criteria: 17.1: Promote home-gardening and urban agriculture to enhance household nutrition and income, and, 17.2: Promote women's participation in home-gardening.

Also under the 'ApiWawamu Rata Nagamu' (Let us cultivate to uplift the

nation) initiative, the government has launched programmes such as:

- a. Rural and urban home-gardens.
- b. School gardens.
- c. Home-gardens of school children.
- d. Gardens and model farms in office premises.
- e. Gardens in security forces camps.
- f. Private home-gardens of state officials.
- g. Gardens in office premises of the private institutions.
- h. Home-gardens of public representatives.

Sri Lanka ratified the United Nations Convention to Combat Desertification (UNCCD) on 9th December 1998. The Ministry of Environment serves as the focal point for UNCCD. The National Action Programme for combating land degradation was prepared in 2002. Degraded catchment area restorations, rehabilitation of minor tanks in the Dry Zone and tree planting Programmes have been implemented and are continuing. Issues of land degradation in the critical watersheds need to be addressed continuously in spite of a large number of donor funded projects which were already implemented.

The most recent major change in fertiliser policy for paddy took place with the latest fertiliser subsidy scheme, implemented after the 2005/06 Maha season. This policy consists of the following key elements:

- a. The subsidy is targeted for small-scale paddy farmers only (owners or tenants) who control less than five acres of land.
- b. All three main fertilisers - urea, TSP and MOP, are subsidised to achieve a fixed price of Rs. 350

(US\$ 3.48 based on the 2005 exchange rate) per 50 kg.

- c. State agencies procure, distribute and issue fertilisers on the basis of recommendations from the Department of Agriculture.

The fertiliser subsection of the National Agricultural Policy formulated by the Ministry of Agricultural Development and Agrarian Services (2008) stipulated following main objectives:

- a. Promote the production and use of organic and bio fertilisers, and gradually reduce the use of chemical fertilisers through integrated plant nutrition.
- b. Ensure timely availability of chemical fertilisers in sufficient quantities while providing soil and plant testing facilities for their rational use through site-specific fertiliser application.
- c. Promote the manufacturing of fertilisers using locally available raw materials, and take appropriate action to prevent the misuse of the fertiliser subsidy.

Tea

As described above, the plantation sector which comes under the export agriculture sub sector is a major contributor to the National Agriculture GDP. The sector comes under the Ministry of Plantation (MoP). The MoP mission is 'to enhance the productivity, profitability and sustainability of the plantation industry through economically, socially and environmentally established plantation sector.' The Ministry proposes to achieve the following goals to accomplish its mission:

Box 3.7 Organic Tea

Sri Lanka became the first ever to produce organic tea

A conventional tea plantation was converted into organic practices for growing tea in 1983 in Haldumulla area. The products were released to Germany in 1987 with the seal of approval from the International Federation of Organic Agricultural Movements (IFOAM.) In the summit in 2011 in Bali Indonesia the Hon. Minister of Environment showcased it to the world as one of the country's successes in sustainable development.

- a. To contribute 8.9% to the GDP from the plantation sector during a 10 year period (from 2007-2016.)
- b. To increase the growth rate of the plantation sector by 2% per annum during the next 5 years from 2007.
- c. To increase the level of productivity by 5% per annum in the plantation sector.
- d. To improve the livelihood/welfare of the plantation community (small holders/workers) by increasing investment in human, financial, physical, natural and social capital in the sector.

Public Private Partnership

A PPP was established for Forest Garden Product (FGP) tea production in Sri Lanka. The purpose of this PPP is to implement a sustainable tea eco-system between European and Sri Lankan partners as it was identified that problems such as soil degradation and reduced water retention capacity of soils

lead to a decrease in productivity and the loss of income and livelihoods. The aims of the PPP include, enhancing the incomes and quality of life of the estate communities, improve environmental conditions which would benefit the community at large and Bio diversity enhancement.

Livestock

The other main sub sector of Livestock is dominated by the Agriculture sector. In Sri Lanka the Livestock sector provides high quality animal protein and the per capita availability at present is 18.3 g/day. From the total farming population of 10-11 million, 3.5 million are involved in livestock or its related activities (Kodituwakku, 1999.)The Livestock population comprises 1.13 million cattle, 0.37 million buffaloes, 0.38 million goat and sheep and 13.61 million chicken, reared under different agro-climatic zones. The Livestock sector has its own set of policies, which have been developed to achieve the following objectives:

- a. The achievement of sustainable and equitable economic and social benefits to livestock farmers.
- b. Increasing the supplies of domestic livestock produce at competitive prices to the consumers.
- c. Achieve increased self-reliance, of at least 50%, in domestic milk by 2015.
- d. Double the current domestic production of poultry products by 2015.
- e. Domestic livestock products to be competitive with the imported livestock products.

3.5.3 Agriculture Renaissance and Water (The Lifeblood of Farming)

Agriculture Renaissance - towards a new Sri Lanka policy framework - has recognised the importance of providing the farmers with the much needed water and finding solutions to the scarcities. Water is a key input in this regard. Therefore, water as a prime resource is to be provided to transform dry lands in all parts of the country, North, South, East and West, into fertile agriculture lands. In order meet the demand for water a National Irrigation Plan has been formulated, where the rivers, water courses and tanks would be inter-connected as needed. The Irrigation Sub-Sector will play a key role in the agriculture renaissance, in this regard.

3.6 Health

3.6.1 Sector Overview

The Health Sector's main objective is to ensure a healthy nation that can contribute effectively and efficiently towards economic development.

Sri Lanka can be proud of the rich heritage of culture, that is interlinked with religion, ethnic diversity, international relations, trade and literacy, which given rise to social advancement. A traditional health system had been in place for centuries and the allopathic system was introduced mainly to serve the expatriates that resided in the country at that time. During the British rule a user fee system existed for the limited coverage of allopathic health system.



Hospital built in 11th century, Sri Lanka



A modern private hospital in Sri Lanka

A free health system was soon established during the 1950s and continues to date. Since Independence, successive governments of Sri Lanka have been committed towards social development and investment to providing free education and health facilities that have laid the foundation for the high achievement of human development indices in Sri Lanka. Today, the health system of Sri Lanka is acclaimed as one of the high performing and most efficient health systems in the region.

Ancient inscriptions on rock surfaces reveal that organised medical services existed in the country for centuries. Mihintale and Arankele still have the ruins of what many believe to be the first hospital in the world. Old hospital sites now attract tourists, who marvel at the beautiful ruins. Surgical instruments

were also discovered during archaeological surveys in Polonnaruwa. These places have come to symbolise a traditional sense of healing and care, which was prevalent at that time. Although the country went through several epidemics due to malaria, small pox, cholera etc., it was only about two decades before independence, in 1926 that the International Division of the Rockefeller Foundation carried out a pilot project to establish a Health Unit in Kalutara. This was also introduced as an intervention to address the severe hook worm infestation that the country was facing introduced by immigrant Indian plantation workers.

This unit was established to undertake all public health work on an intensive scale in a well demarcated area. A Medical Officer of Health (MOH) was appointed in charge. He was assisted by public health inspectors who were responsible for environmental health and the control of communicable diseases. Public health nurses and public health midwives were responsible for maternal and child health activities. Each Health Unit was expected to serve a population of 40–80 thousand people, and undertake the following activities:

- Carry out general and health surveys into the various problems in the area.
- Collection and study of vital statistics in the area.
- Health education.
- Investigation and control of infectious diseases.
- Maternal and child health.
- School health work.
- Rural and urban sanitation.

Box 3.8 Rural Sanitation Programme

Even in the 1930s, the following were considered essential for a healthy rural home:

1. A well ventilated house
2. Boiled, cooled water for drinking
3. A sanitary latrine
4. A manure pit
5. A kitchen garden

Herath. H.M.S.S.D 1973

This Health Unit system has evolved over time and now covers the entire country providing a most efficient system for the delivery of preventive health care through 300 MOH areas. When the goal for attainment of 'Health for All by the year 2000' and the Primary health care approach was globally embraced at the Alma Ata conference in 1978, Sri Lanka already had the health infrastructure to adopt the concept.

Public health services were the backbone of the beginnings of the allopathic system in Sri Lanka. However, since then the clinical management of diseases has been widely adopted and follows the advancements in medical technology and clinical practices of the developed world. Today, a major share of national health expenditure is for curative health services.

It is important that the preventive health approach be revitalised to address the environmental challenges that are affecting healthy human development. The traditional health systems such as Ayurveda continue to play a significant role in health care. Ayurveda is gaining popularity in health tourism and being adopted as a value addition in the hotel industry, it has fast become an essential item in hospitality.

3.6.2 Achievements towards the Health Related Millennium Development Goals

From the MDGs the health sector has had a keen focus to eradicate extreme poverty and hunger, reduce child mortality, and improves maternal health and combat HIV/AIDS, malaria and other diseases.

With regard to eradicating hunger there has been a slow progress in the recent years. Prevalence of underweight children less than 5 years of age had dropped to 21.6% by 2006, from 37.7% in 1990. There is a potential to achieve this particular goal by 2012 and eradicate hunger and to halve, between 1990 and 2015, the proportion of people who suffer from hunger.

It has also been targeted to reduce by two thirds the mortality rate of children less than five years. This target is on track, yet more effort is required to reduce the neonatal component of infant mortality. The less than five year old mortality rate has dropped from 22.2 to 13.5 in 1990 and 2006 respectively, and infant mortality rates have dropped from 17.7 to 8.5 in 1991 and 2007 respectively. The proportion of 1 year old children immunised against measles to prevent deaths due to this disease is on track and is expected to be achieved. By 2006 97.1% of the population in this age group was immunised against measles.

In order to improve maternal health it has been targeted to reduce the maternal mortality ratio by three quarters. By 2010 the maternal mortality ratio (per 100,000 live births) had dropped by 10.8 from 1991 and the proportion of births attended by skilled health personnel has increased from 94.1% to 98.5% over the period from 1993 and 2006 respectively.

In order to combat lethal communicable diseases like HIV/AIDS and malaria, the following targets have been achieved. It

was targeted that by 2015 HIV/AIDS would be halved/halted and its spread would be reversed. However not much improvement has been made in achieving this and the rates portray only slight improvements. More awareness and action is absolutely necessary to achieve this target. However, in the target set to reverse incidence of malaria and other major diseases and halve/halt their spread by 2015, the following has been achieved. The death rates associated with malaria have reached zero and incidence rate has reached a mere 4 from 1483.4 and the health sector is currently adopting elimination strategies as the targets have been already reached. With Tuberculosis, the death rate from 1992 to 2006 has slightly dropped from 2.4 to 1.7, yet the incidence rate has increase to 41.6 by 2006 when compared to 38.6 in 1992. More efforts are needed to reduce the incidence rates. There is a possibility of reaching targets if more active campaigns are adopted. Some of the other major diseases and achievements made for their control are discussed briefly in the section that follows.

The improvements in MDGs reflect the overall improvements in poverty reduction. However, it is noted that Sri Lanka continues to struggle with nutrition related indices. More exploration into the issue of nutrition is required.

3.6.3 Other Achievements within the Health Sector

Control of Vitamin A Deficiency and Iodine Deficiency Disorders

Vitamin A deficiency disorders have been largely controlled and acute vitamin A deficiency cases are rare. Vitamin A supplementation and health education largely contributed to this success.

Iodine deficiency disorders too are being addressed through a population wide strategy where through public - private partnerships all salt available in the market is iodised salt.

Control of Communicable Diseases- Control of Malaria, Leprosy, Filariasis

Malaria is now on the verge of elimination. A traveller is no longer required to take malaria prophylaxis in Sri Lanka. According to the Malaria Control Programme, run by the Ministry of Health, the number of malaria positives per 1000 of the population and the number of deaths due to malaria has almost reached 0 by 2006. Over a decade ago the number of annual deaths had surpassed a hundred.

Control of Filariasis

Mass one day treatment programmes were conducted and the infected mosquito density is controlled. Although the mosquito is prevalent, due to low infectivity of the mosquito, the spread of the disease is now under control and can be eliminated if continued.

Leprosy

This disease was significantly prevalent in the past. Special leprosy camps had been maintained under the Lepers Ordinance during British rule. In the late 1990s, the Ministry of Health implemented a mass social marketing and treatment programme which increased self-referral and improved case management. Today, leprosy is considered as having reached the level of elimination.

Expansion of Health Services

In the past 20 years there was a considerable expansion of hospital services. The policy of strengthening one hospital in each district, to a level of a

general hospital led to the expansion of specialised services. The number of western (allopathic) sector health services has expanded greatly from 1998-2007. Up to 50 hospitals have been established over the decade and the number of practicing doctors has reached 11,442 by 2007 from a mere 5,612 in 1998. There is almost a doubling of the MBBS qualified doctors and a similar increase was observed in the cadre of nurses. The number of Ayurvedic doctors has also increased by about 3,000 practitioners by 2008 according to the Central Bank of Sri Lanka.

Health & Sanitation

The figure 3.2 shows the mechanisms adopted in management of household garbage. Local authorities have taken over the responsibility for the removal of garbage in urban areas. Rural households have adopted methods such as burial and burning within premises. Considering that the majority of households are rural, more emphasis is needed to promote fertiliser production from garbage. Sanitary methods of managing collected garbage also need further improvement. The incidence rate for dengue haemorrhagic fever can be used as a proxy indicator for garbage management.

There have been improvements in the availability of safe drinking water during the last decade. In 2001, the overall percentage of the population with safe drinking water available at home or in the vicinity was 82% (81% rural and 95% urban.) The proportion of the population with access to safe latrines in urban and rural areas in 2001 was 80%. In 1995, the corresponding figures were 70% for safe drinking water availability (65 in rural and 88 in urban areas) and 75% for population with latrine facilities (70% for rural and 81% for urban areas) (Source: Draft Report on Millennium

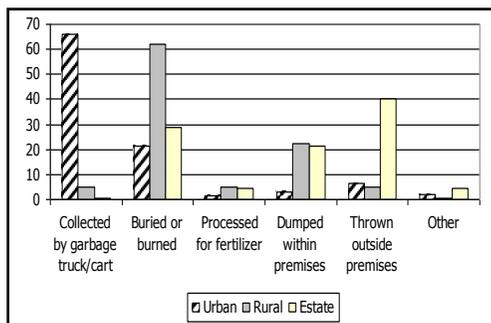


Figure 3.2 Health and Sanitation Management (Urban, Rural and Estate)

Source: HIES 2006/07

The Ministry of Health is not directly responsible for provision of water to the country. However, through its field health personnel, health education is carried out to motivate people to consume water that is safe - usually boiled, cooled water.

The Public Health Inspectors (PHIs) conduct routine tests for adequate chlorination of sources of drinking water during epidemics of bowel diseases (diarrheal and gastro-enteritis) and other disaster situations like floods, etc. When approving applications for construction of buildings, the health authorities ensure that there will be no contamination of sources of drinking water from toilets and other sources.

The use of latrines by the community is promoted through health education as well as by enforcing the provisions of relevant legislation related to housing. All new houses have to process toilet facilities in order to obtain approval from the local authorities. The department of health services provides financial assistance to those without toilets and unable to construct one with their own resources.

Health Services in Response to Disaster Situations

Sri Lanka faced two situations that posed a significant challenge to organise and provide health services within a short period to a large number of people. The tsunami of 2004 and the humanitarian operation in Vanni of 2009 need special mention.

Many health concerns of internally displaced populations had to be addressed by the healthcare system. The public health services model which is a time tested model was replicated to establish good health coverage.

The tsunami of December 2004 was a turning point in terms of the Health Ministry organisation structure in responding to disasters. The Tsunami Rehabilitation Unit (TRU) was established in the Ministry of Health to coordinate the rehabilitation phase of the tsunami.

A Disaster Management Act was enacted in parliament to guide the future disaster management process by which the Ministry of Disaster Management was established in 2005. This led to the formulation of a road map and a National Framework for disaster management. In keeping with this framework, the Ministry of Health initiated the Health Sector Disaster Preparedness and Response System. As a part of this process, the TRU was restructured to a Disaster Preparedness and Response Division (DPRD.)

Since its inception the DPRD has been involved in preparation of the health sector plan for management of disasters, preparation of standard operating procedures, preparation of capacity building plans, training at district level to prepare district disaster response plans, etc. As part of this effort there have been gradual improvements to emergency

management through the existing government healthcare delivery system.

The DPRD was faced with a totally different emergency response situation during 2009 where a major humanitarian response to address the needs of the war displaced communities took place. Whilst the responsibility for overall administrative coordination of relief operations fell on the Ministry of Defence, the Ministry of Health took the lead role in coordinating the health care Programmes for the IDPs including the establishment of an emergency health service. The situation warranted that the DPRD become a management and response unit and be placed directly under the administration of the Secretary-Ministry of Health. This unit was responsible in coordinating an operation that involved mobilisation of existing government resources and the support of INGOs and a large number of NGOs. With the emergency situation largely under control by 2010, the DPRD again has taken a more preparedness role and was shifted back to its original position in the health organisation.

There were around 300,000 displaced people occupying the welfare villages at the onset. The DPRD was responsible for coordinating the resource mobilisation and monitoring the response. Curative and preventive health services were provided as follows:

- Curative services were established and a health centre was established for every 10,000 of the population. Referral centres as well as mobile clinics were established. In addition many ambulances were functioning to transport the patients when necessary. Those who needed further care were transported to the Cheddikulum Base Hospital, which was upgraded from the level of a basic primary care hospital to

provide essential specialty healthcare. Patients were transported to Vavuniya General Hospital (which offered a wider range of specialty care) whenever necessary.

- The preventive health services were established separately for each Welfare Village. The following preventive health services were provided through the Medical Officers of the Health Sector and the other field health staff:
 - Antenatal Clinics were conducted for all mothers.
 - Child Welfare Clinics were conducted to carryout necessary immunisations, weighing, Programmes, etc.
 - Family Planning Services were provided through poly clinics.
 - Nutrition supplementation activities conducted including vitamin supplementation.
 - De-worming programme was conducted.
 - Proper sanitation facilities were established.
 - Garbage disposal was streamlined.
 - Vector control activities were conducted.
- Many rehabilitation programmes too were carried out within the villages, which included physical as well as psycho social rehabilitation programmes. Many health promotion programmes were carried out in order to uplift the health status of all IDPs.

3.7 Industry and Trade

The industry and trade is the most significant sector that is interlinked with many other sectors in economic development and environment management. The sector maintained a steady growth of around 6.6% per annum during the last decade, and in

2011 the industry sector grew by 10.3%. This sector made a contribution of 29.3% to the Gross Domestic Product (GDP), while recording a 23.6% of the country's total labour force in 2011. The industry sector is also a significant foreign exchange earner for Sri Lanka, which made a contribution of 75.7% to the country's export earnings in 2011, surpassing those of the agriculture and service sectors.

3.7.1 Achievements

In collaboration with the National Cleaner Production Centre (NCPC), the Ministry has carried out various Programmes to find greener methods of production for industries. In addition, NCPC has worked with chemical industries for sound chemical management, chemical leasing, and local government authorities for solid waste management and divisional secretariats for green office practices. In addition, it has completed the Waste to Energy project with United Nations Environment Programme - International Environmental Technology Centre (UNEP-IETC) in the Monaragala, Badulla areas in year 2010. These programmes were based on cleaner production, energy efficiency and environmental management. They are also focusing on voluntary standards and compliance as well.

Box 3.9 Sustainability Reporting to Track Progress within the Industry Sector

The *Association of Chartered Certified Accountants* (ACCA) Sustainability Reporting awards is held in over 30 countries and is based on judging guidelines established by ACCA worldwide. It is open to any type of organisation encompassing all business sizes. Environmental issues have taken over as the number one priority in sustainability reporting, overtaking corporate social responsibility and ethical reporting, the key issues of the past, in Sri Lanka. ACCA's globally recognised sustainability awards were launched for the purpose of making triple bottom line reporting imperative, where environment, social and financial reporting are given equal prominence by businesses around the world. Pioneering sustainability reporting within Sri Lanka's business and industrial community has played a key role in ensuring that sustainable development takes place responsibly, transparently and ethically.

The 'Energy Efficiency Improvement Programme for Manufacturing Industries' is yet another programme implemented by the Ministry to give assistance to industries to minimise the wastage of energy/maximise utilisation of energy. Under the 'Haritha Lanka Programme' identified by the 'MahindaChintana,' a special project will be carried out by the Ministry, together with the NCPC, to assist the local industries to carry out their operations in an environmentally friendly way.

