

07 | ENVIRONMENTAL MANAGEMENT



7.1 Overview

With the growing population and increasing demand for food, water, energy, land, and other natural resources, the world faces a massive challenge in achieving a green, clean, and resilient development. Climate change, which is both an outcome and a driver of further environmental degradation, presents a special set of challenges. The accelerating impact of climate change has narrowed the options for sustainable development, has reduced the resources and the time frame for addressing poverty. Hence, a drive is required towards cleaner, more efficient and equitable patterns of economic growth. Therefore, the environment can be considered as a cutting edge sector in development economies and it is an emerging area in the territory of economic science.

The scope of the environmental management includes: environmental pollution control and waste management, forest conservation, sustainable land management, human-wildlife coexistence, bio resource conservation and institutional reforms.

The environment sector aims at achieving low carbon, clean and green environment through the reduction of pollution, protection of rich biodiversity and ecosystem services, reduction of environment risk and efficient, sustainable resource consumption resulting in improved human well-being, environmental quality and reduced natural disaster impacts. It is obvious that the environmental management is of paramount importance in achieving sustainable development. Hence, in development planning it is necessary to pay due attention to conserving biodiversity and ecosystems which is essential to maintain the ecological balance.

Overall Policy

Environmental management is to facilitate a robust economic growth through required investments while taking measures to ensure the quality of environment leading to sustainable development. Green development is the key word of the environment policy which embraces a pollution-free environment and a toxin-free food habit.

Environment is a key pillar of sustainable development goals set out in the post 2015 Development Agenda. Thus, the environment sector is given a high priority in the Government's policy framework in line with the SDGs.

Relevant SDGs

- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impact
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Sri Lanka will make its all efforts to achieve SDGs and at least to come up to the 25th place of Environment Performance Index (EPI) by 2020 from its current position at 108 (2016). To achieve this, the Ministry of Mahaweli Development and Environment has developed "Punarudaya" the 3-year accelerated National Environmental Conservation Programme and launched the "Sri Lanka Next: Blue-Green Era" policy initiative.

Present Scenario

Forest Cover

The current forest cover of Sri Lanka is about 29.7 percent, which is around 2,088,000 hectares out of which dense forest cover is 23 percent (1,656,000 hectares). Out of the 6,730 assessed wildlife species, 1,751 species have been identified as threatened species according to the National Red List 2012.

Air Pollution

Air pollution is a major environmental issue especially in Sri Lanka's major cities such as Colombo and Kandy. With an active fleet of about 4 million vehicles, the transport sector has been identified as the main contributor

for air pollution. Annual averages of ambient PM-10 level in Colombo over the years have remained relatively within the 60 to 82 $\mu\text{g}/\text{m}^3$ range. The peak was recorded in 2001. Even though a sharp decrease was detected for 2009, it has again started to rise. These values, however, consistently surpassed latest WHO guideline value of 50 $\mu\text{g}/\text{m}^3$ for PM-10. Therefore, Colombo city is very unhealthy in terms of its particulate pollution. Nevertheless, a slight decreasing trend of PM-10 can be observed from 1998 to 2012.

Water Pollution

The water pollution of Sri Lanka is caused mainly by contamination by nitrate and bacteria in underground and surface waters primarily due to poor sanitation and untreated wastewater or insufficient wastewater treatment, toxic chemicals from industrial and agricultural activities, and eutrophication in lakes/reservoirs. The main cause of water pollution in urban areas is dumping of domestic and industrial wastes and untreated wastewater in to water ways. In agricultural areas, agrochemicals and fertilizer are the main pollutants.

Coastal and Marine Pollution

The coastal region in Sri Lanka has been increasingly subjected to pollution during the last few decades. The underlying drivers for pollution in the coastal region are a population concentrated on the coast and increased development activities such as tourism and industries. Fecal pollution, visual pollution, enrichment with nutrients such as nitrogen and phosphorus, organic (non-toxic and toxic) and heavy metal pollution, pollution by oil and thermal pollution are the types of pollutants that affect the coastal region.

Human Elephant Conflict (HEC)

HEC has become a very crucial issue faced by around 20 percent of the entire population of Sri Lanka. This conflict is prevailing in 107 DS divisions in 17 districts, out of which 17 DS divisions are considered as high intensity areas of HEC. During the five year period of 2011-2015, 333 human lives and 1,147 elephants have been lost due to HEC. The amount of compensation made is Rs. 85 million.

In addition, during the same period, 5,621 incidents of property damages have been reported which was valued at Rs. 76 million.

