# Executive Summary

This report provides information on (i) An update on biodiversity status, trends, and threats in Sri Lanka and implications for human well-being, (ii) National Biodiversity Strategy and Action Plan (NBSAP), its implementation, and the mainstreaming of biodiversity, and (iii) Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 targets of the Millennium Development Goals.

## 1. Sri Lanka's Biodiversity Status, Trends, and Threats and Implications for human well-being

Sri Lanka is one of the most biologically diverse countries in Asia. Despite its small size of 6,524,540 hectares, Sri Lanka has a varied climate and topography, which has resulted in rich biodiversity, distributed within a wide range of ecosystems. Its distinctive biological diversity is defined by the ecosystems, species and genes that occur in the island's diverse array of forests, wetlands, coastal and marine and agricultural systems. Sri Lanka's biodiversity is considered to be the richest per unit area in the Asian region with regard to mammals, reptiles, amphibians, fish and flowering plants; overtaking several mega diversity countries such as Malaysia, Indonesia and India[1] . The global importance of the island's biodiversity has placed Sri Lanka together with the Western Ghats of India among the 34 biodiversity hotspots in the world[2] .

The extent of forest ecosystems in Sri Lanka in the year 1999 and 2010 are shown in Figure i. Being an island nation with a long coastline around the country, Sri Lanka has a very wide range of coastal and marine ecosystems ranging from, salt marshes, sand dunes and beaches, mud flats, sea grass beds, lagoons and estuaries and coral reefs. The total area under coastal and marine ecosystems at present is approximately 265,712 ha (Figure ii). About 15,670 ha of land area of the country is under mangroves.

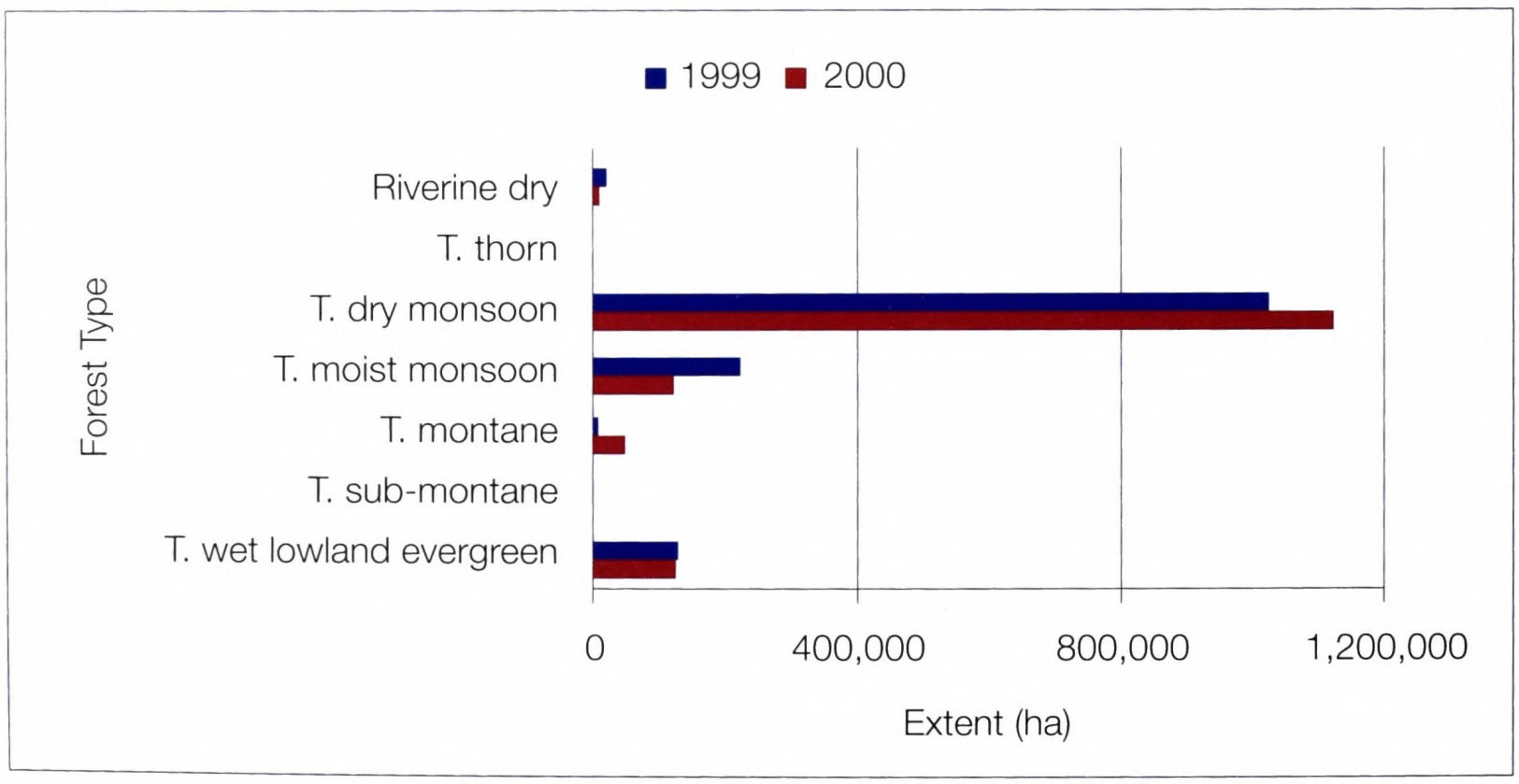


**Figure i : Forest Ecosystems in 1999 & 2010**

1 NARESA 1991, Natural Resources of Sri Lanka: Conditions and Trends. Natural Resources, Energy and Science Authority of Sri Lanka, Sri Lanka