The Ministry also plays an active role in exploiting opportunities available under bi-lateral and multi-lateral free trade agreements for the benefit of the industrial sector of the country. Sri Lanka's foreign trade relations are promoted and strengthened by the Ministry (through the Department of Commerce), at bilateral level (by way of agreements with individual countries, such as India, Pakistan, Iran and Thailand), at regional level (by way of Regional Integration Arrangements like South Asia Free Trade Agreement (SAFTA) and the Asia Pacific Trade Agreement (APTA), and at multilateral level, through the World Trade

(UNCTAD) and other international forums. With reference to issues regarding Trade Related Aspect of Intellectual Properties (TRIPS), Sri Lanka continued to participate in negotiations on the important TRIPS related issues (Convention on Biological Diversity-CBD, GI extension and GI Register) and amending the TRIPS Agreement to provide for disclosure requirement in patents, to aid in preventing bio-piracy and misappropriation of genetic resources and traditional knowledge, without due acknowledgement and transfer of benefits to the source. Sri Lanka is a member of several international

Box 3.10 Garment Industries Promoting Sustainable Industry in Sri Lanka

Many industries in Sri Lanka have displayed a concerted effort towards incorporating sustainable concepts in their operations. The garment sector has led the initiative by setting up green factories that focus on sustainable utilisation of natural resources and environmental education, while moving forward.

The Green Factory at Seeduwa

Being the pioneer of the concept of "total solutions" in Sri Lanka's apparel sector, the Green Factory at Seeduwa was the first apparel manufacturing facility in the world to be rated Platinum under the Leadership in Energy and Environmental Design (LEED) Green Building System of the US Green Building Council (USGBC). In 2009 this factory was also bestowed with the Energy Globe Award, the world's most prominent and prestigious environmental prize.

"Thuruli"

The Thuruli factory in Thulhiriya is the world's first garment eco-friendly factory, and was recently awarded LEED (Platinum) Certification established by the US Green Building Council. The company was also globally recognised for its commitment to socially and environmentally responsible manufacturing by Worldwide Responsible Apparel Production (WRAP.)

"Mihila"

Mihila is the first apparel factory in the world to be honored with the Gold Rating of the LEED certification under new construction category by the US green building council. This state of the art factory saves 48% of its energy, when compared to a conventional factory.

Organisation (WTO), United Nations Conference on Trade and Development

conventions on intellectual property such as the Berne Convention for the

Protection of Literary and Artistic Work, The Paris Convention for the Protection of Industrial Property, The Patent Cooperation Treaty, The Trademark Law Treaty, The Universal Copyright Convention and The Agreement on Trade Related Aspect of Intellectual Property Rights.

Sri Lanka is a member country of a regional project for the production of Green Job opportunities and the production of low carbon, climate resilient and environmental friendly development measures in the country. This project is implemented by the Ministry of Labour and Labour Relations and Ministry of Productivity Promotion in Sri Lanka in collaboration with the International Labour Organisation (ILO.) The Ministry of Environment established a Green Job Awards Programme in 2008 to recognise and reward the individuals and organisations which are engaging in green jobs related to environmental friendly technologies/activities. Green Job Awards are offered annually on the World Environment Day (5th June.)

In early 2009, the Ceylon Chamber of Commerce had felt the need to assist the SMEs in the food and beverage sector on sustainability and was able to promote SCP through SWITCH Asia programme originated by EU. More than 450 SMEs in the food and beverage sector, which include the tea sector, have benefited through awareness and training provided under this program to optimise the usage of national resources (energy water and raw material.) In addition these SMEs got the opportunity to get trained to international food safety standards. It is interesting to note that 19 SMEs have obtained ISO 22000; 2005 certificates (Food Safety Standards) during this short period.

With a view to addressing the constraints for SME development, a task force was

appointed by the GOSL in 2002, to formulate a National Strategy for Small and Medium Enterprise Sector Development in Sri Lanka.

The SME Task Force was of the view that strengthening the institutional framework for SME development is required for creating an enabling environment for the sustenance of globally competitive SMEs and for this purpose inter-institutional coordination, developing staff and institutional capacities and reforming and restructuring existing SME development institutions, has to be undertaken. The SME Task Force recommended the establishment of an apex agency to undertake the institutional reforms required for SME development. Accordingly, by Act No.17 of 2006, the National Enterprise Development Authority (NEDA) was established to promote, support, encourage and facilitate enterprise development within Sri Lanka, with special emphasis to SMEs.

3.8 Education and Technology

3.8.1 Overview

Education for sustainable development aims at enabling everyone to acquire the values, competencies, skills and knowledge necessary to contribute to building more sustainable societies. In order to ensure a sustainable future, people of all ages need to assume responsibility for their actions and commit themselves to creating positive social and environmental change. Sustainable development is closely linked to livelihoods of people and it had emerged as a top priority in all future strategies worldwide to plan, to develop and to educate. There is now general agreement that Education for Sustainable Development (ESD) has to be an integral part of quality Education for All (EFA.)

The World Summit on Sustainable Development (WSSD, 2002) has identified the decade of 2005-2014 as the Education decade for sustainable development.

The vision of the Democratic Socialist Republic of Sri Lanka, as stated in the President's Mandate, is to 'develop a youth who can see the world over the horizon. Education will be enhanced to address the social, economic, cultural and environmental dilemmas faced in the 21st century' (Mahinda Chintana, 2010.) Education for peace and sustainable development (ESD) embodies the five pillars: social cohesion, environment, health, economy, and society and culture. The national action plans on education for peace and sustainable development, have been introduced by means of familiarising principles, teachers, students and society on methods/approaches to teaching and learning ESD values through the existing subject matter being taught in schools and other activities outside school, to sensitise the communities. The Ministry of Education in Sri Lanka, in March 2008, launched a National Framework of Action for Social Cohesion and Peace Education. Coupled with the National Framework of Action, collectively the ministries of Education, Environment, Health, Economic Development and Social Services together with the Sri Lanka National Commission for United Nations Educational, Scientific and Cultural Organization (UNESCO) has launched the National Action Plans on Education for peace and sustainable development in January 2012 under the leadership of His Excellency the President of Sri Lanka. This Action Plan will collectively collaborate with other stakeholders and partners to implement monitor and evaluate this national initiative to establish a peaceful and sustainable environment in Sri Lanka

through education and other means (SLNCU, 2012.)

3.8.2 Role of National Education system

Sri Lanka's general education system has made important gains in the recent past. The proportion of students completing the basic education cycle (grade 1-9) has risen from about 78 percent in 2005 to over 91 percent in 2009. Gender parity is high in the education system. Learning outcomes in primary education in First Language, Mathematics and English have increased significantly between the years 2005-2009 (Mahinda Chintana, 2010.)



Access to Information Technology within Schools

Sri Lanka is on track to meet most of the Millennium Development Goals. United Nations Development Programme (UNDP) has identified Sri Lanka as an early achiever of 10 of the 21 indicators, including those related to the goals of universal primary education and gender equality. The Sri Lankan education system has been celebrated in development policy circles and the economic literature for its success in providing widespread access to primary and secondary education, and enabling the country to attain a high level of human development for a low income

economy (World Bank, 2005.) Through education, the government hopes to make this country a knowledge hub within the South Asian region. 'We have the opportunity to make this country a knowledge hub within the South Asian region. I will develop and implement an operational plan to make this country a local and international research and training centre for knowledge' (*Mahinda Chintana*, 2010.)

3.8.3 Main Outcomes and Impacts Ensuring Sustainable Development

The following outcomes within the education sector have predominantly been achievements made towards sustainable development in line with the Rio principles highlighted below and the 2nd and 3rd objectives of the Millennium Development Goals. These principles and goals have been established as those most relevant and imperative for this sector.

- Principle 2- Sovereign right to exploit their own resources and responsibility to ensure that no damage is caused to the environment of other states.
- Principle 3- Right to development must be fulfilled to equitably meet development needs for present and future generations.
- Principle 6- Co-operate to eradicate poverty and decrease the disparities in living standards.
- Principle 20- Women's role and participation be recognised.

Principle 21- Resolve environmental disputes in accordance with the Charter of the United Nations.

3.8.4 New Education Act:

For the first time in history of education, a national policy is being developed into an Act of Parliament. The responsibility of making this framework into an Act now rests solely with the Parliament of Sri Lanka.

3.8.5 Education participation rates

Education participation rates in the 5-14 age groups are relatively high. Only 93% of children in the 5-14 year-old age group were in school by the year 2000. In 2007, for both males and females, it has increased to 97.5%. Participation rates in urban, rural and estate areas were 97.5%, 98% and 91.5% respectively (2009/10 Survey.) **Retention Rates** at the end of Grade 5 was 98.7% for males and 99.4% for females; at end of Grade 10, 84.1% for males and 90.3% for females. (Ministry of Education 2008.) The Census Survey of the poorest one hundred administrative divisions (2000) found that the percentage of out of school children in the 6-14 age groups was between 10%-16% in 15 of the divisions.

The higher education **Gross enrolment Rate (GER)** has increased from slightly fewer than 10% in 1990/1991 to over 21% in 2007 (World Bank, 2009.) This enrolment is seen among both men and women.

3.8.6 Female Participation in Education and Gender Parity

It is relevant to note here that the number and percentages of females across all areas in education are growing rapidly.

Survival Rate at Grade 5 among boys is 99% and among girls 100%. Survival Rate at the end of Grade 9 among girls is 93% and boys 89%. Up to Grade 11 there is gender parity in school enrolment. However, Grade 12 and 13 enrolment is very much skewed in favour of girls. The

enrolment in Grade one is 49.5% girls and 50.5% boys. These proportions continue up to grade nine, or the end of compulsory education phase. However, by Grade 13 GCE A/L classes the percentage becomes 57.5% for girls and 44.5% boys. The girls' dropout rate is less, and absenteeism is also less than the boys. Their level of academic achievement is higher than the boys.

Female students substantially outnumber male students in higher education. During the period 1990 - 2007 the male Gross Enrolment Ratio (GER) has risen from 10% to 20% and female GER has risen from 10% to 22%. This suggests a high degree of gender disparity in higher education enrolment, with in fact a higher percentage of women enrolled than men.

It is interesting to note that feminisation has happened regardless of social class because the trend of having a higher percentage of girls in schools is witnessed in the schools where the children of the socially affluent attend and equally in the remote rural schools where the children of the rural poor attend. The trend is rather a national trend without any immediately noticeable major social class differences.

3.8.7 Education in the Estate Sector

Developments since 1997, in respect of policies regarding plantation education, helped to integrate the plantation schools with that of the main stream and there had been a remarkable progress in respect of primary education. Across the twentieth century literacy rates improved dramatically for all sectors of society, including among those living in the estates. Between 1986/7 and 2003/4 rates in the estates improved from 68.5% to 81.3%. The increase among females - from 58.1% to 74.7% has been particularly striking. Nonetheless, the

literacy achievements among the estate population still lags behind that of the non-estate rural population, by more than 10 percentage points. Estate males lag 6 and estate females 16 percentage points behind the respective rural rates (CFSES report, 2003-4, cited in World Bank, 2007.) As Sri Lanka's economy grew, unemployment and poverty rates fell. As of the second quarter of 2011, the unemployment was only 4.2%, though higher among youth, women and the more educated. Poverty rates have also fallen, from 15% of the population in 2006/7 to 9% in 2009/10. The most dramatic declines have been in the estate sector (from 32% to 11%) following a major wage increase at the beginning of 2010 (World Bank, 2010.)

3.8.8 Provision of education to all deserving children

It is estimated that around 20% of children are with special education needs. A proposal is in place to provide education to all deserving children of the compulsory education age by 2015. Sri Lanka has been adopting several strategies to teach disabled children. They include residential and day-school programmes, integration and mainstreaming in regular schools and inclusive education.

3.8.9 Improvement in Achievement Levels at the Primary Stage

Learning outcomes in primary education in First Language, Mathematics and English have increased significantly between the years 2005 and 2009. National level assessments conducted by the National Education Research and Evaluation Centre (NEREC) in 2003 and 2007 at Grade 4 shows that the all island achievement level as assessed using mean values, in Mathematics and First Language is high and in English language average. The mean scores in the

three subjects were 70.96, 73.3, and 51.7, respectively. All these values show that the average performance level of the students has improved at national level during the period 2003-2007 (NEREC, 2007.)

3.8.10 Programmes in Schools on Peace and Sustainable Development:

Several strategies are used to implement Peace and Sustainable Development Programmes in schools. Use of morning assemblies to talk on issues pertaining to sustainable development, make use of teachers manuals and other developed modules to guide teachers, conducting co-curricular activities linked to Education Programs in Sustainable Development in schools, monitoring and ascertaining the progress, are the major strategies used.

The activities that were undertaken under the Environmental Pioneer Brigades in Schools programme included, creating greater awareness on environmental protection and management, engaging in field studies and observation tours. It was expected to carry the environmental message to their elders at home and build a new generation of environmentally concerned. Also, changing the children's behavioural patterns and attitudes to be more environmentally friendly was considered as important. The Environment Education and Awareness Division of the Central Environmental Authority has conducted programmes for pre-school children, primary (grade 1 to 5) and secondary (grade 6 to 13) students and for school leavers. Media programmes have been conducted through printing newsletters, educational materials, textbooks, posters etc., radio and television programmes, environmental films, documentaries and CDs, information on web-sites, etc. In

2000 this programme was expanded from 1850 to 3005 schools throughout the island.

3.8.11 Upgrading Schools - Outcomes of the Initiatives

As a result of the school upgrading programmes, the necessary infrastructure and other facilities including buildings, furniture, and teaching materials have been provided with the aim of creating a better learning environment for the students. Implementation of the project has led to an increase in quality of education in these schools. The upgraded schools will provide high quality teaching in key subjects such as Sciences, English, ICT and Technical subjects.

3.8.12 Information Technology Education

The above interventions directly helped towards development and promotion of Computer Learning Centres (CLCs in the school education system, in general, and development of IT education. As a result, the computer literacy of students has improved and the number of GCE O/L and A/L students selecting Information and Communications Technology (ICT) as a subject has increased. The Computer Literacy Rate has increased from 9.7% in 2005 to 20.3% in 2010 and an increase of up to 75% is projected in 2016 (Mahinda Chintana, 2010.) Providing facilities to the universities will help to produce a knowledgeable and skilful workforce that will meet essential job market requirements. Also, this will contribute towards reducing the unemployment rate amongst educated youth.

3.8.13 Impact of School Empowering Programmes

The main findings of the mid-day meal evaluation were very positive. The

programme is well accepted. Children reported that their hunger during lessons is reduced and that they have more energy and interest; they learn about food, nutrition, health and hygiene. Teachers have stated that children are more active, they can concentrate better and learning is much easier for them. Increased attendance has been noted.

All materials, equipment, instruments and services used to add value to the teaching learning process are provided to schools under the Education Quality Input (EQI) Scheme. This has contributed immensely towards quality improvement. The schools were given the authority to manage funds. The PSIThe Program for School Improvement and SDG were very effective and contributed to school development. These programmes have directly supported the physical development of the school and management efficiency.

3.8.14 Public Private Partnership (PPP)

Public Privet Partnership was a direct component towards developing IT education of the country. This policy of facilitating teachers to be proficient in using IT technology to make classroom teaching more productive in secondary education was a favourable measure taken in the last decade.

3.8.15 Student Development Programmes

Young Inventors Clubs are the official linkage of student inventors and Sri Lanka Inventors Commission. The SLIC provides opportunities to schools to set up an inventors club in their schools. Motivation of students for inventions is the major benefit gained from this initiative.

Sisusaviya/Sisudiriya Scholarship scheme has contributed towards

developing a favourable learning environment. Recipients in all districts have shown noteworthy results such as development of behaviour patterns, greater enthusiasm showed for learning and improvement in attendance.

3.8.16 Technical Subjects for the G C E A/L

These subjects have been introduced initially in 44 schools. The coverage was expanded over the project period and at the time of project completion, soft technology subjects have been introduced in 126 schools and hard technology in 167 schools. National Institute of Education (NIE) also conducted a series of training programmes for 663 teachers and principals on teaching of hard and soft technology subjects in schools.

3.8.17 Outcomes of the National Vocational Qualification (NVQ) System

NVQ System provides opportunities for GCE O/L and A/L students - who are interested in pursuing technical oriented careers, receive higher education whilst being engaged in gainful employment. The upgrading of the Advanced Technological Institute of Education will increase the number of professional graduates who will be equipped to face the challenges of the advancing industrial sector locally and internationally.

3.8.18 Higher Education

As a result of the measures taken to increase the student intake to universities the number of students (Higher Education) per 10,000 population has increased from 140 in 2005 to 200 in 2010 (Mahinda Chintana, 2010.) Accordingly, the project helped produce a knowledgeable and skilful workforce

that will meet essential job market requirements. This will contribute towards reducing the unemployment rate amongst educated youth.

The Quality Assurance Unit under the Quality Assurance and Accreditation Council (QAAC) of the University Grant Commission (UGC) has taken measures to establish a national Quality Assurance Framework, and develop Subject Benchmark Statements and processes for subject reviews and institutional reviews (World Bank, 2009.)

3.9 Tourism

3.9.1 Sector Overview

Sustainable tourism is defined as 'one that meets the needs of present tourists and of the host regions while protecting and promoting opportunities for the future. It is conceived as a way to manage all the resources so that they can meet the economic, social and aesthetic, while respecting the cultural integrity, essential ecological processes, and biological diversity and life support systems'. United Nations World Trade Organization (UNWTO) The Johannesburg Summit emphasised for the first time the importance of sustainable tourism for poverty reduction, the protection of the environment and of the cultural heritage. It was, in fact, the first time that tourism's role in the global sustainable development agenda was made explicit with the inclusion of tourism in the Joint Programme of Implementation emerging from Johannesburg.

Tourism is a key source of economic income and a strong contributor to job creation, particularly for developing and emerging economies, and one of the fastest growing industries worldwide. In Sri Lanka, Tourism is a rapidly growing Industry. Since gaining independence

from the British in 1947, Sri Lanka has continued to attract foreign investors and tourists. The white sandy beaches and attractive underwater life that surrounds the island give visitors a chance to unwind and relax in a warm and comfortable setting. Beaches in Sri Lanka play a major role in its economy bringing significant economic benefits to the country.



Hornbills in Thanamalvilla

Box 3.11 Refreshingly Sri Lanka

Sri Lanka Tourism launched their marketing campaign named as “Refreshingly Sri Lanka – Visit 2011”, with the aim of showcasing Sri Lanka as an Island of new found freedom; a place where the visitor can experience everything that is refreshing under the sun. With this new branding, Sri Lanka tourism promoted 8 segments encapsulating 8 wonderful experiences a tourist can enjoy within eight days such as: Pristine, Heritage Bliss, Thrills, Festivities, Essence, Scenic beauty and Wild Life. These eight experiences were further stretched into twelve sub-themes to promote each month of 2011, including beaches, sports & adventure, MICE, people & culture, religious tourism, weddings & honeymoons, body & mind wellness, heritage, nature & wildlife, community & education, culinary and shopping & entertainment.

Yala, Wilpattu, Horton Plains and Minneriya National Parks are the most popular amongst the tourists. Over the years, many beautiful resorts, hotels and spas have been opened. The ancient and historic cities and the mountainous region dominated by tea plantations are considered to be the other attractions.

Today, Sri Lanka's booming tourist industry is having a major impact in changing the nature of the economy in the post conflict development process. With a GDP growth rate of 8% in 2010, and 32% year-on-year growth in tourist arrivals in 2010, Sri Lanka is on its way to becoming a major tourism destination in South Asia. After the decade-long war and the resultant relaxing of travel adversaries by USA and other countries,

the Sri Lanka Tourism Development Authority (SLTDA) now targets achieving US \$ 2500 million earnings from the year 2016 onwards, allowing the sector to provide 350,000 direct and indirect employment opportunities. The ambitious plan of the Sri Lankan Government includes development of new mega resorts at Passikudah and Kuchchaveli, where there are shallow seas surrounded by reefs, and in Kalpitiya, where there are fourteen small islands with diverse eco-systems and different characteristics, which will be developed as green resorts. For all these sites, Strategic Environmental Assessments (SEAs) were conducted prior to implementation. Each implemented project was separately evaluated through an environment assessment. This ensures the environment and social safeguard and the skills development and job creation for the local community.

3.9.2 Policy Framework Promoting Sustainable Tourism in Sri Lanka



Sun Rise, Hambantota

The Government of Sri Lanka envisions building tourism as an industry playing a significant role in the economic advancement of the country whilst preserving the country's cultural values, ethos and its rich natural endowment. Tourism is a vital area in the policy framework defined in Mahinda Chintana policy document, and ensures that Sri Lanka will be the most popular touristic

destination in 2016 with the aim of receiving 2.5 million tourists by the year 2016. The programme's vision for the tourism sector is to make Sri Lanka the foremost leisure destination in the South Asian Region. The programme believes that the human resources, natural and cultural endowments, values and ethos will be fundamental in transforming Sri Lanka into a centre of excellence and offer tourists the highest values of authentic experiences in its unique setting.