Table 7.1: Loss of Human and Elephant Lives

Year	No. of lives lost	
	Human	Elephant
2010	81	227
2011	60	255
2012	73	250
2013	70	206
2014	67	231
2015	63	205
Total	414	1,374

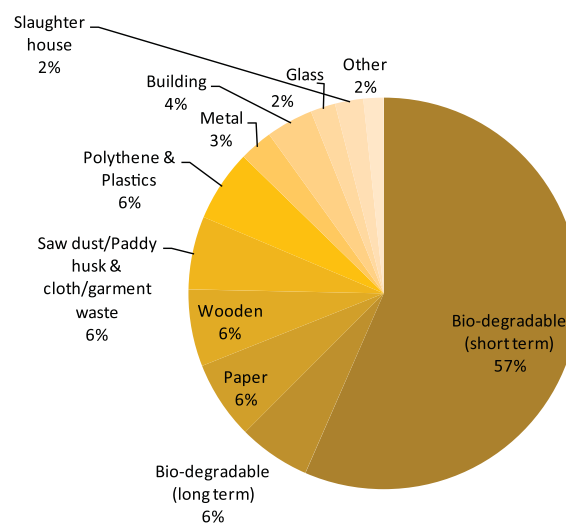
Source: Department of Wildlife Conservation

Waste Management

Increasing waste generation has become one of the major environmental concerns in Sri Lanka. The urban population across Sri Lanka has increased from 10 percent in 1970 to 40 percent in 2015 with accelerated economic and social development, increase of population and efforts to increase the standard of living. Colombo and its suburbs have developed into a metropolitan area and several provincial city clusters such as Kandy, Kurunegala, Galle and Matara, too have expanded. Total waste generated in Sri Lanka is between 6,500-7,000 MT per day while only around 39 percent is collected. Approximately, 60 percent of total generated waste is biodegradable.

With the booming of ICT sector during past decade or so, the quantity of E-waste generated is also rising which mostly contain

Figure 7.1: Composition of Municipal Waste Collection in Sri Lanka



Source: Central Environment Authority

harmful substances to human as well as to the environment. In addition, around 5,400 MT of clinical waste is been generated annually by the hospitals all over the country.

damages and losses still show significant levels and in fact are increasing. Sri Lanka's sector-specific losses due to natural disasters are estimated at Rs. 50 billion per year. The annual expected sector-specific loss from natural disasters is equivalent to 0.5 percent of the Country's Gross Domestic Product (GDP) and 3 percent of total government

Table 7.2: Generation and Collection of E-waste by Category (No.)

Category	Generation / annum (2008)	Collection/ annum (2008)	Gap	Expected Generation in 2016
Personal Computers	53,146	15,944	37,202	467,685
Printers	19,509	5,852	13,657	166,997
Televisions	63,474	19,042	44,432	548,415
Mobile Phones	903,544	271,063	632,481	10,119,693
Refrigerators	39,009	11,702	27,307	330,796
Air Conditioners	7,092	2,127	4,965	60,140
Photocopying Machines	758	227	531	6,307
Washing Machines	11,107	3,332	7,775	95,964
CFL Bulbs (Mn)	2.4	0.72	1.68	3

Source: Central Environment Authority, 2008

Disaster Management

Although Sri Lanka is a negligible contributor to the global warming, as an island nation we are highly vulnerable to the adverse impacts of climate change. It mainly includes increases in the frequency and intensity of disasters such as prolonged droughts, flash floods and landslides, variability and unpredictability of rainfall patterns, increase in temperature and sea level rise. These impacts affect our entire population, livelihoods, food security, health and eco systems.

Sri Lanka is affected by a number of climatic threats and extreme occurrences and these are anticipated to get worse with impact of climate change. Being an island nation with a hilly central-region, Sri Lanka is subjected to flood, drought, landslides, coastal storms and erosion, cyclones and storm surges. Climate-induced fluctuations in rainfall have resulted in a higher number of intense/ heavy rainfall incidents leading to flash floods in downstream and higher temperatures that have increased the risk of drought during the dry season.

Though there is a reasonable reduction of the casualties of the disasters, the disaster related

expenditure. It is recorded that over 13 million people have been affected by these types of disasters during the last decade. The cost incurred for relief has been estimated as Rs. 6 billion for the corresponding period.

The disaster management policy of Sri Lanka is "to ensure the safety of Sri Lanka by reducing potential disaster risks and impact on people, property and the economy".