2 Myers, N., Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B. & Kent, J. 2000. Biodiversity hotspots for conservation priorities.Nature 403, 853–858

## National and global Importance of Sri Lanka's biodiversity:

Sri Lanka's exceptionally rich biological diversity provides a multitude of ecosystem goods and services to 20 million of her inhabitants.

Hence, the need for conserving the country's biodiversity is recognized in national planning, and is highlighted in several policies, legislations and programs in the country. The Mahinda Chintana, national policy framework for Sri Lanka, Haritha (Green) Lanka Action Plan, Biodiversity Conservation Action Plan (BCAP) for Sri Lanka and the National Physical Planning Policy and Plan[3] (NPPD & MUDSAD (2006) are prominent among them.

Climate change will no doubt be a threat to Sri Lanka's biodiversity. It is unlikely that all impacts of climate change on biodiversity are preventable. However, it is recognized that genetically diverse populations of species, and species rich ecosystems, have much greater potential to adapt to climate change. Conservation of biodiversity and maintenance of ecosystem structure and function may, therefore, be one of the most practical climate change adaptation strategies that Sri Lanka can adopt to conserve the country's natural heritage[4] . Sri Lanka's exceptional biodiversity is due to the high ecosystem diversity it supports and the diverse species they harbour (Table 1.1. 1.2 and 1.3). This diverse array of ecosystems in Sri Lanka harbors a wealth of plant and animal species. It is a remarkable centre of endemism as the endemism of both flora and fauna species are very high, and around 28% of Sri Lanka's 3,154 species of indigenous angiosperm flora are endemic to the country. Among the faunal species, highest endemism is seen among amphibians, freshwater fishes and reptiles (GOSL, 2008).

Much of the country's biodiversity is found in its forests, particularly those in the wet and intermediate zones of the southwest. The rich and diverse ecosystems of the country harbor many wild relatives of cultivated species, and the gene pools represented by these wild plants are a resource of considerable potential value that could be used for the genetic improvement of cultivated plants.

The global importance of Sri Lanka's biodiversity is shown by the fact that, despite of the small land area, it has four (04) forests recognized as Natural World Heritage Sites based on their exceptional biodiversity value due to high endemism, four (04) Biosphere Reserves within the UNESCO's World Network based on their exceptional biodiversity value due to high endemism. Furthermore, six (06) Ramsar sites have been identified showing the importance of wetlands in Sri Lanka.