The Tourism policy focuses on inherited natural resources, socio-cultural attractions and the national attributes to develop special tourism niches like nature tourism, community tourism, spiritual tourism, adventure tourism, agro-tourism, culture tourism, sports tourism, **eco-tourism** and wellness tourism. The objective of the Sustainable Tourism Development Project (STDP), is in line with the Government's vision, and will strengthen the institutional framework of the tourism sector to facilitate environmentally and socially sound tourism investments.



Lankathilaka Temple, Kandy

The SLTDA was formed as the apex body for Sri Lanka Tourism to handle appropriate and necessary tourism product development functions, and its other wings, the Sri Lanka Tourism Promotion Bureau and the Sri Lanka Institute of Tourism and Hotel Management (SLITHM) to handle

tourism promotion and the necessary skills development for the Tourism Industry. All these entities are committed towards transforming Sri Lanka to be Asia's foremost tourism destination.

Some of the objectives of the SLTDA have a strong bearing on accomplishing green economy objectives. Among the several key objectives, the following underline the need for sustainable tourism in Sri Lanka:

- Develop and promote adequate, attractive and efficient tourist services, inclusive of the hospitality industry in a sustainable manner.
- License and accredit tourist enterprises in order to develop, enforce and maintain locally and internationally accepted standards in relation to the tourism industry and other related industries.
- Encourage persons or bodies of persons in the private sector to participate in the promotion of the tourism industry and the promotional and training activities connected with such industry.

3.9.3 Sustainable Tourism, Sri Lanka Accomplishments

According to the 2011 Green Economy Report, tourism is one of the most promising drivers of growth for the world economy and, with the appropriate investment it can continue to be growing steadily over the coming decades, contributing to much-needed economic growth, employment and development, while mitigating its environmental impacts. Sustainable tourism is committed to make sustainability encompassed by three pillars: social, economic and

environmental factors, which lie at the heart of tourism development worldwide. In Sri Lanka, the results of the tourism boom included increased Foreign Direct Investment, higher employment and a growth in revenue, which will have a positive impact on all other sectors of the economy. The sector support to open up a large number of employment opportunities in the hotel and travel trade as well as in the other supporting services associated with the hotel industry, ensuring livelihood for large segment of the society. Environmentally too, the sector players are increasingly committed to conserving the natural resources base recognising the fact that the nexus between tourism and bio diversity and that Sri Lanka's natural resources base is inseparable.

The additional demand generated by the tourism sector in the economy has invariably resulted in increased supply of services and production in other sectors. Refurbishment of hotels, building of new hotels, revival of traditional handicraft industries and cottage industries indicate the spread of the impact of the tourism sector to other economic sectors. Demand for aviation, airports, ticketing, transport services and leisure services have also been increased tremendously as a result of this tourism boom.

The Ministry of Economic Development together with the SLTDA has drawn up plans to improve the tourism sector in the country that combines the initiatives such as home stay and boutique hotel programmes, rural youth training programmes for the tourist sector, handicraft and cottage industry development programmes and village tour and stay (Grama Charika) programmes for the tourist sector in order to percolate the benefits of tourism to the lower segment of society. The SLTDA will strive to develop diverse,

unique and quality tourism services and products that would make Sri Lanka a unique destination, globally. Some of its activities include identifying and developing tourist specific, unique products and services, formulating and implementing Tourism Development Guidelines, and facilitating and implementing the legal and administrative process for new product and service development.

Considerable investments are taking place in the tourism industry in the areas of eco-tourism. One of the major hotels which were constructed as far back as in 1995 has high international recognition as one of the worlds' best eco/ environment friendly hotels. It is one of the pioneers to introduce the eco-tourism concept to Sri Lanka. Since its opening in 1995, the hotel's presence in the domestic and international marketplace has influenced several other hotels in the country to follow suit and become green. The hotel has won several international awards including Green Globe award, LEED Pilot Project Bronze medal 2000, PATA Gold for the concept of the Eco Park, 2000

The Colombo Chamber of Commerce (CCC's) intervention in the latter half of 2009 to promote sustainable development to the leisure sector through EU originated SWITCH Asia program has been timely. This programme known as greening of Sri Lankan hotels mainly targeted 350 SMEs in the hotel sector to optimise the usage of energy and water and minimise the generation of solid waste. It has immensely benefited the hotel sector to increase market acceptance with low carbon foot print.

Many other groups have adopted similar initiatives that focus on environment conservation and community development. In addition, there are a

large number of boutique hotels, villas and lodges that have won world attention for best practices in eco-tourism.

3.9.4 Training and Capacity Development in Sustainable Tourism Initiatives

Sri Lanka's tourism industry with its enormous potential is propelling the nation as the *'Wonder of Asia'*. 'Developing the nation as an 'educational hub' is one of the strategies in achieving this goal. The Sri Lanka Institute of Tourism and Hotel Management (SLITHM), which is the premier national organisation established by the Government to provide professionally trained manpower for the tourism and hospitality industry, is fully equipped to meet this challenge. In keeping with the theme 'Excellence in Hospitality' the SLITHM is committed to improving the manpower standards required by the industry, providing the necessary educational and training programmes. All the programmes conducted by it are aimed at meeting the challenges and demands of the manpower requirement for the tourism sector at both national and international levels. Facilitating innovative learning methods such as M-Learning and E-Learning effectively increase the reach of the educational programmes to all sections of the industry.

3.9.5 Encouraging Environmental Friendly Concepts in the Hotel Industry

The need for an eco and family friendly beach resort concept in Sri Lanka and for keeping to green building guidelines on energy and environment is a pressing need for sustainable tourism. Therefore, to prevent tourism development initiatives depleting natural resources such as water, energy and other raw

materials, during the last few years, eco-friendly initiatives have been promoted with the participation of the private sector. As a result there is a significant growth of ISO 14001 certified hotels in Sri Lanka. In the year 2008 the growth of ISO 14001 certified hotels which adopted the environmental friendly technologies were 87% (Source-ISO 2008.)

This strategy had enabled the hotel industry to adopt more sustainable measures to be incorporated into the industry. They include, among others, resorting to alternatives and renewable sources such as recycling of waste water, low consumption and use of utensils and equipment, use of Solar and Wind Energy and the use of energy saving equipment. The SLTDA encourages the water conservation policy during the planning of new hotels such as treatment of wastewater and reuse for gardening and toilets. Most of the tourist hotels which maintain the ISO 14001 certificate of environmental management do minimise the consumption of water and energy and make efficient use of resources whilst actively promoting Sustainable Development. They release purified water into small streams with the intention of developing local irrigation as well. Heritance Kandalama Hotel and Sigiriya Hotel are two such instances.



A Boutique Hotel in Matale

The hotel industry has benefited greatly from the adoption of cleaner production technology which is provided through

the National Cleaner Production Centre. Promoting cleaner production technology focusing on sectors like energy efficiency, Material efficiency and Water efficiency are now being implemented in many of the hotels. This encourages competitiveness among the players by adopting different and productive cleaner technologies which are assessed for 'Cleaner Production Awards. 'The absence of a proper disposal system for solid waste is a continuous concern which is common to the hotel industry as well. The present method of disposal consists largely of open dumping in low lying areas, thus impacting water bodies. Recycling, reuse and alternative disposal methods such as composting are some of the activities which are being implemented as pilot activities at a small scale in most of the hotels. The regulation adopted by the Board of Investment (BOIas well as the Central Environmental Authority has enabled efficient management of waste in the hotel industry. Common treatment systems for cluster development and the Environmental Protection License System have improved the system vastly. Recent improvements in the implementation and monitoring mechanism of waste treatment systems by the Sri Lanka Tourism Development Authority, the Central Environmental Authority and the Coast Conservation Department improved the system dramatically. Nevertheless, solid waste is collected by the Municipal Council or Local Authority of the area and is sent to landfills. It is an accepted fact that Sri Lanka has very limited scientifically constructed landfills and many in use are open land exposed to sun and rain. Garbage is a major polluter in the highly populated areas. The use of the triple 'R' 'Reduce, Re-use and Re-cycle' concept is still at a primary stage in the country but there is a considerable improvement on the part of both communi-

ties and entrepreneurs. Green economy concepts are further embedded into tourism related activities by the Sri Lanka Tourism Development Authority (SLTDA) by holding a regular 'Tourism Awards Ceremony' annually to promote Sri Lankan Tourism. It has enabled tourism to extend its horizons to offer different tourist products in an 'eco-friendly tourism and agriculture based tourism' atmosphere.

3.9.6 Other Programmes contributing to the Green Economy:

The Ministry of Environment also initiated a Programme in 2009 called 'Haritha Kawayaya' with the intention of creating an eco-friendly green Sri Lanka.

3.10 Shelter and Urban Development

3.10.1 Sector Background

There are three essential basic needs for humans, namely food, shelter and clothing. Shelter or housing is a basic human need encompassing a broad spectrum of activities. Without appropriate shelter, people cannot meet their basic needs and participate adequately in society. Therefore, housing is a fundamental component of the quality of life. Though it is generally identified only by the house design, a house is man's most personalised and intimate place of living. The Article 25 of the Universal Declaration of Human Rights states: 'Everyone has the right to a standard of living adequate for the health and wellbeing of oneself and one's family, including food, clothing, housing and medical care and necessary social services' (United Nations, 1948.) In December 1991, the right to adequate housing was defined under international human rights law, when the United Nations Committee on Economic, Social and Cultural Rights adopted General

Comment No. 4 on the unanimous right to adequate housing.



In Sri Lanka, even in the pre-colonial era, settlement and land use planning was practiced as an integral part of an agricultural tradition. The Wet Zone highlands were left under forest by an intentional decision. There were conscious land use decisions and they were ecologically sound and environmentally friendly. Most of the ancient human settlements were located in areas which were not vulnerable to disasters. Settlements were blended with the natural environment. In the last three decades this situation has dramatically changed. At present human activities on land has become more and more intense, frequently damaging the environment.

When compared with other countries Sri Lanka has a low level of urbanisation. The urban population is heavily concentrated towards the South-West coast of the country, especially within and around the commercial capital. The problems associated with urbanisation are most prominent in the Greater Colombo area where 43% of the population live in slum and shanty settlements. These settlements are established in areas unsuitable for residential purposes. However, the available studies have indicated that the urban status of Sri Lanka has changed over a period of time corresponding to the various legislations.

A large number of initiatives have already been taken in the area of policy, planning and legal arrangements, implementation of projects and programmes with a view to providing sustainable shelter and urban development for the people in Sri Lanka.

Box 3.12 Achievement in Goal 7

The Government of Sri Lanka (GoSL) is committed to creating a conducive environment for the promotion of affordable quality housing for all and to achieving the Millennium Development Goals (MDGs), in particular the Goal 7.

Target 11. The Government's Development Policy Framework 'Mahinda Chintana Vision for a New Sri Lanka, A Ten Year Horizon Development Framework 2006 - 2016' envisages the Government's role in the housing sector shifting from the role of a developer and financier to that of a regulator and a facilitator.

The Government's development policy framework 'Mahinda Chintana in its 'Vision for a New Sri Lanka, A Ten Year Horizon Development Framework 2006 - 2016' recognises the urgent need to 'make certain that the policies and strategies are in place to ensure sustainable urban development.'

Sector Achievements

Taking the initiative towards sustainable urban development, the Urban Settlement Development Authority was established by the GOSL in 2008. The Urban Service Improvement Project has been implemented in 2002. The 'Nagamu Purawara' Programme was launched with an objective of improving the shelter status of the urban poor to uplift their standard of living with environmentally friendly strategies and programmes.

The Green Building Council of Sri Lanka (GBCSL) was established in 2009 with the prime aim of transforming the Sri Lanka construction industry with green building practices and adopting fully sustainable practices in building construction. Sustainability in building practices is promoted by addressing five key areas related to human and environmental health, namely, sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. GBCSL uses a locally developed rating system for Green Buildings in Sri Lanka.

One of the leading banks, Hatton National Bank PLC, constructed a 22 story building as an energy efficient way back in 2001. Striving to incorporate energy efficient systems and practices, recently the bank opened the first green bank branch. This building was rated Gold by the US Green Building Council (USGBC) under LEED Certification for a new building.

In 2006, a leading garment exporter MAS Holdings opened the world's first garment eco-friendly factory which specialises in the manufacture of lingerie. It was recently awarded the LEED (Platinum) Certification established by the USGBC.

Through 'Janasevana One Million Housing Programme' conditions of the urban settlements were improved. Thousands of families who are not in a position to construct their own houses by their own means are living in various places of the island. Economic and other related problems are the main hindrance in construction of a permanent house. These families are living island-wide in various sizes of shanties and other temporary structures. These under privileged families living in under-

served settlements are a significant cause for the urban social problems.

3.10.2 Coordination Mechanism on Permanent Housing

The Housing Coordination Project is a response from United Nations Human Settlements Programme (UN-HABITAT) to support the Government of Sri Lanka in coordinating more than 100 independent agencies who are actively engaged in the tsunami housing rebuilding programme.

Effective coordination is essential to ensure that resources are not miss-allocated creating over-supply in some districts and under-supply in others. Equally important are issues of quality standards and linkage between housing actors and other infrastructure agencies, including water and sanitation, electricity, roads and other social services. The Project also provides institutional memory and continuity in tracking affected families on their journey through emergency shelter, transitional shelter and finally to permanent housing. Currently, 120,000 families are eligible for houses or grant payments.

3.10.3 Rebuilding Community Infrastructure & Shelter - Post Tsunami

The provision of immediate assistance to local governments and communities to restart their lives by assisting communities to rebuild infrastructure and housing was needed. This required support to remove the debris, salvage material, rebuild and repair their houses, as well as repairing essential infrastructure so that basic services and housing become available as soon as possible. As important as the repair and reconstruction is the social recovery of affected communities. This will be done

with support to mobilise and organise the communities so that the affected people set their own reconstruction priorities as well as shape the content of the assistance packages. In addition their livelihoods will be regenerated through the direct investment of the assistance packages within the communities, creating local employment and opportunities for entrepreneurship.

3.10.4 Rebuilding Communities in North and East Sri Lanka

In the post-conflict North East Sri Lanka there are about 800,000 internally displaced people, needing to be resettled in areas where basic services and facilities are non-existent or in a state of disorder. More than 350,000 houses are damaged or destroyed and over 50 per cent of the population is living in poverty.

3.10.5 Early Recovery Shelter for IDPs in Batticaloa

The conflict in Trincomalee and Batticaloa, which began in August 2006, resulted in the displacement of about 150,000 people. The IDPs lost almost everything including their homes and their means of livelihood. Of the 38,583 families (151,809 people) displaced, 27,195 families have now returned to their original place of residence. The government estimated that as many as 28,000 houses were damaged or destroyed in Batticaloa. A UN-HABITAT commissioned survey identified that the rebuilding of their houses was the primary concern for the vast majority of returnees. This prompted UN-HABITAT to develop a 'Starter House' concept to get families on the road to recovery in the shortest possible time. The Starter House will lay down the 'footprint' of an eventual complete house that conforms to the minimum standards laid down by Government for housing.

3.10.6 Access to Basic Urban Services in Municipalities in Sri Lanka

The UN-HABITAT Sustainable Cities Programme (Phase I), with the support of UNDP, was introduced to Sri Lanka under the 'National Programme for Sustainable Human Settlements in Sri Lanka,' which was a follow-up to the government's commitments at the second United Nations Conference on Human Settlements (Habitat II) held in Istanbul in 1996. The programme was introduced in 1997 to three Municipal Councils of the Colombo Core Area (CCA) covering an area of about 75km² and a total population of nearly 1.2 million. This area is the nerve centre of the country's economic activities. The municipal areas are faced with the challenge of how best to respond to priority service issues such as solid waste management, water supply, environmental health, flooding and unauthorised construction. The project will develop a sector-specific demonstration project in one municipality in Sri Lanka. It will focus on the involvement and ownership of the community in organising, delivering and maintaining basic urban services related to water and sanitation. The project will serve as a basis for preparing a municipal strategy on basic urban services and will be replicated in other cities in Sri Lanka.

3.10.7 Support to Implement the Sri Lankan Urbanisation Framework

This Programme builds on the Sustainable Colombo Core Area (SCCA) Project and the Urban Governance Support Project (UGSP) to support the Government's Ten Year Urban Development Framework (UDF.) The SCCA and UGSP projects introduced the environmental planning and management approach to 18 cities focusing on environmental issues and poverty reduction, and thereafter

diversified to include participatory urban governance, gender inclusiveness and localisation of Millennium Development Goals. The objective of this project is to institutionalise good practices and processes to improve performance at provincial and local level in delivering services in a transparent and accountable manner.

3.10.8 Urban Governance Support

The project is anchored in the Millennium Development Goals of Good Governance, Halving Poverty and Hunger and Ensuring Environmental Sustainability, which amongst others provide the reference points for the development targets set in the Future – Regaining Sri Lanka. Following the adoption in 1999 of its National Programme for Sustainable Human Settlements, the government of Sri Lanka initiated a number of pro poor urban capacity development projects as part of its commitment to implement the Habitat Agenda. These included the Sustainable Colombo Core Area Project (1999-2001) and the Sustainable Sri Lanka Cities Project (2001-2003), both supported by the UNDP. The success of these projects has created firm foundations for broadening of support for participatory urban governance to local authorities in Sri Lanka and the means and the modalities have been developed, tested and put in place.

3.10.9 The Sustainable Cities Programme (SCP)

SCP is a joint UN-HABITAT/UNEP facility for building capacities in urban environmental planning and management. The programme is founded on broad-based cross-sectoral and stakeholder participatory approaches. It contributes to promoting urban environmental governance processes, as

a basis for achieving sustainable urban growth and development.

The SCP supported 20 main demonstration and 25 replicating cities around the world. Following Sri Lanka's commitment at 1996 Habitat II City Summit held in Istanbul, Colombo, Sri Lanka's commercial capital, was the first city considered for development under this programme. 18 cities and towns have benefited from its sub projects.

3.10.10 Metro Colombo Urban Development Project (MCUDP)

The government has recently launched the MCUD project with the financial assistance of the World Bank. The objectives of the MCUDP are to (a) reduce flooding in the catchment of the Colombo Water Basin, and (b) strengthen the capacity of local authorities in the Colombo Metropolitan Area (CMA) to rehabilitate, improve and maintain local infrastructure and services through selected demonstration investments. The main components of the project are (a) flood and drainage management (improvements to flood and drainage management infrastructure in the Colombo Water Basin, development of an Integrated Flood Management System (IFMS), and complementary interventions to improve environment and public facilities along the water bodies, (b) urban development, infrastructure rehabilitation and capacity building in Metro Colombo local authorities and (c) project management, environmental and social safeguards, construction supervision, communications and public awareness.

3.10.11 Climate Resilient Action Plans for Coastal Urban Areas

Cities face one of the heaviest and onerous burdens from the impacts of

climate change. Analysis of 40 year records of daily temperature data of Batticaloa has revealed a strong trend of temperature increase of 0.4-0.5°C during the last two decades in comparison to the previous two decades. In addition, rainfall analysis has revealed a strong trend of monsoon rainfall increase (28% in BatticaloaMC and 34% NegomboMC) and correspondent increase of occurrence of minor floods. The BatticaloaMC has experienced the largest flood during the last 100 years during December 2009-January 2010. This flood resulted in loss of life and property while significantly damaging the emerging coastal tourism industry. 15%-20% of the total population in NegomboMC and BatticaloaMC are vulnerable to sea level rise in 2040. Frequently increasing storm surges have also resulted in significant losses to livelihoods in these areas.

The above information follows the findings of the Cities and Climate Change Initiatives Pilot Project implemented by the University of Moratuwa and UN-HABITAT in collaboration with Batticaloa and Negombo Municipal Councils as the first initiative to address the levelClimate Change impacts in Sri Lanka. As many other coastal cities have experienced devastating climate related impacts during the recent years, this Project focuses on the most urgent and immediate needs of the Sri Lankan coastal cities in adapting to climate change, and mitigating risks and the severity of impacts through Disaster Risk Management (DRM.)



Inauguration of the Disaster Resilient City Development Project

3.10.12 Disaster Resilient City Development Strategies for Sri Lankan Cities

Programs are developed to establish sustainable, disaster resilient and healthy cities and townships in disaster prone regions of Sri Lanka (Batticaloa, Ratnapura, Kalmunai and Balangoda MC Areas.)

3.10.13 Support to Conflict Affected People through Housing

The project aims to contribute to a sustainable solution for the returnees in the Northern Province with the specific objective of improving the living conditions and social cohesion of displaced people, returnees and their host communities in the North through provision of permanent housing.

3.10.14 Shelter Recovery for Northern IDPs

The project focused on supporting families to make damaged houses habitable as soon as possible. Initial assessments confirmed that while many houses have been destroyed, many

others remained standing, often without roofs, windows or doors. Rather than invest resources on temporary or transitional shelter arrangements, UN-HABITAT moved directly to a sustainable and durable housing solution for the vulnerable families in over 40 villages in the Districts of Vavuniya, Mullaitivu and Killinochchi.