7.2 Issues and Challenges

Environment and Wildlife

- Building resilience, taking adaptation measures to avoid adverse impact of climate change
- Mitigate greenhouse gas emissions in the path of sustainable development
- Promote sustainable consumption and production, practices and life styles
- Develop country's capacity to address the adverse impact of climate change effectively and efficiently
- Environmental pollution during all stages of development and increasing waste generation

- Deforestation and rapid forest degradation
- Improper land use planning
- Increasing human-wildlife conflict
- Rapid biodiversity loss and spread of alien invasive species
- Fragmented responsibilities, lack of coordination, overlapping institutional mandates and inadequate capacity

Disaster management

- Limited fiscal space to facilitate immediate post disaster relief services
- Development related modifications to land use and landscape conditions
- Lack of awareness, negative mindset of public and poor dissemination of information
- Lack of technical knowledge regarding the geo hazards
- Inconsistency in Disaster Risk Reduction (DRR) interventions and the lack of standardized approach
- Unavailability of a centralized damage and loss data collection system, database and lack of disaster risk assessment tools
- Introduction of an insurance scheme for different sectors to compensate for disaster related losses

7.3 Key Strategies

Environment and Wildlife

- Strengthen environment policies and enhancing environmental conservation and management
- Employ a multi-disciplinary approach to control environmental pollution through various sources
- Establish a robust mechanism to manage solid waste all over the country.
- Encourage green energy production and usage

- Apply a multi-disciplinary approach to minimize the negative impact of climate change through adaptive measures
- Achieve socio-economic development objectives while moving into low carbon development pathways
- Conserve natural forests and sustainable management of forest plantations
- Ensure community participation in forestry
- Undertake reforestation of unutilized lands of the country
- Ensure sustainable land management
- Encourage and enhance environmentally sustainable vehicle usage and transportation
- Ensure Wildlife-Human Coexistence through appropriate mitigation measures
- Strengthen required policies for bio resource conservation
- Strengthen legal and institutional framework for biodiversity conservation
- Conserve environmentally sensitive eco systems
- Restructure institutions and Promote capacity enhancement
- Raise environmental awareness through all types of media
- Enhance environmental capacity in terms of society and institutions
- Enhance coastal and marine protection and conservation
- Ensure marine pollution prevention
- Improve and enhance catchment protection, water management, water productivity and water security

Disaster Management

- Establish multi-hazard early warning system and effective dissemination of timely needed information

- Establish a reserve fund for reconstruction of infrastructure in disaster affected areas
- Establish a comprehensive centralized database with proper damage and loss data collection and damage and loss assessment tools
- Establish insurance schemes for economically important sectors through appropriate fiscal measures
- Undertake hazard, vulnerability and risk assessment
- Harmonize disaster mitigation and DRR into national development agenda
- Provide targeted and effective capacity building at all relevant institutions through training and awareness and supply of required equipment
- Enhance preparedness, response and rescue
- Establish results based monitoring and evaluation systems

7.5 Medium Term Targets

Environment and Wildlife

- Create a country with proper waste management with no waste issue by 2018
- Make the marine environment around the island a pollution free zone by 2018
- Increase the forest cover from 29 percent to 32 percent by 2018 with increase of 60,000 hectares of forest
- Attract 300,000 nature loving tourists to the eco-tourism sector and earn revenue worth Rs. 250 million per annum by 2018
- Erection and maintenance of 3,050 km of electric fence simultaneously with the live fence to eliminate human-elephant conflict by 2025
- Increase the electric vehicles share up to 25 percent of the total vehicles imported by 2020
- Increase the contribution of renewable energy to national grid up to 20 percent by 2020

Disaster management

- Substantially reduce disaster related mortality by 2030, compared to 2005-2015
- Substantially reduce the number of disaster affected people by 2030, compared to 2005-2015
- Reduce direct disaster economic loss in relation to gross domestic product (GDP) by 2030
- Substantially increase the availability of access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030
- Improve the accuracy of weather forecast from 70 percent up to 72 percent by 2018
- Minimize life losses due to landslides by 2018
- Reduce flood affected people by 50 percent in 2018
- Prepare disaster management plans in identified state agencies, District and Divisional Secretariats situated in high risk districts
- Make sure that a well established coordination mechanism is available for both pre and post-disaster situations among all stakeholder agencies by 2018

Table 7.3: Investment Priority Areas

Rs. Mn

Area	2017	2018	2019	2020	Total
Environmental Protection	4,691	4,534	4,847	4,880	16,241
Disaster Management	2,865	3,531	3,159	5,044	14,598
Fauna & Flora Conservation	1,599	2,508	4,317	4,282	12,706