3.10.15 Pro-Poor Partnerships for Settlement Upgrading

The objective of the project is:

- to institutionalise participatory urban governance approaches introduced in over 8 years of participatory environmental governance support;
- to assist the Municipal Councils of Ratnapura, NuwaraEliya, Kotte and Batticaloa to extend such participatory governance approaches to develop Pro-poor settlement upgrading strategies;
- to prepare settlements upgrading action plans to mobilise follow up investments;
- to develop manuals, training models and tools and replication modalities.

3.10.16 Support to a National Climate Change Policy for Sri Lanka

UN-HABITAT, the United Nations Human Settlements programme is supporting the Government of Sri Lanka in formulating a National Climate Change Policy (NCCP). The partnership recognised the need for a pro-active strategy developed using a consultative process, a critical catalyst in ensuring continued sustainable development of Sri Lanka. A new national policy will help overcome obstacles in the country in responding to concerns and repercussions of climate change.

3.10.17 Livelihood Assessment of Flood Prone Low Income Settlements in the City of Colombo

UN-HABITAT is partnering with the World Bank, the lead agency which assists the government to support the regeneration programme for Metro Colombo, with a combination of programmatic technical assistance and fast track operations based on the readiness of investments. A livelihoods assessment survey of low income communities located in flood prone areas is being implemented by UN-HABITAT with the objective of understanding critical knowledge gaps with respect to the geography and typologies of flood-prone low-income settlements, the livelihood conditions of these communities and their specific vulnerabilities. The results of the Assessment Survey will help enhance project design, project implementation and poverty reduction impact of the World Bank supported operations under the Metro Colombo Urban Regeneration Programme and facilitate urban policy initiatives.

3.10.18 Lunawa Lake Environment & community Development project

The objective of the project is to mitigate flood damage by improving urban drainage and canal systems, and at the same time improve the living conditions of project affected households. UN-HABITAT is responsible for implementing the Community Development Component, through advisory services to the Urban Settlements Improvement Project Unit of the Ministry of Urban Development and Water Supplies and the Urban Local Authorities (ULAs.)

3.10.19 Clean Settlement Project

The Programme Goal is to irrepressibly improve the physical, social, economic, political and institutional environment targets in low income settlements.

3.10.20 Sustainable township programme

Provision of better housing for low-income people and releasing land for urban development.

3.10.21 Colombo Metro Regional Plan (CMRP)

The overall objective of the CMRP is to design strategies, a physical plan and prepare an action programme for the development of the region with a view to meeting the aspirations and improving the quality of life of the people in the western province and the people of Sri Lanka.

3.10.22 Colombo environment improvement project

The overall objective of the Colombo Environmental Improvement Project is to contribute to a sustainable environment for the long term economic and social development of the Colombo Metropolitan Area (CMA).

3.10.23 Beira Lake restoration project

The Urban Development Authority (UDA) will complete relocation of 320 families out of 1,000 families identified to be relocated to facilitate the Beira Lake restoration project by providing them houses in Dematagoda. The Beira Lake Restoration Project started in 2008 to construct 1,000 houses in Dematagoda and Mattakkuliya areas to relocate people who currently live around the Lake.

The Mahinda Chintana policy guidelines envisage regional development through

city/town development with a view to equipping the local township with modern amenities and there by controlling the migration of population in to urban areas. One such successful project is the Greater Dambulla Programme. The Greater Hambantota Project is programmed with the same basic concept.

3.11 Forestry and Biodiversity

At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for sustainable development. One of the key agreements adopted at Rio was the United Nations Convention on Biological Diversity (UNCBD.) Post ratification of this convention in 1993, Sri Lanka also established commitments for maintaining its ecological underpinnings as it progresses with economic development, and ratified up to 12 multilateral agreements and conventions focusing on biodiversity and its conservation. United Nations Convention on Biological Diversity (UNCBD) established three main goals: the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits from the use of genetic resources. Being a nation with a rich endemic biodiversity, the government has made biodiversity conservation a key focus area.

The Department of Wildlife Conservation (DWC) and the Biodiversity Secretariat at the Ministry of Environment are the key implementers of the programmes and projects highlighted below:

- Preparation of a Biodiversity Conservation Action Plan (BCAP.)
- Setting up of the Biodiversity Secretariat under the Ministry of

Environment & Natural Resources in 1998.

- Strengthen the key institution in the forestry, wildlife, agriculture and coastal sector.
- Setting up the implementing mechanism for coordinating biodiversity activities in the Ministry of Environment.
- In-country capacity assessment for biodiversity conservation.
- Projects promoting capacity building for biodiversity conservation with the financial support from various international donors.
- Training, awareness & education programmes.
- Development of subject specific policies (Traditional knowledge, Access to genetic resources.)
- Carry out a Capacity Assessment under the National Capacity Needs Self-Assessment for Global Environmental Management (NCSA)

3.11.1 Progress achieved from Rio+10 meeting to Rio+20 meeting - 10 year Period (2002 - 2011)

In-situ conservation

- The implementation of Protected Area and Wildlife Conservation Project for upgrading the 7 protected areas, preparation of habitat maps and protected area gap analysis.
- The declaration of 04 Ramsar sites - Anavilundawa, Maduganga, Kumana, Vankalai.
- The declaration of 2nd forest based World Heritage Site - Knuckles.
- The increase of the extent of protected areas managed by the DWC.
- New National Parks Set Up - Kaudulla, Hikkaduwa, Pigeon Island, Horagolla, Gallways, Angamadilla, Yala-east Kumana, Lahugala-Kitulana, Nature reserve - Vedihitikanda, sanctuary.
- The identification and completion of the document preparation process for the declaration of the Important Bird Area (IBA) network.
- The increase of the extent of protected area (reserve forest) under the Forest Department.
- The declaration of Environmentally Sensitive Areas - Bulathsinhala-Wathrana, Talangama Tank, Maragala Kanda - Monaragala, Gin Oya-Natthandiya.
- The declaration of the first protected area (SethaVilluwa) for crop wild relatives (wild life) at Aruwakkalu, Puttalam.

- Finalised the declaration procedure for the first protected area for palaeo biodiversity (Miocene mollusk) at Aruwakkalu, Puttalam

Ex-situ conservation

- The establishment of more than 300 plant sanctuaries and 1000 religious planting sites (Atavisi Boodhi Malu) in temples to promote ex situ conservation and increase the forest cover
- The establishment of the Dry Zone Botanical Garden in the Southern Province
- The establishment of the Agriculture Technology Park in Gannoruwa and hosting of Agro-biodiversity demonstrations at this site
- The establishment of 'AthAturu Sevana' for rehabilitation and reintroduction to forest of baby elephants

3.11.2 Access to genetic Resources

- The preparation of Model Material Transfer Agreements for ready access to genetic resources and to prevent bio-piracy

3.11.3 Traditional Knowledge and Cultural Diversity

- Conducting of annual symposiums on Traditional Knowledge focusing on various themes
- Preparation of four compendiums on Traditional Knowledge

3.11.4 Impact on Biodiversity

- Implementation of Technical Assistant project to control of Aquatic Alien Invasive species

and introduce biological control agents for Water Hyacinth (*Eichhorniacrassipes*) and *Partheniumhysterophorus*.

- Establishment of a National Database and a Website for Invasive Species
- The updating of the National Lists of Invasive Flora and Fauna
- The establishment of an early warning system for the introduction of Invasive Species

3.11.5 Sustainable Use and Benefit Sharing

- Implementation of the Southwestern Rainforest Conservation Project for enhancing the capacity to sustainably use forest resources
- Implementation of Sri Lanka-Australia Natural Resources Management Project to reduce poverty through improved natural resource management
- Preparation of a National Biosafety Framework

3.11.6 Biosafety

- Ratification of Cartagena Protocol on Biosafety
- Formulation of a National Policy on Biosafety

3.11.7 Biodiversity Valuation and Economics of Biodiversity

- Design a project on pricing the island to prepare an electronic data base on ecosystem base valuation.

3.11.8 Policies, Strategies and Action Plans

- Preparation of Provincial Biodiversity Action Plans for decentralisation and

implementation of possible programmes.

- Preparation of Addendum to the Biodiversity Conservation Action Plan.

Box 3.13 Sri Lanka's 4th RAMSAR Wetland Declared in 2011

On the directive of the Department of Wildlife Conservation, the International Convention on Wetlands of International Importance (Ramsar Convention) has designated the Vankalai Sanctuary as the 4th Ramsar Wetland of Sri Lanka. The Vankalai Sanctuary is located on the North-Western coastal belt of Sri Lanka within the District of Mannar. This site covers an area of 4,839 ha and consists of several ecosystems include arid-zone thorn scrubland, arid-zone pastures and maritime grasslands, sand dunes, mangroves, salt marshes, lagoons, tidal flats, sea-grass beds and shallow marine areas. Due to the integrated nature of the shallow wetland and the terrestrial coastal habitats, this sanctuary is highly productive, supporting a high ecosystem and species diversity. The site provides excellent feeding and living habitats for a large number of water bird species, including annual migrants, which also use this area on arrival and during their exit from Sri Lanka. It harbors more than 20,000 water birds during the migratory season. The site as a coastal and marine ecosystem is important for over 60 species of fish, marine turtles and rare species such as Dugongs.

Department of Wildlife Conservation-2011

- Preparation of National Agro-biodiversity Action Plans.
- Preparation of Palaeo-biodiversity Action plan

3.11.9 Monitoring and Coordination

- Establishment of a National Steering Committee for the UNDP Small Grant Programme and monitoring of 173 projects with total value of US\$. 3,161,296.

3.11.10 Institutional Aspects and Capacity Building

- Establishment of Biodiversity Protection Unit in the Customs Department.

3.11.11 Legal Framework on Biodiversity

- Establishment of National and Provincial Faunal Biological Identities by declaration of National Butterfly and Provincial Butterflies.
- Establishment of Provincial Floral Identities by declaration of Provincial Flowers.
- Protection of *Salacia* spp. (*Himbutu* spp.) from bio piracy through Flora Fauna Protection Ordinance (FFPO) regulation.
- Protection of all *Cinnamon* spp. (*Kurudu* spp.) from bio piracy through FFPO regulation.
- Provision of legal protection for most of the plants and animals through inclusion in the Protocol Unit of FFPO.

3.11.12 Education, Awareness and Training

- Conducting a diploma course in Palaeo-biodiversity in the Postgraduate Institute of Archaeology.
- Preparation of a book of Sinhala alphabets with biodiversity aspects 'Jeewa Hodiya' (Bio-

Alphabet) for conservation education of grades 1,2 and 3.

- Published nearly 200 posters with 32 themes as newspaper supplements weekly with the 75,000 copies/each newspaper.

3.11.13 Assessment, Research and Technology Transfer

- Preparation of 2nd Red List (Red data book) on flora and fauna.
- Completion of assessment of conservation status of all flowering plants (3772 species.)
- Preparation of Known Plant List of Sri Lanka.
- Completion of island wide basic survey on marine mollusk and assess conservation status.
- Completion of assessments of conservation status of dragon flies, spiders, etc.
- Implementation of 'Flora of Ceylon' project to revise the assessed flora.
- Prepare information exchange system within the relevant agencies for conservation of crop wild relatives for Biodiversity information management

3.11.14 Agriculture Biodiversity

- Implementation of the projects on conservation of Crop Wild Relatives and Animal Genetic Resources.
- Completion of the preparation of project of mainstream the underutilised crop for human nutrition.
- Completion of the project proposal of adaptation of climate change impacts on agrobiodiversity through livelihood development.

3.11.15 Implementation of Biodiversity Related Aspects of Rio Principles

The Rio principles adopted in 1992 covers the full spectrum of sustainable development including social, economic and environmental aspects and are of the baselines to compare the progress of commitments made by each and every country for sustainable development.

3.12 Concluding Remarks

In a broad sense a major portion of the Natural Capital of Sri Lanka belongs to the country's biodiversity. Even non-biological natural resources are also generated due to the long term biological process unique to specific ecosystems. Sri Lanka is placed 24th in a list of 34 world biodiversity hotspots.

In view of the importance of biodiversity in Sri Lanka's development programmes, particularly in Agriculture, Plantation Industries and Fisheries sectors, the sustainable use of biological resources is of critical importance to the sustenance of the country's economy. The Development strategy of the present Government is to project Sri Lanka as a green economy. Therefore, Biodiversity Conservation and investing in biodiversity specifically as natural capital is a high priority on the development agenda of the Government. The components of biodiversity and its major areas such as in situ conservation, ex situ conservation, traditional wisdom provide a comparative advantage in attracting tourists as well as investors.

Apart from the government institutions a number of international NGOs such as International Union for Conservation of Nature (IUCN) and local NGOs like the Sri Lanka Wildlife Conservation Society, Wildlife and Nature Protection Society of Sri Lanka and Federation of Wildlife Conservation are actively participating in

island wide projects to conserve the island's biological diversity.

Innovative initiatives taken by Sri Lanka towards a sustainable development path and a series of planned and unanticipated impacts as a result of these initiatives are discussed above. Social indicators in Sri Lanka are among the best in South Asia.

Despite severe economic burdens and development setbacks from terrorism inflicted disturbances and devastation from the 2004 tsunami, Sri Lanka achieved a sustainable growth rate with average annual growth of 5% over the last 3 decades. The economy grew by 8% in 2010 and is expected to continue this trend in the medium term.

The International Monetary Fund has been classified Sri Lanka as a middle-income country. In July 2011, Moody's upgraded the sovereign rating from 'Stable' to 'Positive.'

The Government of Sri Lanka has strongly reaffirmed its commitment to the Rio principles, the full implementation of Agenda 21, by developing and implementing a comprehensive sustainable development programme within the framework of 'Mahinda Chintanaya.' Sri Lanka has also committed to achieving the internationally agreed development goals, including those contained in the United Nations Millennium Declaration and in the outcomes of the major United Nations conferences and international agreements since 1992.

These efforts will also promote the integration of the three components of Sustainable Development - economic development, social development and environmental protection - as interdependent and mutually reinforcing pillars. Poverty eradication, changing unsustainable patterns of production and

consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for sustainable development.

Sri Lanka has recognised that the implementation of the outcomes of the Summit would benefit all, particularly women, youth, children and vulnerable groups. Furthermore, the implementation should involve all relevant actors through active partnerships. Good governance is essential for sustainable development. At the domestic level, sound environmental, social and economic policies, democratic institutions responsive to the needs of the people, the rule of law, anti-corruption measures, gender equality and an enabling environment for investment are the prerequisites for sustainable development.

CHAPTER 4

4 Challenges and Opportunities

4.1 Background

Box 0.1 Key Achievements in fulfilling Rio + commitments

- Sri Lanka has taken a comprehensive effort in implementing all 27 Rio Principles successfully
- Successfully achieved all MDG goals and agreed targets
- Signed and adapted relevant international conventions
- Ratified three Rio conventions

The impressive achievements accomplished in the pathway towards the sustainable development are presented in the previous chapters. The key achievements fulfilling Rio+ commitments are highlighted in the Box 4.1 while Box 4.2 presents the direct outcomes and Impact of Mahinda Chintana Vision 2005 – 2009 towards the socio-economic development in the country. However, there are emerging challenges that one should be mindful of addressing in the sustainable development pathway.

4.2 Emerging Challenges

The key issues and emerging challenges Sri Lanka has to meet in its journey towards achieving sustainable development vision are:

- Alleviation of poverty and malnutrition.

- Up scaling and updating the knowledge base, science and technology skills, addressing deficiencies in technology transfer and adoption.
- Preparedness for climate change and disaster management and climate smart and disaster resilient communities.
- Mainstreaming the environment into the development process.
- Skill development/capacity building and improved human resources and financial resources.
- Managing social integration and social safeguards.
- Enhancing institutional capacity and social capital including private sector and community.

Though Sri Lanka has made significant progress in poverty reduction in the recent past, eradicating extreme poverty, hunger and malnutrition is a key cross cutting issue and one of the main challenges to be faced on the road to sustainable development. The proportion of people living below the poverty line sharply declined from 26.1% in 1990/91 to 8.9% in 2011, and according to current trends, the national MDG target of halving poverty is likely to be achieved much ahead of 2015. However, in spite of this favourable progress at the overall national level, there are considerable regional disparities in poverty. The incidence of poverty has declined in all districts except in NuwaraEliya and Moneragala, where the poverty headcount index (HCI) is more than double the national average.

It is evident that poverty in the estate sector has risen recently, contrary to the general trend of steadily declining poverty. Rising inequality is a cause for concern for Sri Lanka. The rising Gini coefficient of per capita expenditure,

which was 0.40 in 2006/07, and the declining share of the poorest quintile in national consumption, i.e., 8.9% in 1990/91 to 7.1% in 2006/07, bears evidence for rising inequality.

Western Province, and through better targeting of welfare programmes and suitable strategies to reduce inequality. Although, Sri Lanka is classified as a middle income country, it exhibits almost all the characters of a developing country

Box 0.2 Direct outcomes and Impact of Mahinda Chintana Vision 2005 - 2009

- **Average Sustained Economic Growth - Last three decades : Around 5%; Since 2005: 6%**

- **Raise:**

- **Per capita income** from US\$ 1,062 in 2004 to US\$ 2,053 in 2009
- **Life expectancy** from 73.2 years to 74.1 years (2005 to 2009)
- **School enrolment** from 95% to 98% (2005 to 2009)
- **Net enrollment in primary education** from 96.3% to 97.5%
- **General literacy** from 95% to 97% (2005 to 2009)
- **Computer literacy** from 10% to 20% (2005 to 2009)
- **Adult literacy rate** from 91% to 91.4%
- **Women participation in labor force** from 32.6% to 34.3% (2005 to 2009)
- **Overall human resource index** from 0.740 to 0.759 (2005 to 2009)

- **Raise access to:**

- **Electricity** from 75% to 87% (2005 to 2009)
- **Safe drinking water** from 80% to 85% (2005 to 2009)
- **Telecommunication** from 23% to 86% and (2005 to 2009)
- **Road access** from 93% to 95% (2005 to 2009)

- **Reduce:**

- **Unemployment** from 7.4% to 5% (from 2005 to 2009)
- **Poverty** from 15.7% to 8.9% (from 2006 to 2010)
- **Population living on less than \$1.25 per day** from 14.0% to 7.0%
- **Population living below the national poverty line** from 22.7% to 8.9%
- **Infant mortality** from 11.2 per thousand live births to 10.9(2005 to 2009)

- **Stepped up to;**

- a 'Middle Income Country' from a 'Low Income

The IMF classified Sri Lanka as a middle-income country in 2010

Nevertheless, Sri Lanka could do better in achieving the targets under Goal 1, if the fruits of growth are extended beyond the

where the socio economic development and poverty alleviation are of paramount importance in achieving the goals of sustainable Development. Therefore,

alleviating poverty of the people, ensuring food security without further land and water degradation, supplying clean water and sanitation, supplying adequate energy for basic needs, and providing access to electricity, providing a healthy environment for people who are exposed to dangerous levels of outdoor pollution and indoor air pollution and vector-borne diseases, providing safe shelter for those who are vulnerable to natural disasters, are the urgent needs to be addressed today.

Addressing the crosscutting issues and challenges such as (a) Up scaling and updating knowledge base, science and technology skills, addressing deficiencies in technology transfer and adoption, (b) Preparedness for climate change and disaster management and build-up of climate smart and disaster resilient communities, (c) Effectively mainstreaming the environment into the development process, (d) Skill development and capacity building and improving human resources and mobilising financial resources, managing social integration and social safeguards covering integrated social development with special attention to women, vulnerable communities, and enhancing institutional capacity and social capital, including private sector and community, are the basic pre-requisites for an effective Sustainable Development Programme.

During the past two decades, a better institutional framework was established to manage the environment and natural resources. Sound national policies were developed, and therefore, it is an opportunity for implementation of regional and local level projects to uplift the living standards of the people and conserve the environment and natural resources in the country. Further, the institutional framework is highly

supportive of an increased awareness on sustainable consumption and production practices among the general public for a paradigm shift from a brown to a green economy. In this context, various obstacles and challenges are being faced by the country to meet the incremental cost of meeting the transition phase of greening the economy. Hence, the country needs external assistance for technical, financial and skilled human capital for country driven priorities to integrate the various development scenarios, social and environment related concerns within the country.

4.3 Sector Specific Issues and Challenges

4.3.1 Energy

The grid substation capacity in NRE areas has reached their permissible level. However, sufficient investments are not being channelled from the utility or the private sector for upgrading substations. Further, the transmission network in resource-rich areas is quite weak, and was meant only to supply electricity to rural communities. Major investment is required to strengthen these networks. In the longer term, a dedicated backbone in the transmission network will be required and the utility or investors are unable to make such large volumes of investment or to remain committed to very long periods of payback.

In the energy management thrust, the most visible bottleneck has been the lack of capacity of the energy services industry. Although the country has Engineering Companies identified as ESCOs, such companies are not yet capable of handling the entire cycle of a given project, commencing from energy auditing to project implementation and post project support. This void has prevented many bulk consumers from taking up energy efficiency improvement

as a key strategy to improve competitiveness.

The small hydro sector followed a natural evolution until about year 2005, with no formal policy framework. The tariff on offer was based on avoided costs, and escalating oil prices forced the small hydro tariffs to climb up towards an almost unsustainable level. Absence of a well laid out resource allocation process also created a lot of conflicts among developers. The situation was further aggravated due to ill defined renewable energy resource ownership and an entangled and complex bureaucracy in the project approval process.

The resource allocation process, which was loosely regulated, resulted in many good sites in the hands of incapable developers. This state of affairs has delayed the project implementation severely. Although the small hydro experience in Sri Lanka has created an environment conducive for investment with the necessary legal framework and financing mechanisms in place, there is a possibility of increasing the number of small generators to the grid. This may lead to a number of technical issues faced by the national grid. Although there are solutions to such problems, there is no clear path to secure investments required to implement such solutions.

Fluctuations, which are inherent to wind and solar resources, have discouraged utilities from accommodating more solar and wind plants, due to the system wide impacts they pose. Therefore, careful analyses of the depth of these impacts and the fluctuations and development of sound forecasting methods have become a top priority. However, this approach requires many years of resource data and reports on operational behaviour of power plants, which are not available at present.

In the case of demand side management, the lack of concessionary loans for energy efficiency projects is a discouraging factor that impedes many projects from being implemented. This has created a void in the energy services industry and has prevented many energy consumers from embarking on energy efficiency improvement projects, even if they pose very sound financial justification.

Apart from the above, the cross subsidised electricity tariffs which do not reflect the true energy cost, especially in the domestic category, has made the need to conserve energy a low priority in the minds of the energy consumer. The tariffs remain stagnant, insulated from the ups-and-downs of the rising energy prices; therefore, it does not act as an incentive to encourage investments in energy efficiency activities. Also, energy efficiency is not yet a priority for many industries, since there are many other burning issues like material supply and labour related issues, which has a direct bearing on the viability of the business. This has let off the focus on energy management, and is identified as a key impediment in the energy services industry.

4.3.2 Transport

The Central Bank of Sri Lanka in 2010 expected to double its per capita income by 2015 and the increase in per capita income will eventually amplify the mobility demand in the long run. If the current trend continues in the years to come, with the increase in income, transport will have to be increasingly privately sourced.

While the country still figures around the lowest in private four-wheeled vehicle ownership, the attraction for three and two wheelers had been fast growing. By

2011, the active private vehicle fleet² in Sri Lanka stood at 2.2 million vehicles, of which nearly 60% were motor bicycles. Estimated private vehicle fleet in the island is expected to grow to 4.3 million vehicles by 2020 (Table 4.2).

The increase in private modes of transport will eventually increase the demand for fuel, thus becoming unsustainable in the long run. With the increase in private modal share in the transport market, the fuel usage and thereby emission discharge

4.1 The increase in the fuel bill is not the only factor that Sri Lanka should be worried about. The changing model intensity of vehicular operations suggests more pollution, which is not only environmentally hazardous but also socially unsustainable.

By having a low level of private modes of transport operating in the island, Sri Lanka in the past was able to save an enormous amount of harmful fuel emissions. But with increasing use of private vehicles, the growth of tons of CO, HC, NO_x, SO₂ and particulate matter will only be an inevitable misfortune,

Table 0.1 Passenger Transportation in Sri Lanka and Fuel Usage

2010	2020					
Type of vehicle	Passenger Km (Mn)	Load	Fuel usage L (Mn)	Passenger Km (Mn)	Load	Fuel usage L (Mn)
Bus	63,550	40	530	95,146	50	630
Train	4,353	500	27	11,890	750	48
Private	36,171	2	1,809	130,800	2	6,540
total	104,074		2,366	237,836		7,218
<i>Calculations by the University of Colombo (based on the assumption that the technical parameters observed in 2005 would remain unchanged)</i>						

will be an unavoidable misfortune. By the provision of public transport Sri Lanka has been able to control the number of private vehicles in the island, thereby controlling its fuel bill and ensuring environmental sustainability. However, with the projections for the year 2020 and beyond, the fuel bill is expected to skyrocket

If the projections hold for the next decade, the fuel consumption on transportation in the island is likely to exceed 7 billion litres by 2020. (See Table

unless a technological innovation intervenes in the interim. If this trend continues unabated, the environmental condition in the island will inevitably degrade along with the country having to incur a higher cost of congestion and accidents and will also increase vulnerability of the public, particularly low-income groups, to health hazards.

In summary, statistics suggest that the trend Sri Lanka is pursuing in terms of transportation is not sustainable. With increased income, economic activity is sure to increase and with the present quality of public transportation, people being increasingly attracted to private

² Excluding buses and trucks

modes of transport is a sad inevitability. However, like Singapore or Hong Kong, if the public transportation service can alter itself to the increasing demand, to the growing commuter expectations, and if the policy environment can be geared up to discourage the use of private modes of transport (at least in congested areas and peak times), the need for private modes can be expected to see a slowdown. The decline will not only be reflected in the number of private vehicles operating and releasing harmful emissions to the atmosphere. It will reflect in a reduction of the import bill of

intervention is made to safeguard the public share of transport market.

Research suggests that the demand for transportation in Sri Lanka is 2 to 3 times above regional averages³while at the same time Sri Lanka has the highest number of road kilometres per thousand people among regional neighbours.

Although, the high mobility would have served as a catalyst in bringing about higher social conditions, the high demand for mobility in the island (compared to regional averages) could possibly indicate excessive travel arising out of

Table 0.2 Increase in Transport Demand

Year	2011	2012	2013	2014	2015*	2020*
Per capita income USD	2,794	3,200	3,660	4,190	4,700	7,900
Source: Central Bank of Sri Lanka (2010, Table B 3.2)						
* Projections by the University of Colombo						

oil, allowing re-direction of the savings towards development priorities.

In all what has been discussed above, nothing qualifies more to resolve the present dilemma of growth versus environment, but public transportation. This document presents a comprehensive model for a vision for a greener Sri Lanka – a process simultaneously discouraging private vehicle ownership while improving the usage and attractiveness of public transportation. The following section will look into the key areas of focus.

The transport demand in the island is estimated to be around 160 billion passenger kilometres by 2015. If there is no effective strategic intervention that takes place in the interim; it would end up becoming nearly 240 billion by 2020. By then, it is highly likely that the public transport modal share would drop down to around 45% unless explicit strategic

infrastructure-unfriendly settlement patterns or of the wider availability of affordable public transport services or both. If such was the case, it could be an indicator of unnecessary environmental impact, as this high mobility demand was almost entirely supplied by motorised modes. In the past, the problem was not that acute owing to the mobility being provided almost exclusively by public transportation. At present, however, the trend seems to be of a considerable concern as the modal intensity of vehicle kilometres operated is shifting to private modes from public modes of transport, and private vehicle ownership is fast growing (fuelled by poor performance of public transport providers as well as by increased incomes making private vehicles much more affordable), further increasing the environmental hazard.

³As per studies done by Prof. AmalKumarage of University of Moratuwa

The below table demonstrates the sustainability impetus that could be sought through promotion of public transport modes. Lack of an effective shift towards public transportation catering to an increased demand, is a burning issue. Inadequacy of human resources with updated knowledge and the institutional structure to implement the necessary changes is seen as a major constraint.

Congested metropolitan roads in Colombo are a major strain in the transport sector. The issue is currently arising in the Kandy city in urban public passenger transport system. Other towns, depending on their transport demand growth patterns, will experience these problems with time

Fuel Intensity in Transportation

When considering the transport sector from the view point of Sustainable Development, the most important factor is the provision of transport services at the least economic, social and environmental cost, rather than the emissions per vehicle or emission per litre of fuel consumed. Such emissions need to be weighed against the carrying capacity of such vehicles. Larger capacity vehicles generally have greater economies of scale, and thus are less energy (and thereby emission) intensive per unit of transportation delivered (such as tons/km or passengers/km.) Therefore, it is imperative that the policies are geared towards encouraging a modal shift towards vehicles with larger economies of scale, particularly in terms of fuel. The

implicit concessions that had been accorded until recently to two wheeler and three wheeler vehicles, was a burden on the environment.

Promotion of Railway Mode, and Encouraging Modal Shift from Road to Rail

Even the most polluting train engine will have a far less per passenger pollution level compared to the most emission effective mode of road transport. Lack of capacity to facilitate rail transport to satisfy the need is worth discussing. Limited accessibility throughout the country and the travel time is a deterring factor in using the mode of transport. Rail track upgrading and development should be capital efficient if the procedure is to be sustainable and growth supporting. A network of rail-based Internal Container Depots in Colombo suburbs is needed to provide necessary logistics. In addition to this, all ports and airports should be provided with a railway link.

Non-motorised Transport Modes

Non-motorised modes are the least polluting of all modes of transport, and thus should be encouraged wherever possible. The constraint that gives cause for concern with regard to the promotion of non-motorised modes is the safety issue.

4.3.3 Water

Issues within the Irrigation Sector

Due to varying needs, demand for water

Table 0.3 Fuel Intensity of Different Modes of Land Transport – 2012

Year	Total Passenger	Public passenger	Private passenger		
	Km	Km	%	Km	Km
	(Mn)	(Mn)		(Mn)	%
2010	104,074	67,903	65%	36,171	35%
2015	159,800	81,498	51%	78,302	49%
2020	237,836	107,000	45%	130,810	55%
Calculations and projection by University of Colombo					

has been on the increase. While water availability has been affected by prolonged dry spells and droughts, and the pollution of water sources is apparent, in the face of increasing urbanisation, downstream areas of rivers are getting seriously degraded. The river bank erosion and water quality deterioration are some of the main resulting effects. Excessive sand mining in the main rivers and streams has led to the lowering of river bed levels resulting in the lowering of the water table as well. Salt water intrusion has also led to a number of environmental and social issues.

Sustainable management of water resources faces critical challenges, including the lack of policy clarity on resource development and allocation. The multitude of overlapping institutions and laws in this sector, and an absence of reliable data is seen as a major issue. Whilst water scarcity is not an immediate challenge, scarcity is starting to threaten overall development. Although per capita water supply in Sri Lanka is greater than that of many other countries, the current policy strategies mainly focus on the following issues: improving water productivity and irrigation efficiency, rehabilitating existing systems, investments in new irrigation system, watershed management, improved water allocation systems and major, medium and minor tank rehabilitation.

4.3.4 Water Supply and Sanitation

The following issues and challenges have been identified in the water supply and sanitation sector.

Issues

1. The waste water discharges from industries to water bodies.

2. Salinity intrusion in the water intakes.
3. Inadequate catchment protection.
4. High % of Non-Revenue Water (NRW.)
5. Ground water depletion in certain areas and water quality issues.

Challenges

1. Provide equitable access to Water and Sanitation Facilities and Services, addressing regional disparity/variation, with special focus on: (a) Remote Rural Areas, (b) Estate Sector in Central Province, (c) Under-Served Settlements in Urban Areas, and, (c) War and disaster affected areas.
2. Establish effective inter agency coordination at inter and intra agency level in different strata of government (Central, Provincial and Local Government Agencies) and other key actors.
3. Set up conducive legal, policy and institutional framework for private sector involvement and community management and participation and involvement of CBOs and people's based organisations (NGOs.)
4. Development and establishment of climate change resilient and disaster response water and sanitation service delivery mechanisms.
5. Address insufficient resource allocation to the water supply sector and to waste water management.
6. Establish effective community based promotional campaigns and facilitation of a mechanism for community information services.

7. Rational Tariff Structure and Cross Subsidy effecting economic and efficient management of schemes.
8. Restructure and reform ineffective operation and management. Poor maintenance of existing water supply schemes.

- f) Institutional issues. Unfinished institutional reforms, decentralisation processes and institutional capacity and lack of coordination.

Key Issues and Thematic Areas

There is a cluster of issues, deeply rooted within the socio-economic and political-development arena, that affect the water and sanitation sector. The key issues and challenges are given below:

- a) Water and sanitation issues relating to natural and manmade disasters: Eg., tsunami, flood, drought, human conflicts, etc.
- b) Regional variation in access to water and sanitation facilities and service expansion, especially in remote rural areas, estate sector in the Central Province, particularly in the Nuwara Eliya District, under-served settlements in urban areas, and disaster affected areas.
- c) Provision of safe water supply and sanitation services to war affected areas and displaced population, especially North and East Provinces.
- d) Poor water and sanitation coverage directly linked with poverty, especially poverty in the rural sector, urban sector, estate sector, conflict and disaster affected areas.
- e) Subsidiary attention and insufficient investment in sanitation sub sector. Sanitation has always been a sub sector of a main sector, and therefore continuously neglected.

There are a set of inter-related issues which come under the institutional paradigm, such as: (i) delay in institutional reforms and decentralisation process, (ii) private sector involvement, (iii) lack of coordination between Ministries, Departments and Agencies functioning in the urban sector and no clear prioritisation of activities, (iv) unclear mandates of various levels of Government, (v) incoherence in approaches to financing and cost recovery in the provision of urban services between different providers.

- g) Problems connected with approaches/strategies adopted and technology used. Another very vital set of issues within the sector are the approaches, strategies and technologies used, especially in the 'Supply driven - subsidy based approach/strategy. Lack of awareness among the low income community on various kinds of low cost technological options and lack of low cost technology solution providers.
- h) Deterioration in quality of water sources and the absence of systems of regular water quality testing. The pollution of surface and ground water is becoming a serious problem. There is an increasing trend of bacteriological contamination.
- i) Insufficient water resource mobilisation in quantity and quality and problems with allocation of water rights due to insufficient coordination between sector actors.

- j) Technical insufficiency in treatment plant operations and distribution systems leading to adverse water quality and high rates of unaccounted for water/non-revenue water.
- A. Insufficient investment for rehabilitation to maintain existing production capacities.
- k) High per capita consumption of 180 - 200 liters per capita per day, mainly resulting from low unit rates, as the tariff system does not induce customers to monitor their water demand.

4.3.5 Fisheries

High sea fishing/off shore fishing refers to fishing extending up to the Exclusive Economic Zone (EEZ) and beyond the territorial waters. Although the country has a narrow continental shelf with an extent of 30,000 Km² (which is 5.8% of the country's ocean area), Sri Lanka has an extensive sea area to engage in off shore/deep sea fishing activities. The high sea/off shore fishing segment of Sri Lanka is characterised by inadequate investments in technology and sophisticated, efficient equipment. On the other hand, there is a need for the introduction of large sized and well equipped boats which are capable of exploiting deep sea resources. Thus, the existing facilities such as storage, net and line hauling gear, safety and communication equipment, etc., in operating multi day fishing boats, are not satisfactory.

As there is evidence of depletion of coastal resources due to over exploitation, there is a need to introduce a continuous system of fish stock assessment and programmes and disseminate such research results among the rural fisheries associations. The adoption of fisheries management measures by forming

vigilant groups and educating the fishermen on the need to regulate fisheries to ensure sustainable use of coastal fish resources is also vital.

Poaching by foreign vessels is taking place, and recently a penalty of Rs. 1.5 million was settled for the release of 6 fishermen. The Sri Lanka Navy is active in patrolling the territories of Sri Lanka EEZ but their activities need strengthening. There are many instances of amicable settlements among the respective governments of India and Sri Lanka whenever there are incidents of poaching taking place among the fishermen associated with deep sea fishing vessels. There is evidence of a large number of vessels operating in Sri Lanka EEZ, with these boats poaching in Sri Lankan waters under Illegal, Unregulated and Unreported (IUU) conditions, thus leading to unsustainable exploitation of fisheries resources. There is a need to introduce Monitoring, Control and Surveillance Systems (MCS) which will enable the monitoring of a wide area of the EEZ. The system should include the mechanisms to identify all vessel traffic in the EEZ, not just those with VMS AIS-Automatic Identification Systems, coastal radar integration and space-based satellite imagery. This would enable proper information which would facilitate the final part of the solution in the Fisheries Management and Protection Programme (FMP.)

Lack of proper fish storage and quality maintenance facilities on board the vessels result in high levels of post-harvest losses and poor quality fish. Since most of the multi day vessels aim at higher volumes rather than quality, the majority of landings do not meet the international quality standards. Post-harvest losses in the fishing industry remain at 30 percent.

Unregulated fishing and the use of destructive fishing methods, such as dynamite fishing, cyanide poisoning and mechanised push nets, have seriously damaged the fish habitats and reduced fish stocks. The use of 'moxy nets' for the collection of ornamental fish for export has destroyed coral reefs and led to reduced fish and shellfish stocks. Pollution from industrial, agricultural and domestic sources has degraded the coastal habitats and threatened the sustainability of the near-shore/coastal fisheries. Oil pollution from shipping has further degraded fish habitats.

There is significant scope for private sector investors to invest in off shore/deep sea fishing. There is a need to invest in well-equipped large vessels as well as multi day fishing boats with adequate equipment and technology to exploit the deep sea resources. In particular, Sri Lanka has been unable to exploit tuna fish resources owing to an inadequate multi day fishing fleet and inadequate application of fishing technologies. Therefore, it is a current need to encourage increased private sector investments in off shore/deep sea fishing. In view of the limits to production increases in coastal fisheries, it is imperative that Sri Lanka develops the capabilities in high sea fishing.

Without a Fisheries Management and Protection Programme the coastal resource owned by the State will be exploited by foreign vessels with no benefit to the nation. Additionally, a Fisheries Management Programme is worthless without the enforcement capability in the form of active patrolling. The state, to be fully successful, must combine VMS, MCS, and FMPP. In addition local multi day boats should be fully equipped with all the above equipment to effectively get over the problem of IUU while regulatory

agencies should be equipped with monitoring vessels and trained staff to tackle any situation at mid sea. The Sri Lanka Navy (in the absence of an effective coast guard service) will have to be made familiar with International Procedures. Mother ship operations may pose a threat to the illegal fishing vessels operating within the Sri Lankan EEZ as they could take action against the illegal operations when they locate such vessels.

4.3.6 Agriculture

Sri Lanka has almost reached the production targets for maize. However, there is importation of a fair amount of Other Field Crops (OFC) such as chillies, big onion, green gram, black gram cowpea and soybean. The Government aim is to reduce the import of these commodities during next three years and to produce the national requirement locally in order to help the national economy while reducing the carbon foot print of the consumer and reaching sustainability. A special three year programme is designed to increase the production of these crops.

The growth in the agriculture sector has been sluggish. Therefore, rapid development in food production while protecting the environment, water resources and bio-diversity, needs to be given high priority in the development strategies.

Land Related Issues

Review of Existing Legislation

Legal provisions pertaining to the protection and sustainable use of land resources are contained in several major enactments. Other than the Soil Conservation Act, there is also the Paddy Lands Act, Act of Agrarian Services, National Environmental Act, etc. These enactments are enforced by a number of

agencies. The presence of a large number of acts does not provide a sound basis for efficient land management. Hence, there is a need to review the existing laws and regulations and develop an appropriate legal frame work for the effective implementation of land management strategies. In this effort one can use the Soil Conservation Act as the umbrella framework.

Fragmented land use:

Land use and zonation of lands based on national and regional scale priorities and potentials are a vital prerequisite when accomplishing green economy objectives. These zonation's must ensure the availability of agriculturally potential land for agriculture while safeguarding the rational allocation of lands for other uses. Ad-hoc conversion of land uses should be discouraged.

Appropriate Land use

Indiscriminate land use changes without considering the land suitability and capability should be avoided and the farmers should be supported in the selection of crops for their cultivation depending on the location, climatic forecast and impending market behaviour through an extensive extension service for agriculture.

Land Degradation and Fertility Decline:

Land degradation has been recognised as the most serious environmental problem in the country. Besides causing loss in productivity of agricultural lands, soil erosion sets off a host of off-site adverse environmental impacts – sedimentation of streams and water bodies, pollution of inland and coastal waters, flood effects, etc – which cause serious economic losses. The sustenance of the agriculture sector, domestic food production as well as export oriented, depends on

sustainable land management. Illicit clearing and encroachment of land as well as land settlement schemes have affected the state of watersheds. Deforestation and the deterioration of watersheds results in reduced dry weather flows, increased sedimentation and a host of attendant implications.

In addition, encroachments on state lands especially in environmentally fragile areas have become a problem. It is widely accepted that environmental degradation and poverty are closely linked.

Land Policies

Successive governments have used land resources to provide employment to the rural population. This policy of providing land in lieu of employment opportunities should be discouraged. In addition, encroachment on state land, especially in environmentally fragile areas, has become a problem. Hence, there is need to review the current land alienation and encroachment regulation policies and to formulate a land alienation policy that would protect sensitive areas. Reviewing land tenure systems in relation to their impact on land productivity also should be considered. On the other hand, a large number of people who use land without a proper title often do not take any interest in conserving soil due to uncertainty in tenure. Moreover, land policies should be formulated to handle the problem of land fragmentation through proposing minimum land extents for different uses in different regions.

Establishment of Appropriate Institutional Frameworks and their Coordination

There are a number of government organisations dealing with land management. However, in regional areas, coordination among those institutes is minimum or non-existent. Hence, there is

a need to promote and strengthen coordination among different organisations dealing with land resources management.

Providing Alternative Income Generating Opportunities

It is widely accepted that environmental degradation and poverty are closely linked. Rural communities rely on natural resources, mainly on land, for survival. However, they do not have the ability to invest on improvements to enhance or conserve the resource base. This degrades the resource base. A policy of weaning rural people away from land based employment should be adopted by promoting and establishing agro-based and other industries in rural areas for efficient use of agricultural products and generation of additional income. Livestock farming should also be encouraged and marketing and value addition should receive high priorities.

Database

An efficient monitoring programme will help to understand the present situation and the current trends, thus, providing information for decision making. However, a relevant, updated database is a prerequisite for efficient monitoring. In addition, the maintenance of useful information in the public domain is essential, as thereby planners, researchers, developers and the public would be able to carry out land management activities based on a sound footing.

Adaptation for Climate Change

The climate of Sri Lanka has undergone such vast changes that it has had significant effects on its agriculture. Variability of both summer and winter monsoon rains and rains of conventional origin have been significant during recent

decades (Punyawardene, 2007.) As a result, extreme rainfall events have become a frequent problem in crop production. Moreover, the impact of increasing temperature deserves special attention under the local context, as the average temperature of the country has been rising annually at a rate of 0.01 - 0.03 °C (Fernanado&Chandrapala, 1995.)

Scarcity of irrigation Water:

As much as 40% of irrigated water is estimated to be lost in conveyance due to leakages from substandard or poorly maintained canals and infrastructure. Excessive water use by paddy farmers and cultivation of paddy on soils better suited for other crops adds to the wastage of water. Inequity of water distribution is caused by both constructional imperfections and poor management of the system. Improvements of water productivity are compulsory, especially in major irrigation systems. Sustainable farming systems should be introduced and encourage farmers to adopt better management practices in all agricultural operations.

Irrigated agriculture forms a major component of this sector. Performance of Irrigation Schemes should be improved to reach their threshold. The future of the Irrigation Sector has to be set-out in such a manner, that it promotes agricultural productivity, to achieve the goals and targets set forth. Increasing the availability of new water resources and enhancing the present level of water use and conveyance efficiencies to an optimum level are both challenges and part of the Strategic Plan. New policies and programmes are being geared to reduce levels of water usage, and to attain greater efficiency while allowing other sectors that need water to expand to meet the emerging needs of the economy.

The vision for the future, 'Irrigation - Water is Our Heritage and Life' has foreseen the stage where by 2020, the irrigation sector will become a key driving force in Agricultural development with the supply of water in adequate, equitable and reliable quantities and in a sustainable, efficient and eco-friendly manner. This will be achieved whilst ensuring the food security of the people and serving the water needs of the farming community.

Lack of technical know-how and improved technology:

The loss of the agricultural crops during harvesting as well as post-harvest losses should be minimised with the improved technological support. In the local context, storage and transport mechanisms are below standard, and thus needs to be addressed. Adequate storage and appropriate safeguards while transporting agricultural products are essential in ensuring high productivity in the sector. Introducing of by products based on rice (rice flour processing), encouraging rice flour consumption as a substitute for wheat flour, in a bid to promote and improve post-harvest technology, have been initiated in the recent past.

4.3.7 Health

Can Sri Lanka continue the same trends of health indices and produce a healthier nation? The newer challenges at hand need to be addressed if the country is to have healthy human resources.

The conceptual framework below shows how non modifiable risk factors and modifiable risk factors operate to produce the health profile in Sri Lanka. Health and other sector policies are considered here as a modifiable element, where a conducive policy environment must be created.

The framework also emphasises that providing more and more health resources to combat health outcomes when they have occurred (i.e., providing health care services) can be largely controlled if other modifiable risk factors are addressed in a cohesive manner.

Changing Socio-demographic Profile

Sri Lanka has the fastest ageing population in the region. Ageing poses several challenges for health care. The built environment poses several challenges to promote active ageing

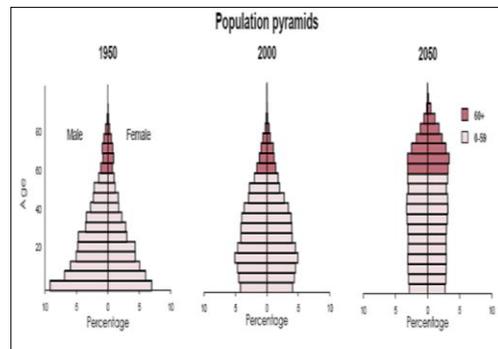


Figure 0.1 Sri Lanka - an Ageing Society 1960, 2000 and 2050

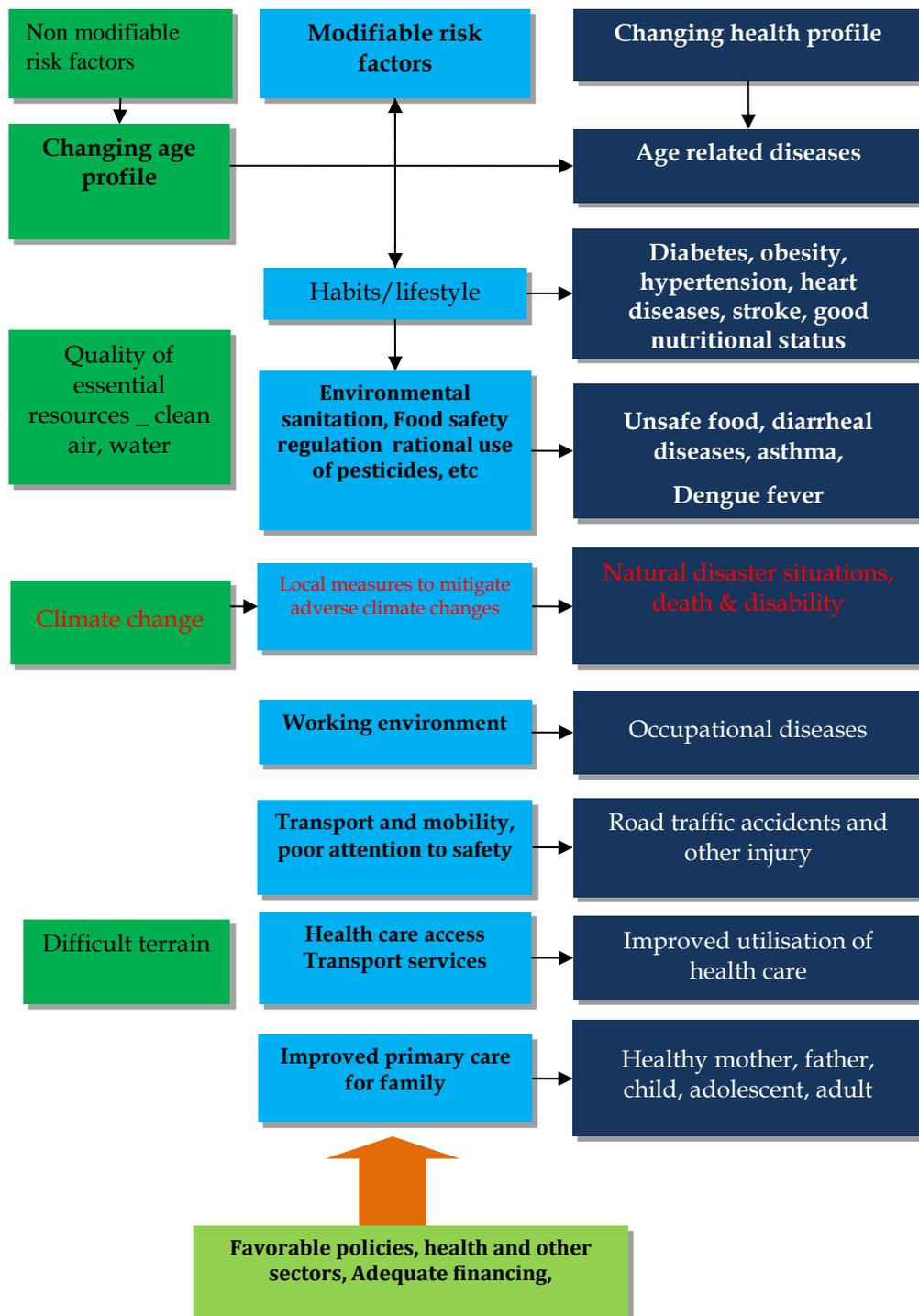


Figure 0.2 Conceptual diagram of non-modifiable and modifiable factors contributing to the health profile of Sri Lanka

The changing Epidemiological Profile

Sri Lanka currently faces a double burden with regard to dealing with disease. While maintaining the required standards of services for maternal and child health and for communicable diseases, health service organisations must now rapidly respond to the new emphasis on non-communicable diseases. Diabetes, hypertension, ischemic heart diseases, stroke, cancer, asthma, chronic kidney diseases, injury prevention and management and mental diseases need priority attention.

Addressing the Issues of Malnutrition

Several challenges in achieving improved nutritional status exist. As nutrition affects the whole life cycle, a life course approach to the nutrition problem is required.

Maternal nutrition deprivation leads to poor maternal outcomes as well as low birth weight. Low birth weight too contributes to infant morbidity and mortality. Poor nutrition in childhood leads to stunting and susceptibility to infection, as well as poor school performance. Low birth weight is also associated with higher incidence of diabetes in later years.

Lifestyle changes have affected food preferences where unhealthy food and an unbalanced diet are consumed. Whilst approximately 50% of the population does not consume the required amount of daily calories (HIES), it is now apparent that obesity is also on the rise in some areas. The lifestyle changes, together with poor choice of food and physical inactivity, have led to an increased cardiovascular risk.

Hence, it is a known fact that Sri Lanka experiences a higher incidence of non-communicable diseases when compared to the other countries in the region which

is due to the life course effect of low birth weight and also the life style changes being adopted throughout life.

Keeping the Momentum on Maternal and Child Health Services

Although Sri Lanka can be happy about its achievements for maternal and child health, it cannot be complacent and shift the emphasis entirely towards the other health challenges such as non-communicable diseases. The population will continue to grow for a few more years before it stabilises. Hence, it is important that improved quality health care be provided to produce a healthy nation through continued emphasis on the maternal and child health services.

Food Safety and Hygiene

As mentioned earlier, although Sri Lanka improved the severity and the response to diarrheal diseases and was able to bring down the mortality, there continues to be high levels of hospitalisation due to diarrheal diseases. Food sanitation measures need strengthening and as well as behavioural changes that lead to safe practices in the use of water for preparation and consumption of food.

Decentralisation and Providing Equitable Health Services

Many health service functions are decentralised to the provincial health authorities from 1989, which were established with the thirteenth amendment to the Government constitution in 1987. A large network of hospital services and the entire preventive health and community health services come under the responsibility of Provincial Health Councils. However, the health budget is distributed inequitably, and approximately 70% of the health budget is for the Line ministry whose main concern has been the management of specialised hospitals. In view of the

changes that will be required to address the problem of non-communicable diseases and to provide good quality primary care, more resources would be required for Provincial Councils. The recent allocation in 2012 budget to improve 1000 rural health centres is noteworthy in this regard.

Dengue Fever

While Sri Lanka was able to overcome malaria, which posed a huge burden on health care and a strain on health care financing, another disease has taken its place, i.e., dengue fever. Similar to malaria, the problem warrants both environmental management and quality health care to reduce mortality.

Growing Expectations of People that has translated into Providing More Specialised Care

With high literacy levels, access to information and the free market economy, there is growing expectation for healthcare provision. While increasing income levels also contribute to the access of private care, a notable trend is that a demand for specialised services has been created. This has also led to bypassing of primary level non specialist institutions to access care at higher levels where there are specialists. This phenomenon has created a need to provide more resources to specialised institutions where the care needed may often be for primary care.

Workforce Challenges

Healthy workforce - The general epidemiological challenges affect the workforce too. Lifestyle changes and key risk factors need to be addressed in the formal work setting. The relative inaccessibility towards health care of males when compared to females is noteworthy.

Out bound migration for foreign employment

Approximately 250,000 people leave the country annually to be employed overseas. Currently it is thought that approximately 1.8 million Sri Lankans are employed outside the country. Health screening is not mandatory and occurs if it is a requirement of the host country. Provision of access to primary health care while in overseas employment is also not a contractual obligation, but usually acute and emergency care needs are provided.

Considering the large female workforce in foreign employment and the social implication of the families left behind, the government is favouring greater male migration and skilled labour migration, rather than unskilled and domestic labour categories. The issues pertaining to migration and health are being analysed for the development of a Migration Health Policy under the leadership of the Ministry of Health, following an inter-ministerial approach involving several other sectors.

Occupational safety and providing easy access to primary care within the country is important. A system for reporting occupational accidents and injury exists. The Occupational Health and Safety Division of the Labour Ministry monitors the reporting and is involved in organising capacity building programmes for health and safety. A system that provides cardiovascular risk screening needs to be implemented in view of the high non communicable disease prevalence in the country. The Ministry of Health is currently pilot testing such screening programmes which are to be in force in the future.

Healthcare workforce - The Government healthcare workforce was approximately 114,285 as at 2011. Although the healthcare workforce has steadily increased, a revisit of the skill requirement and the numbers, are required in view of the current health

challenges. The healthcare workforce also has significant rural-urban imbalances and policies that favour rural retention is required. The training capacities of training institutes both in the Government and private sector need exploration due to the impact of international recruitment of health workers. The Government has also given policy direction to expand the private sector for those who can afford access to private health care.

Developing a Rational Healthcare Delivery System

The healthcare delivery system expanded considerably, and the emphasis was given to expansion of specialised care when compared to the primary tier of health institutions. Approximately 900 health institutions that deliver primary care, which comes under the management of the provincial health administration, will be improved to provide good quality continuing care for those with chronic non communicable diseases. Currently, a declining trend for utilisation of these health institutions is seen, while outpatient utilisation at specialised institutions is increasing. Efforts to further improve healthcare delivery through primary care will improve access for non-communicable diseases and will reduce out of pocket expenditure.

While the aim is to provide basic primary continuing care close to home for those with non-communicable diseases, a referral and back referral system of healthcare should be initiated from the primary level, which will further improve the cost efficiency of healthcare.

4.3.8 Industry and trade Sector

Issues and Challenges

Although its contribution to GDP is increasing, the industries in Sri Lanka

generate a fair amount of solid, liquid and gaseous waste in their operations which affects the overall productivity, as well as causes heavy environmental damage. The wastewater discharges from industries have a significant impact on the environment. A key area of the impact is the deterioration of ambient quality of receiving water-bodies. On the other hand, a significant quantity of resources such as raw materials, water and energy end up as non-product outputs. Since most of our industries are small and medium scale, the technology used is either obsolete, inadequate or at the low end. Sri Lanka, as a country that causes minimal carbon emission in its development process, is still committed to participate in the reduction in global warming. Meeting the challenges of Sustainable Development is needed with innovative approaches in today's context. Nationally appropriate frameworks are necessary to promote such innovation in all socio-economic sectors of the country.

On the other hand a significant quantity of resources such as raw materials, water and energy end up as non-product outputs. Due to the prevalent price market the raw materials are purchased not by looking at quality but at the price. This also leads to generation of higher amounts of waste. The industries do not provide sufficient skills to the operators for performing tasks and, as a result, most of the tasks in different industry sectors are performed by untrained employees, again leading to wastage of resources and generation of waste. On the other hand inadequate management planning and lack of information too lead to waste of resources. These factors have led to low resource productivity, high cost of production and poor response from export markets. Greening the Industries is to develop the industries to be resource efficient, environmentally friendly and socially responsible. Sri

Lanka has also signed the Green Industry Declaration. Therefore, Sri Lanka will be able to position the country to compete in the global market. The word 'Greening' has several connotations. Some of them are:

- a) Use renewable resources as much as possible.
- b) Reduce use of fossil fuels and switch to cleaner energy sources.
- c) Conserve water and energy.
- d) Eliminate use of hazardous substances.
- e) Eliminate or reduce solid waste/waste water generation.
- g) Eliminate or reduce air emissions.
- h) Reuse of waste resources as much as possible.
- i) Recycle/recover waste resource as much as possible.

4.3.9 Education

Challenges and Bottlenecks faced, Key Issues and Specific Focus Areas need to be addressed

Towards 2020, the lives and working patterns of people are bound to change with both emerging technologies and changing markets for the skills and income of our people as a middle income country. Thus, the education system should help children to grow out of relative dependence on their parents and teachers to mature as independent learners, with the skills to adapt to a changing environment in the society. Although Sri Lanka ranks high in general literacy, it is still lagging behind in the functional literacy required for a modern developing society.

In spite of the achievements gained in the last decades, one cannot be totally complacent with the condition of education in the country. Estimated

Primary Net Enrolment Rate in 2010 is 98%. However, the estimated Net Enrolment Rates for lower secondary grades and upper secondary grades for 2010 are 90% and 50% respectively (Mahinda Chintana, 2010.)

Though the school enrolment is high, around 4% of children aged 6-10 years do not attend schools and 5% of those who enrol do not complete primary education and 13% dropout before 14 years of age (Campaign for Better Education, 2011.)

Also, there are certain disadvantaged groups, such as those children employed, children in conflict, disabled children who either may have never enrolled in school or dropped out of school during compulsory education years. The majority of the disabled children do not have access to inclusive education. The percentage seeking tertiary education is extremely small.

4.3.9.1 Regional Disparities

Reducing disparities in the system is another challenge. A considerable percentage of children succeed in progressing to secondary and tertiary education. However, it is difficult to assess whether all these children get the chance of developing the unique abilities they possess. There are wide regional disparities in the conditions of human welfare: social indicators such as literacy rate, educational attainment levels are lower in the estate sector, compared to other segments. Disparities in the school system, such as lack of essential resources, non-availability of qualified teachers especially for the subjects, Mathematics, Science and English and the lack of laboratory and technological facilities, compel parents to struggle for better schools. Parents who cannot send their children to a better school have to be satisfied with the education they get from the village school. Therefore, establishing

schools with adequate resources and modern facilities in rural, backward areas is a huge challenge for the government of Sri Lanka.

4.3.9.2 Issues in Estate Areas

Even at primary level, problems such as shortage of teachers and teaching materials, absence of proper orientation of teachers in relation to the implementation of new reforms at primary level, could be noticed. The secondary level of education is experiencing the problems of low enrolment of students and low external supervision. University admission is very competitive in Sri Lanka and there is also a definite need to strengthen the GCE A/L Science and Mathematics streams in the estate sector schools.

4.3.9.3 Issues in Curriculum and Evaluation

Academic bias curriculum - Especially the secondary curriculum is overly biased towards cognitive and academic knowledge at the expense of developing practical skills, attitudes and values. Another challenge the system faces is the changing of attitudes towards a competency-based assessment. Undue emphasis on summative examinations has led to an 'examination syndrome' among the children and parents. Examination oriented teaching and learning prevents students obtaining skills which could help students to innovate, create, experiment and solve practical problems.

Issues in Higher Education- Higher education is not integrated into the employment system. The courses are usually too theoretical and not geared to the needs of the labour market. The prevalence of unemployment and underemployment among the graduates is a major issue.

4.3.10 Tourism

With the growth in the tourist industry in Sri Lanka, (The Sri Lanka Tourism Development Authority targets is 2 million tourists by year 2015 as against the 800,000 at present), it is vital that there is adequate accommodation and recreational facilities to offer within the next few years. The present facilities will not be adequate to cope with the demand in a scenario where the tourist arrivals will be more than double in another 3-4 years. Accommodation facilities as well as the essential infrastructure such as rail, road and air transport, human skills and the support services, which can sustain the tourism growth, are inadequate and are yet to be improved. Above all, the authorities will have to take positive steps to move the tourism targeted projects and facilities away from urban environs to allow for gradual expansion in view of limited land and congestion in urban settings.

The Sri Lanka Tourism Development Authority has already identified 24 Tourism Development Zones where investors will be encouraged to invest. There will be further land acquisition and leasing of new areas for hotels and recreational facility development in identified locations. Therefore, incorporating sustainable strategies into the development of the tourism sector has its own challenges. Large scale hotels and other venues for recreation adventure and tours can be a concern for environment as its construction and continuous operations may exert pressure on the environment.

A body of legislative enactments and case law allow and provide the parameters for large investment based structures and operations with the necessary systems of assessment, supervision, guidance, license and approvals. The Central Environmental Authority and the Board

of Investment (BOI) are the authorised agencies in this regard. The following section will explain the challenges in detail.

Preparedness for Climate Change and Disaster Management

With regard to coastal areas, developers invariably attempt to locate and have located tourism projects almost at the shoreline, thus invading the coastal reservations and buffer zones, causing environmental damage to the coast, coastal vegetation and coastal stability.

The Quality and Efficacy of Political, Administrative and Fiscal Decentralisation in Sri Lanka to support Sub-national Level Climate Change Adaptation and Mitigation Initiatives compiled for UN-HABITAT in the recent international workshop dealt with the impacts of climate change. With reference to Coastal Zones, it was emphasised that coastal erosion will be aggravated due to climate change and sea level rise. The ever increasing human induced pressures on coastal areas will worsen the situation. There will be a continuing landward shift of the shoreline primarily caused by the forces of waves, currents, tides and winds. The other causative factors include the exploitation of sand sources, changes in relative sea level, etc. Globally, the sea level has risen about 20 cm in the past century, and is projected to rise another 59 cm in the next century. Due to global warming, the average rise of the sea level is of the order of 1.5 to 10 mm per year. It has been observed that the sea level rise of 1 mm per year could cause a recession of the shoreline in the order of about 0.5 m per year.

It also emphasised that as a small island state, Sri Lanka too is vulnerable to the many threats highlighted in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. The Report states that there will

be a 'Rise in sea level and intensity of extreme events, which threatens infrastructure, settlements and facilities that support community livelihood. Coral reefs, fisheries and other marine-based resources as well as land-based fauna and flora will be heavily impacted. Water resources are likely to be seriously compromised. Subsistence and commercial agriculture will be adversely affected. Impacts on tourism are likely to be largely negative. Human health too will be negatively affected.'

Mainstreaming the Environment in Development

In a drive to achieve an ambitious target during a moderate time frame, or rather, an acute time frame, it is evident that more negative impacts will be created than usual. In this context 'Sustainability' becomes a vital guiding factor than previously in Tourism Development, and eventually, a failure unless proper policies, guiding principles, strategies, monitoring mechanisms and awareness among the stake holders are in place before implementation commences.

Therefore, Sustainable or 'Responsible' Tourism will need to be developed through multi-stakeholder processes to ensure that all views are considered. The theme by which the rapid development is guided should be 'Sustainability' and all the sectors affected by and involved in the development should take into account the natural environment, the socio cultural life and the economy. Sri Lanka Tourism has recognised 'Sustainable' development as a timely requirement and as a priority target. Sustainable Tourism will be the foundation to achieving the following set objectives which satisfy the definition of sustainability.

- Minimise negative economic, environmental and social impacts.

- Generate greater economic benefits for local people and enhance the well-being of host communities, improve working conditions and access to the industry.
- Involve local people in decisions that affect their lives and life chances.
- Make positive contributions to the conservation of natural and cultural heritage, to the maintenance of the world's diversity.
- Provide more enjoyable experiences for tourists through more meaningful connections with local people, and a greater understanding of local cultural, social and environmental issues.
- Provide access for physically challenged people.
- Be culturally sensitive, creating mutual respect between tourists and the hosts, and building local pride and confidence.

Lobbying Groups Against Sustainability

Sustainable Development is also affected by protests arising from lobbied groups. These groups are mainly influenced by foreign and local NGOs. For instance, sustainable coastal development is affected by fishermen who agitate to reoccupy their traditional fishing villages although they have been given alternate land elsewhere. They act on the impulse supported by foreign and local NGOs, such action necessitating suppression by the Government in a practical manner.

Involvement in Communities at all Levels of Decision-making:

Eco-Tourism cum Sustainable Development cannot be considered only as the Government's responsibility. All the other responsible authorities,

including the private sector, NGOs, Environmental Organisations should also effectively contribute to the decision making process, considering it a social responsibility. In this manner, there will be a variety of specialised ideas and suggestions, which may be useful in achieving the Sustainable Development.

Involvement of Local Authorities

Local Authorities have a central role to play in achieving responsible tourism through commitment to supportive policy frameworks and adequate funding. Through multi-stakeholder processes, Local Authorities and tourism administrations can join in developing destination management strategies and responsible tourism guidelines to create better places to visit for host communities and the tourists.

Encroaching on most Sensitive and Beautiful Locations in the Name of Eco-Tourism Development

Catering to the attraction tourists have for serene and virgin areas, developers attempt to locate their projects where the diversity and marketability is very high, particularly in view of the new thrust towards eco-tourism. Such areas are often either reservations, buffer zones or declared protected areas kept sacrosanct for many years for the benefit of the all living beings in this planet. Encroaching into these sensitive locations is becoming more common with the rapid development of tourism. Under these circumstances the responsible agencies have to be more vigilant and enforce the law. Communities and the media can also help to bring such activities into focus, where immediate action could be taken by the authorities.

4.3.11 Shelter and Urban Development

The Government of Sri Lanka's main aim is to minimise and eventually eradicate

urban squalor. This phenomenon has encroached into the surrounding areas of the commercial capital and the South West Coast of the country.

As such the main impediments hindering urban development are as follows:

- Land scarcity- this causes the problem of providing habitable space.
- Population explosion- this results in lack of infrastructure facilities, shared resources, and inequity
- Spiralling land values- the fluctuating land prices poses an issue for individuals to purchase land.
- Overloading of physical infrastructure- as more buildings infringe acres of land, individuals are faced with slim opportunities to build houses. This also creates social issues such as health problems.
- Uneven distribution- more individuals reside in the coastal areas of the South Western province.
- Urban Poverty- crowded housing, lack of access to water, electricity, and sanitation.
- Degradation of urban environment and environment pollution- air, noise, water and land are polluted due to mass human settlement.
- Encroachment of sensitive areas.
- Disaster risk and impact of climate change.
- Lack of institutional capacity - the intervention of local authorities are minimal

4.3.12 Biodiversity

Loss of biodiversity is a natural process and due to human influence. Its rate is increasing at an alarming rate mainly by over exploitation, habitat loss (destruction and fragmentation and

modification), introduction of invasive species, environmental pollution, climate change and industrial agriculture and forestry. During the period of 1992 - 1999, 104,380 ha of forest areas have been lost. (The rate of forest area loss - 14,911 ha/year.) Around 50% of wetlands (marshlands) in the western province were lost during the past 30 years.

The diversity of fauna, flora and ecosystem impacts almost all social and economic sectors of the country, especially forestry, wildlife, fisheries, agriculture, indigenous medicine and tourism. In the forestry and wildlife sectors, encroachment and illicit timber extraction, poaching, rock and sand extraction and illegal export of fauna and flora samples are the major concerns, although due to more concerted law enforcement, there has now been a decline in these activities.

The conservation status of fauna and flora of Sri Lanka examined in 2006, found that 20 amphibians and 72 plant species had become extinct during last 100 years. Few taxon groups have shown very high percentages of threatened species, namely, Freshwater crabs- 72.5%, Flowering plants (evaluated only 1099) 61.4%, Amphibians 50%, Mammals 45% and Freshwater fish 34%. Very high percentages of critically threatened species are shown by two faunal groups namely Dragonflies 65% and Land Snails 48%. There are four faunal groups which have highly threatened endemic species percentages of total number of endemic species of each faunal group, such as Mammal 88%, Freshwater Fish, 73%, Butterfly 65% and Amphibians 57%.

The following key issues for Rio+20 are common and integrated issues at global level, but there are other issues which are more or less directly and indirectly related to biodiversity or biological resources at country level.

The expectations for the Rio+20 outcomes are inextricably linked to the unfulfilled commitments and promises of the 1992 Rio Conference on Environment and Development, the accompanying three Conventions including the Convention on Biological Diversity and the subsequent United Nations agreements and action plan. The paradigm shift from unsustainable economic growth models to sustainable development was a commitment at the highest political level. However, the results envisaged have not been fully materialised.

In addition to the above, the ecological crisis from resource depletion to pollution and climate change, has worsened since 1992. Social marginalisation, and even exclusion, is on the rise despite some progress in the social dimension in several developing countries. In recent years and increasingly so, developed countries are also going through social tensions and upheavals.

Developed countries also agreed to take the lead in shifting from unsustainable consumption patterns. However, no such shift has occurred and the consumption patterns have remained largely unchanged, and instead, spread to developing countries with the wealthy adopting similar lifestyles while poverty eradication continues to be elusive. With income inequalities deepening in all countries, over-consumption and unsustainable consumption increased product choices (and hence natural resources use and financial resources allocation), while the poor are deprived of a dignified standard of living. Although there are many adopted international instruments for Sustainable Development since 1992, such development has not taken place due to the fundamental causes for implementation failure. These include:

- Over shadowing the Sustainable Development Agenda by globalisation (characterised by economic liberalisation that has created ecological and social crises, increased concentration of wealth in a handful of large corporations in each sector [industry and finance] and undermining of the policy autonomy and space of states.) Such globalisation has itself created economic crises, further exacerbating social tension, conflicts and political destabilisation. Weakening of multilateralism is crucial for Sustainable Development by continuing unilateralism (such as trade protectionism and rejection of some of the Rio principles and even the Conventions by some countries.)
- Disproportionate influence of global economic institutions and their lack of public accountability.
- Lack of implementation means (finance, technology and capacity building) that was an integral part of the 1992 Rio Global Sustainable Development Partnership with the government at the core of that partnership and developed countries committing to provide the implementation.
- Lack of integration of the 3 pillars of Sustainable Development at all levels of policy and governance despite initial efforts in the 1990s and numerous UN commitments and programmes related to the 3 pillars.
- Sri Lanka should analyse the above key issues at global level

and select relevant issues on biodiversity at country level and include recommendations to overcome the above issues in the existing action plans, strategies and policies. It should also remove barriers of implementation of the principles of Sustainable Development and the green economy for rebuilding confidence and seeking consensus for post-2012 implementation.

4.4 Promising Practices in Ensuring Sustainable Development

The Government of Sri Lanka has committed itself to the execution of the Rio principles - Agenda 21, as well as the internationally agreed development goals, including those contained in the United Nations Millennium Declaration and in the outcomes of the major United Nations conferences and international agreements since 1992, by developing, launching and implementing of a vast number of initiatives and programmes/projects, covering planning, policy, legal and institutional aspects, to establish a solid Sustainable Development framework for the country.

There are also a large number of promising practices in the following fields:

1. Environmental Safeguard Management and Mainstreaming Environmental Dimension into Development Process

- Environmental Impact Assessment (EIA)/Initial Environmental Examination (IEE) Process
- Environmental Protection License (EPL)
- Environmental Recommendation

- Establishment of The National Council For Sustainable Development (NCSD) under the leadership of H.E. the President of Sri Lanka
- Haritha Lanka Programme and National Action Plan for Haritha Lanka Programme
- Developed Sri Lanka Strategy For Sustainable Development
- Developed National Green Accounting Mechanism
- Established National Cleaner Production Centre (NCPC) & Sri Lanka Carbon Fund (SLCF)
- Established the Green Job Awards Programme and National Green Reporting System
- Developed a Sustainable Human Development Index (SHDI)

2. Social Safeguard Management:

- National Involuntary Resettlement Policy(NIRP) and Procedure
- Amendments to the Land Acquisition Act in line with NIRP

3. Public Awareness and Community Mobilisation Campaigns on Environment

- School Pioneer Brigade
- Environmental NGOs
- Community based environmental projects

4. Disaster Preparedness and Climate Change Mitigation and Adaptation

- Develop Policy and Intuitional Framework for Disaster Management and

Climate Change Mitigation and Adaptation- Disaster Management Centre, National Climate Change Policy, Climate Change Division, Ministry of Environment

- Develop and Implement a Series of Disaster Preparedness and Climate Change Adaptation and Mitigation Projects

5. Air and Water Quality Monitoring Programmes

- *AirMaC* (Air resource management programme)
- *Pavithra Ganga* (clean river) programme

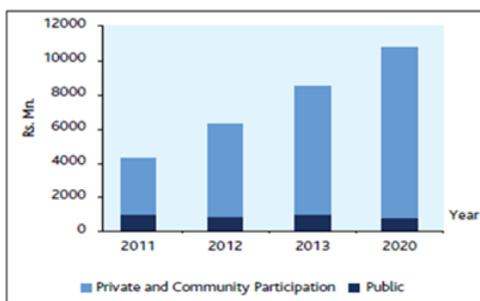


Figure 0.3 Investment for the development of forest cover Monitoring of Air quality and mitigation of human elephant conflict

(*Mahinda Chintanaya - Vision for the Future 2010*)

6. Waste Management Programmes

- *Pilisaru* waste management programme
- E-waste management programme

7. Sector Specific Sustainable Development Promising Practices

- Water sector- Community based WSS, Rain Water Harvesting

- Transport - Vehicle Emission Testing
- Housing & Urban Development- Lunawa Environmental Improvement and Community Development Project
- Metro Colombo Urban Development Project
- Agriculture - Gamaneguma
- Tourism - Eco-tourism

4.5 Strong Political Commitments

The very high level of political commitment to the Rio principles and the implementation of Agenda 21, has become a common feature in Sri Lanka since 1992. H.E. the President of Sri Lanka has strongly reaffirmed his and the country's commitment towards sustainable development by developing and implementing a comprehensive sustainable development programme within the framework of 'Mahinda Chintana Vision.' (See box 4.2 and 4.3) The totality of political leadership in Sri Lanka is also strongly committed to achieving the internationally agreed development goals, including those contained in the United Nations Millennium Declaration and in the outcomes of the major United Nations conferences and international agreements since 1992.

This 'Mahinda Chintana' vision is articulated identifying specific targets aiming at achieving the Millennium Development Goals (MDGs) ahead of time. Among the Mahinda Chintana Goals (MCGs) for 2016 are the following:

Box 0.3 Strong Political commitment for sustainable development

Mahinda Chintana - Vision for the Future

“The objective of our next massive leap forward is to transform Sri Lanka into a strategically important economic Centre of the world. My determination therefore, is to transform Sri Lanka to be the Pearl of the Asian Silk Route once again, in modern terms. Using our strategic geographical location effectively, I will develop our motherland as a Naval, Aviation, Commercial, Energy and Knowledge Hub, serving as a key link between the East and the West”

“Sri Lanka

- *Has an economy with a green environment and rapid development*
- *Aspires to be a stable society with a high quality of life for all of its people having access to decent living, electricity, water, schooling and health facilities*
- *Maintains the best of Sri Lankan culture, traditions and long standing global identity*
- *Aims to consolidate as an emerging market economy, integrated into the global economy and is competitive internationally”*

“Sri Lanka’s new development strategy, which is outlined in this document, attempts to implement explained strategies and underlined actions not only for a higher economic growth but also for a higher quality growth in each sector.”

“The Mahinda Chintana Goal is to share the benefits of growth across all segments of the population and also to prevent inequities, social exclusion and adverse environmental repercussions that have been witnessed in some of the rapidly growing economies.”

- Eradication of hunger and hard-core poverty
- Universalization of secondary education for all
- Reducing malnutrition rate of children by a third to 12-15%
- Increasing life expectancy from 76 to 80 years
- Increasing access to clean water in urban areas from 65 to 90%.
- Raising forest coverage from 28 to 43%.

These goals are to be attained through rapid economic growth and a change in the structure of the economy to a modern, environmentally friendly and well-connected rural-urban economy that can create better-remunerated employment opportunities.

2016 Targets
<p>Industrial Pollution and Control Targets</p> <ul style="list-style-type: none"> • Cleaner production applied to reduce raw material, water and energy consumption by 10 -25 percent. • 80-100 percent Industrial hazardous waste collected and treated. • Pollution load from Industry reduced by 10 percent from current level. • 80-100 percent factories relocated to Industrial parks.
<p>Urban Environmental Trends</p> <ul style="list-style-type: none"> • 90-95 percent population with access to clean water. • 80-85 percent access to sewerage system. • 80-90 percent Municipal waste collected in urban areas. • 80-100 percent class 1 and II cities have landfills within national standards. • Use of unleaded gasoline.
<p>Forest Targets</p> <ul style="list-style-type: none"> • Forest coverage is at least 30 percent. • 1.9 million hectares planned by 2016.
<p>Reforestation and Rehabilitation Targets</p> <ul style="list-style-type: none"> • 50 percent reduction in barren and degraded land. • 90-100 percent regeneration of depleted upland forest.
<p>Protected Areas and Wildlife Conservation Targets</p> <ul style="list-style-type: none"> • 25 percent of total land area protected.
<p>Inland Surface Waters Protection Targets</p> <ul style="list-style-type: none"> • Water quality in major freshwater sources within national standards. • National standards for sustainable use of water resources and river basin protection.
<p>Coastal and Marine Protection Targets</p> <ul style="list-style-type: none"> • National systems of marine protected areas to be established. • Wetland areas to be protected. • Rate of mangrove and wetland loss to be reduced by 10 percent and 90 percent respectively. • Off - shore fishing programme to be implemented.

(Mahinda Chintana – Vision for the Future 2010)

CHAPTER 5

5 The Way Forward - Vision for the Future

5.1 Background

The previous section of this report has highlighted the fact that Sri Lanka can be proud of the many positive achievements attained towards laying a solid foundation for Sustainable Development during the period 2005 to 2009 with the policies implemented under the Mahinda Chintana framework. It has also created a strong base to achieve a sustainable economic growth strongly integrated with social development and environmental protection, safeguarding the natural resource base. The Mahinda Chintana Policy framework has focused heavily on the protection of the environment and the conservation of the rich natural resource base of Sri Lanka, as well as social integration and reconciliation at local and national levels. The policy framework, based on Mahinda Chintana - 'Towards a New Sri Lanka,' has paved the way for implementation of large infrastructure development initiatives, consisting of electricity generation, development of ports, airports, water supply and irrigation, roads and transport, agriculture and domestic enterprises, strengthening of public services and state owned enterprises, promotion of the private sector and SMEs and implementation of rural centric integrated development initiatives aiming at empowering villages, 'Gama Neguma.'

Building on Sri Lanka's experience of more than 20 years in adopting various strategies and programmes with the aim of achieving Sustainable Development, the country has progressed significantly from the time of the Earth Summit of 1992 to Rio+20 in 2012. The real journey of Sri

Lanka for Sustainable Development was launched in 1992, once Sri Lanka signed Agenda 21, the international agreement, reflecting the highest level of political commitment on integrating development and environment cooperation by fulfilling the objectives of the Global Plan of Action for sustainable development. Sri Lanka's road map towards the sustainable development from 1992 to Rio+20 summit is illustrated in Box 5.1 and Figure 5.1 below. It highlights the key achievements and immerging challenges need to be addressed for the way forward strategy.

Box 5.1 Sustainable Development through Mahinda Chintana

(Mahinda Chintana - Vision for the Future 2010)

"My aim is to promote sustainable development in close liaison with the land, fauna and flora and to bestow our natural heritage to our future generation" (H.E. the President, Sri Lanka - Mahinda Chintana - 2005 p 61)

"My administration will be based on policies aiming at conserving the environment, nationally and internationally".

Due to the application of the principle that the 'abuser should pay for the abuse,' the Environment Ministry is self-financing reducing the burden on the Treasury.

5.2 Framework for Sustainable Development

The successes achieved during the period from 2005 to 2009 encouraged the laying of a strong framework for Sustainable Development by upgrading this process at a renewed pace, with the policies and measures to be implemented during the subsequent six years.

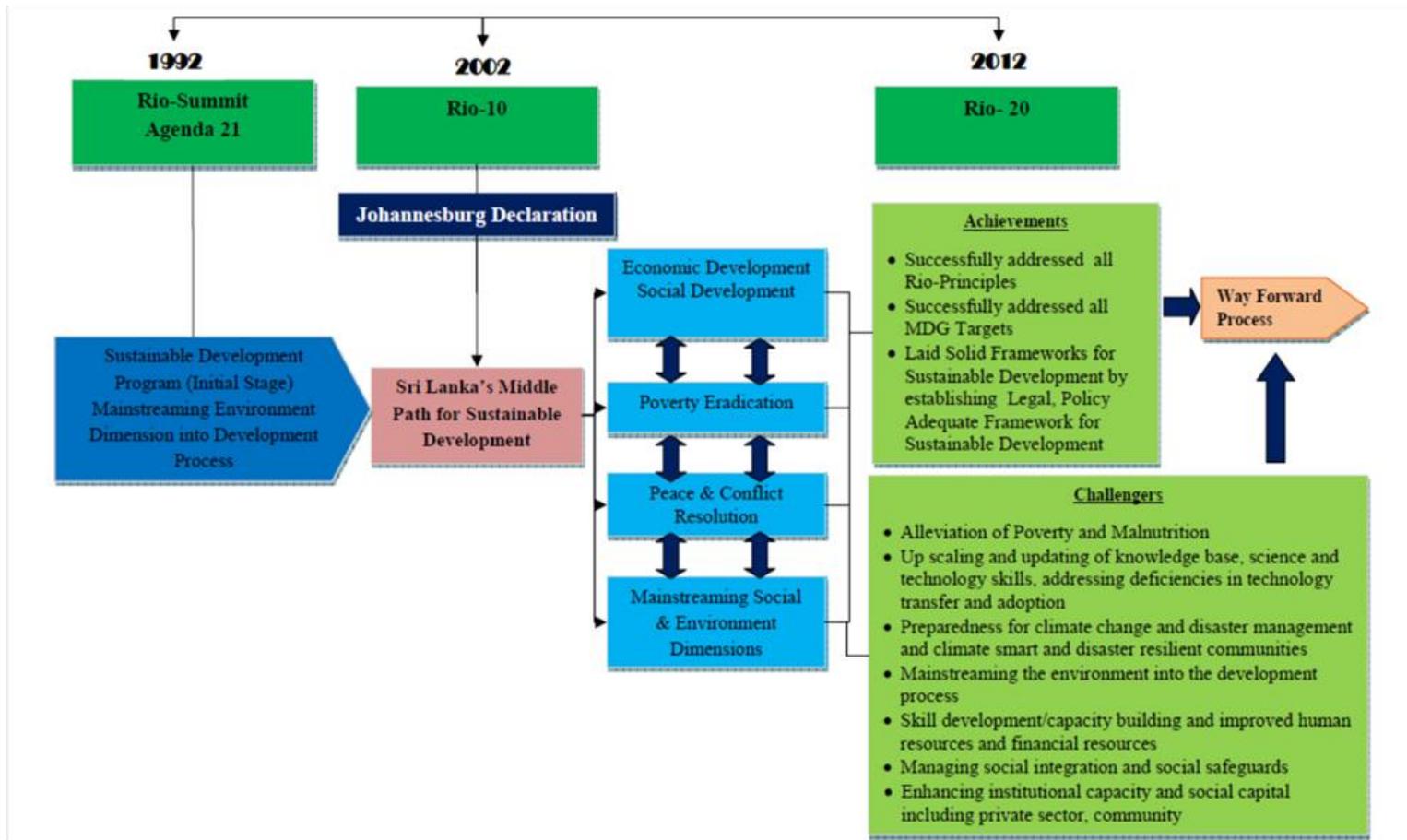


Figure 5.1 Sustainable Development - From Earth Summit 1992 to Rio+20

The thrust of the vision has been to reposition Sri Lanka in the global arena, as a knowledge based strong middle-income country with better and improved living standards, which is continuing to preserve cultural values and traditions.

Under the vision for the future, it is envisaged that Sri Lanka:

- Should have an economy with a green environment and rapid development.
- Aspire to be a stable society with a high quality of life with all its people having access to decent living, electricity, water, education and health facilities.
- Maintain the best of Sri Lankan culture, traditions and long standing global identity.
- Aim to consolidate as an emerging market economy, integrated into the global economy and be competitive internationally.
- Maintain the characteristics of a middle-income economy with a knowledge-based society.

The Mahinda Chintana Vision is based on economic prosperity, social justice, cohesion and environmental protection; and it clearly states that “Growth along does not mean economic prosperity”. The MCG is to increase the GDP to provide benefits to every segment of society in a justifiable manner. The creation of prosperity to the majority of the people who cannot purely rely on market-based solutions requires connectivity through roads, electricity, telecommunications, information technology, and education and health services. Hence, the development strategy relies not only on promoting investments on infrastructure based on commercial and economic returns but also on the creation of an equitable access

to such infrastructure development to enable people to engage in gainful economic activities.

The government has planned to transform Sri Lanka into a strategically important socio-economic centre by developing five strategic hubs: *a knowledge hub, a commercial hub, a naval & maritime hub, an aviation hub, and an energy hub*, taking the advantage of Sri Lanka’s strategic location and resources.

Box 5.2 The Goal of Mahinda Chintana:

“To share the benefits of growth across all segments of the population and also to prevent inequities, social exclusion and adverse environmental repercussions that have been witnessed in some of the rapidly growing economies.”

This vision is articulated identifying specific targets aiming at achieving the Millennium Development Goals (MDGs) ahead of time. Sustainable development related Mahinda Chintana Goals (MCGs) for 2016 are the following:

- Eradication of hunger and hard-core poverty
- Universalization of secondary education for all
- Reducing malnutrition rate of children by a third, to 12% -15%
- Increasing life expectancy from 76 to 80 years
- Increasing access to clean water in urban areas from 65% to 90%
- Raising forest cover from 28% to 43%

These are to be attained while embarking on a rapid economic growth initiative and changing the structure of the economy to a modern and environmentally friendly one, while promoting a well-connected rural-urban economy that can create better-remunerated employment opportunities to all. This will require:

- Almost doubling of the GDP by 2016 to above US\$ 4,000 through an economic growth of over 8% per annum.
- Investment to be increased to 33-35% of GDP with sustained commitment of public investment of 6-7% of GDP to support private investment.
- Exports to grow at twice the rate of the real GDP.
- High spending tourism to grow in order to generate fourfold expansion in tourist earnings and remittance inflows, based on skills, to be doubled.
- The share of rural employment to decline from about two-thirds to half.
- The share of urban population to increase from a quarter to a third.

Sri Lanka's Sustainable Development strategy, which is outlined in the *Mahinda Chintana - Vision for the Future*, attempts to implement strategies and requisite actions not only for a higher economic growth, but also for a higher quality growth in all sectors. The *Mahinda Chintana* Goal is to share the benefits of growth across all segments of the population and also to prevent inequities, social exclusion and adverse environmental repercussions that have been witnessed in some of the rapidly growing economies.

The Sri Lanka's Middle Path towards Sustainable Development *through 'Mahinda Chintana Vision for the Future'* is illustrated in Figure 5.2, sketching out the road map toward achieving the sustainable development vision 2022.

5.3 Strategies and Programmes to Address Key Cross Sector Thematic Issues and Challenges

The government of Sri Lanka is committed to adopting a holistic and integrated approach for ensuring Sustainable Development through its middle path. The emerging challenges described in last chapter would be effectively addressed including (a) Improving social development and cohesion, (b) Ensuring good governance, (c) Maintaining a clean and healthy environment (d) Mainstreaming environmental and social safeguards into development, and (e) Building of disaster resilient and Climate Smart Communities in vulnerable areas through appropriate strategies and programmes while ensuring that Sri Lanka does not deviate from its goal of pursuing sustainable development. Separate strategies and programmes for each of the above cross cutting challenging and thematic areas have already been developed and are being implemented.

5.4 Sector Specific Sustainable Development Pathway and Programmes of Action

Under the guidance of the 'Haritha Lanka Programme,' each ministry in charge of the key sectors has already developed the sector specific vision and programme for sustainable development. These sector specific programmes would be reviewed and the Sustainable Development Action Plans for each sector would be developed in line with the outcomes of the Rio+ 20 summit.

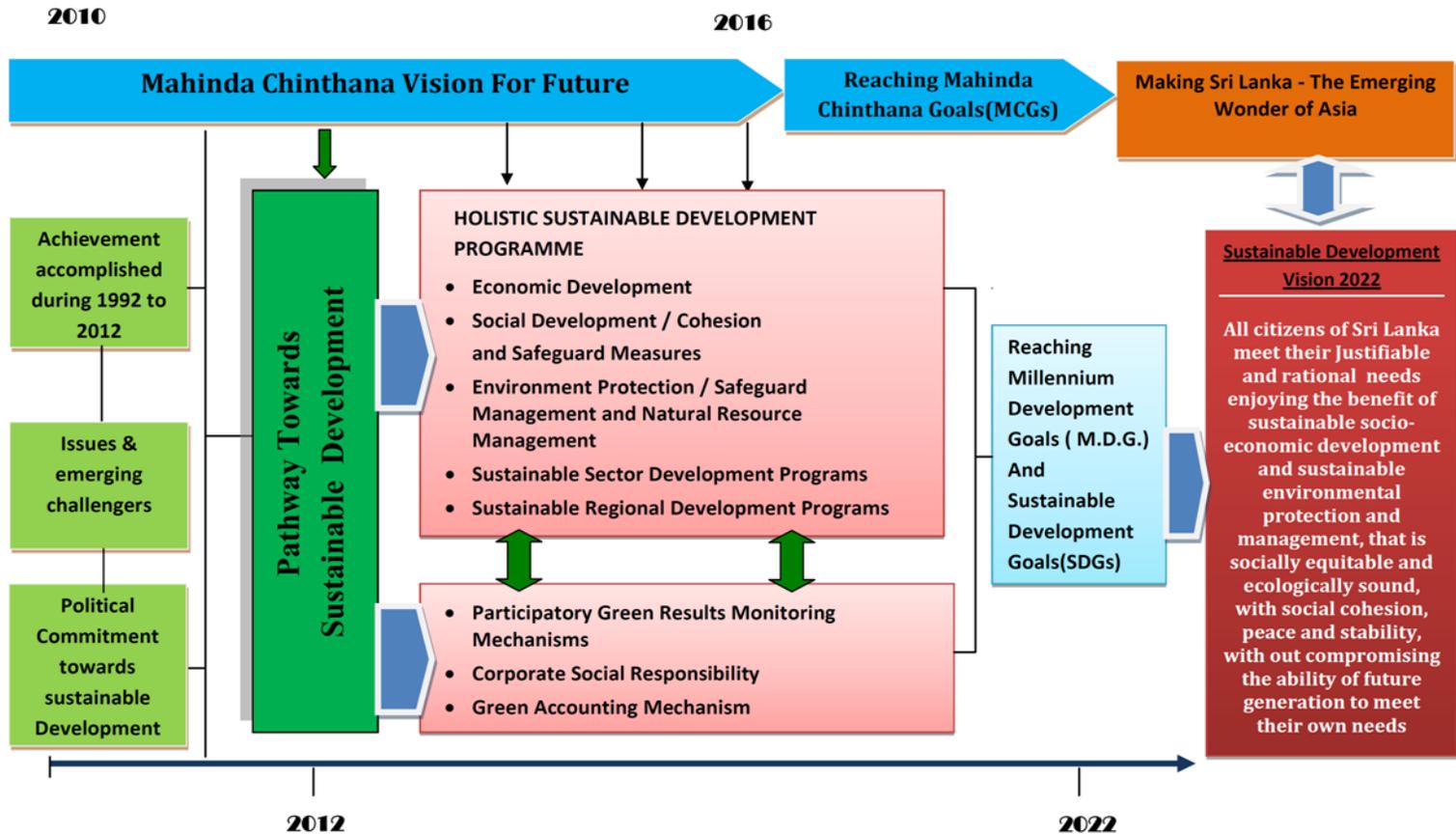


Figure 5.2 Sri Lanka's Middle Path towards Sustainable Development through 'Mahinda Chintana Vision for the Future'

5.5 Key Initial Tasks of Way forward Strategy

The MoE has already taken action to accomplish following key initial task for the second phase of the Sri Lanka middle path toward the sustainable development.

5.5.1 Refinement of Haritha (Green) Lanka Programme

The Ministry of Environment has already taken action to incorporate sustainable development into all relevant sectors, mainly through the launch of the Haritha (Green) Lanka Programme in 2009, with the objective of addressing environmental issues in sector specific economic development areas and incorporating an environmental dimension to ensure long term sustainability of human development. This Programme is implemented under the direct guidance of the National Council for Sustainable Development (NCSD), set up under the Presidential Secretariat. The National Action Plan, for the Haritha Lanka Programme is already developed and implemented and it aims at greening the development of all the important economic sectors, ensuring that these sectors implement their activities within the framework of Sustainable Development.

The programme is being implemented successfully and the MoE has taken steps to do a comprehensive forward-looking evaluation with an objective to undertake participatory refinement of the programme and to prepare the National Haritha Lanka Action Plan 2012-2022 to achieve the Sri Lanka's sustainable development vision by 2022. This second phase of the National Action Plan of the Haritha Lanka Programme would be developed through an interactive process, involving all the key ministries, and a high level participatory process to

be followed during its preparation to ensure that sustainability would not merely remain a concept, but would translate into practical reality.

5.5.2 Refinement of Sri Lanka Strategy for Sustainable Development and Sustainable Development Goals

As already discussed in a previous section Sri Lanka has formulated a Strategy for Sustainable Development (SLSSD) in 2008 with the objective of achieving sustained economic growth that is socially equitable and ecologically sound, with peace and stability.

Box 5.3 Sustainable Development Goals

1. Eradication of poverty.
2. Ensuring competitiveness of the economy.
3. Improving social development.
4. Ensuring good governance.
5. Ensuring clean and healthy environment.

The Programme for the action of SLSSD has been an integral component of the way forward strategy for Sustainable Development. Achieving the five SLSSD goals (See the Box 5.3) is one of the key targets to be accomplished in the pathway towards the Sustainable Development.

The SLSSD strategy is being implemented successfully and the MoE has already taken steps to undertake stakeholder review and refine the strategy and the Sustainable Development Goals with an objective of achieving the Sri Lanka's sustainable development vision by 2022.

5.5.3 Establishment of Multilateral Environmental Secretariat (MES)

Sri Lanka has signed 36 MEAs covering three main thematic cluster areas, i.e., Bio-diversity, Chemical Waste and Climate change. The MoE is in the process of establishing Secretariat for MEAs to coordinate activities implemented in line with these agreements. This secretariat would play a crucial role in the achievement of the objectives of such agreements.

5.5.4 Establish Participatory Green Results Monitoring Mechanism

As discussed, the MoE has already established the institutional framework for the implementation of the National Green Reporting System and a National Green Reporting Steering Committee was setup. The MoE would undertake a comprehensive assessment of the existing green monitoring system and would establish a Participatory Green Results Monitoring Mechanism for carrying out green results based monitoring and evaluation of development process.

5.6 Institutional Mechanism and Means of Implementation

Sri Lanka is one of the pioneering countries that have been a forerunner in taking initiatives to establish policy, legal and administrative frameworks for Sustainable Development, and mainstreaming environmental and social dimensions into the development arena. The NCS, set up under the Chairmanship of H.E. the President, with the membership of all key ministers, functioning under the Presidential

Secretariat, is the highest decision making and coordination body in the field of Sustainable Development. At the national level, the subject of Sustainable Development is supervised by the MoE. All coordination, monitoring and evaluation functions are also handled by this ministry as well.

The National Action Plan for Haritha (Green) Lanka Programme, Sri Lanka's Strategy for Sustainable Development, the National Green Accounting Mechanism and the National Green Reporting System are implemented based on the outcome of Rio+20 by the Ministry of Environment with the aim of greening economic development within the framework of Sustainable Development.

Actions have been taken to develop a proper institutional setup at each key sector level. This includes the provincial and local government levels, as well as the private sector and communities. The proposed sector specific Steering Committee for Sustainable Development, e.g., the *'Energy Sustainable Development Steering Committee'* and Provincial Steering Committee for Sustainable Development, e.g., the *Western Province Steering Committee for Sustainable Development*, would be the key agency at provincial level oversees pivotal activities in this regard. The Ministry of Environment also aims to set up specific committees comprising of public, local government, private sector, civil society, and community consortium to guide, lead and monitor sustainable development.

REFERENCES

Air Resource Management Centre. (n.d.) *Environmentally Sustainable Transport Initiatives in Sri Lanka*. Retrieved May 07, 2012, from Sri Lanka Sustainable Energy Authority: http://www.energy.gov.lk/pdf/Presentations/8_December/Environmentally_%20Initiative.pdf.

Central Bank of Sri Lanka, (2010) *Annual Report of the Central Bank of Sri Lanka 2010*. Available at http://www.cbsl.gov.lk/pics_n_docs/10_pub/docs/efr/annual_report/AR2010/English/content.htm.

CFSES report, 2003-4, cited in World Bank, Sri Lanka Poverty Assessment, 2007.

Country Network Sri Lanka and Clean Air Sri Lanka. (2008, November.) *Clean Air in Sri Lanka: Summary of progress on improving air quality*. Retrieved May 07, 2012, from India Environment Portal: <http://www.indiaenvironmentportal.org.in/files/SriLanka.pdf>.

Dargay, J., Gately, D., & Sommer, M. (2007, January.) *Vehicle Ownership and Income Growth, Worldwide: 1960-2030*.

Deheragoda, K. (2010) *Energy Management Where are we?*, Article appeared in *Ceylon Daily News*, Available at <http://www.dailynews.lk/2010/05/08/bus25.asp>.

Diandas, J. (1998.) *Policies and Pricing*. National Development Council, Working Group on Inland Transportation.

Elliott, D., Schwartz, M., Scott, G., Haymes, S., Heimiller, D., George, R. (2003) *Wind Energy Resource Atlas of Sri Lanka and Maldives*. National Renewable Energy Laboratory. USA.

Expanding Opportunities and Enhancing Prospects. The World Bank, Human Development Unit, South Asia Region.

Fernando, S. (1999) *An Assessment of the Small Hydro Potential in Sri Lanka*. Intermediate Technology Development Group.

Fernando, S. (2003) *A Brief Overview of Renewable Energy Options for Sri Lanka*.

Fernando, W.J.L.S. (2005) *Sri Lanka Energy Sector Development: Proceedings of the 2005 Workshop on Sri Lanka Energy Day - World Energy Council Executive Assembly held in Colombo, Sri Lanka*. Colombo, Sri Lanka.

Hislop, D. (1985) *Case Study 2: Upgrading Micro Hydro in Sri Lanka*. Intermediate Technology Development Group. Nottingham, England.

Institute for Housing and Urban development Studies. (2000, December.) *Air Quality Management Working Group*. Retrieved May 07, 2012, from UN HABITAT: http://www.fukuoka.unhabitat.org/programmes/scp/sri_lanka/pdf/CCA_3-3_Colombo_Air_Quality_Management_demonstration_project.pdf.

Jayaweera, D. S. (n.d.) Private data source.

Kariyawasam, P.L.G. (2005) *Sri Lanka Energy Sector Development: Proceedings of the 2005 Workshop on Sri Lanka Energy Day - World Energy Council Executive Assembly held in Colombo, Sri Lanka*. Colombo, Sri Lanka.

Lekamlage, A. (2007) *Evolution of Small Hydro Power Sector in Sri Lanka; Off-Grid and Grid Connected Project Experience: Proceedings of the Regional Seminar on Small Hydro Power*

Development in Sri Lanka: Lessons for Developing Countries, held in Nuwara-Eliya, Sri Lanka. Nuwara-Eliya, Sri Lanka.

Mahinda Chintana. Policy Document, Ministry of Finance and Planning, Department of National Planning.(2010.)

Mahinda Chintana. Presidential Election Manifesto 2005.

Ministry of Environment. (2011.)*Progress Report 2011 and Action Plan for 2012.* Colombo: Ministry of Environment.

Ministry of Finance and Planning (2010) Sri Lanka: *The Emerging Wonder of Asia, MahindaChintanaya;The Vision for the Future.* Ministry of Finance and Planning, Colombo, Sri Lanka.

Ministry of Power and Energy, (2008) *Sri Lanka National Energy Policy and Strategies (2008)*, published by the Ministry of Power and Energy, Colombo, Sri Lanka.

Schäfer, A. (n.d..) Long-Term Trends in Global Passenger Mobility.

Siyambalapitiya, T. (2005) *Sri Lanka Energy Sector Development: Proceedings of the 2005 Workshop on Sri Lanka Energy Day – World Energy Council Executive Assembly held in Colombo, Sri Lanka.* Colombo, Sri Lanka.

SLNCU (2012), *Our Vision for Peace and Sustainable Development*, Sri Lanka National Commission for UNESCO, Ministry of Education, Sri Lanka.

Sri Lanka Sustainable Energy Authority, (2010) *Corporate Plan 2011 – 2016* published by the Sri Lanka Sustainable Energy Authority, Ministry of Power and Energy, Colombo, Sri Lanka.

Sri Lanka Sustainable Energy Authority, (2010) *Sri Lanka Energy Balance 2010* published by the Sri Lanka Sustainable Energy Authority, Ministry of Power and Energy, Colombo, Sri Lanka.

Wickramasinghe, H. (2007) *Policy Framework and Initiatives for the Promotion of Small Hydro Power: Proceedings of the Regional Seminar on Small Hydro Power Development in Sri Lanka: Lessons for Developing Countries, held in Nuwara-Eliya, Sri Lanka.*

Wickramasinghe, H. (2009) *Sri Lankan Energy Policies and Renewable Energy Development:* Presented at Sri Lanka Wind Power Workshop held in Colombo on 10, 11 August 2009.

Wickramasinghe, H. (2010) *Sri Lanka Country Report on Energy Efficiency Improvement and Conservation:* Prepared for SAARC Energy Centre.

World Bank (2005) *Treasures of the Education System in Sri Lanka, Restoring Performance.*

World Bank (2009) *The Towers of Learning, Performance, Peril and Promise of Higher Education in Sri Lanka*, July 2009, Human Development Unit, South Asia Region.



Greening Colombo



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