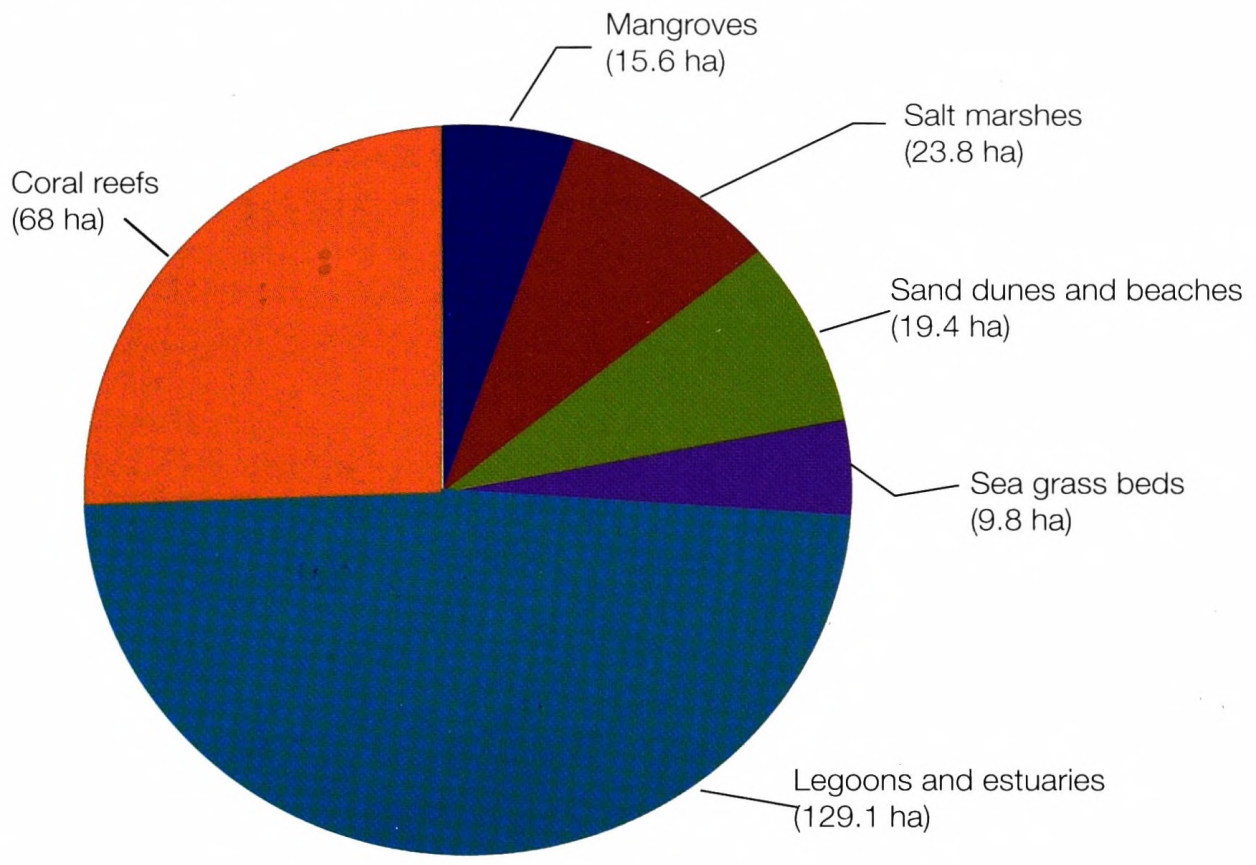


**Figure ii : Coastal and Marine Ecosystems Sri Lanka (Extent in ha 000')**

3 Ministry of Environment, 2010, Sector Vulnerability Profile: Biodiversity and Ecosystem Services.
4 Ministry of Environment, 2010 Op. Cit

## Role of biodiversity for provision of ecosystem services:

Rainforests, wetlands, coastal, marine, and agricultural systems provide a range of important ecosystem services, as well as many more localized goods and services to people of Sri Lanka, such as watershed protection, preventing flooding and soil erosion, preserving biodiversity, ecotourism, regulating rainfall, limiting prevalence of disease, providing livelihoods for local people etc. Please refer to BOX 3 for details. This report describes contribution of ecosystem services to tourism, agriculture (rice and fruit production), major and minor export agriculture, floriculture, livestock production, fisheries, energy, water, health and bio-prospecting, bio-mimicry and natural product development sectors (Refer to section 1.2.5).

Ecotourism has been recognized as a high priority area capable of effectively driving the economic development of Sri Lanka. Accordingly there is target of 2.5 million tourists to be achieved in 2016, thus tourism becoming one of the major foreign exchange earners for the country. Tourism became the 5th largest foreign exchange earner in 2012 and contributed 5.2% to the total country foreign exchange earnings while generating employment for 162,869 people. (SLTDA, 2012).

Sri Lanka's exceptional biodiversity found in forests, wildlife reserves and coastal and marine reserves, as well as the number of sites of global interests such as Biosphere Reserves, World Heritage Sites and Ramsar sites offer significant potential for Sri Lanka to attract foreign nature tourists. **Around 25% of tourists arriving in Sri Lanka are visiting one or more of the National Parks and Elephant Transit Home at Udawalawe, operated by the DWLC.** Furthermore, the data shows that a significant increase of revenue has been achieved from 2010 to 2012 from foreign visitors visited forest reserves, wildlife parks, national botanic gardens and the national zoological gardens (Figure 1.1).

## 1. 2 Current status, major changes and trends of biodiversity in Sri Lanka

The Protected Areas (PAs) managed by the FD and the DWLC has increased about 84% from 2008 to 2010. The moratorium on logging in all natural forests in Sri Lanka which came into force in 1990 is still in operation. Since the moratorium prevents commercial timber extraction from all natural forests in the country, this has made a significant positive contribution to conservation of forest biodiversity in the country (FAO, 2001). **The extent of PAs under the FD and DWLC have significantly increased over the years with more valuable wet zone forests are included in the PAs network** based on the biodiversity assessments made through the National Conservation Review (NCR). (IUCN/WCMC/FAO(1997). In addition, Eight (08) Environmental Protection Areas (EPAs) have been gazetted by the CEA under the National Environmental Act of 1980. **The total protected area coverage in Sri Lanka at present (2010) is around 1.84 million ha representing about 28% of the total land area of the country**. Besides, the Knuckles Conservation Forest, Horton Plains National Park and the Peak Wilderness Protected Area were accepted by UNESCO as a serial natural world heritage site termed the Central Highlands world Heritage site in 2010. (Table 1.6)

The total forest cover in Si Lanka has depleted from 31.2 % of the island in 1999 to 29.7% in 2010, the actual **forest cover depletion is estimated at about 0.23% of forest area or 4,445 ha annually.**[5] This is a positive feature when compared with the annual deforestation rate of around 40,000 ha during the period 1956 and 1992 (MALF, 1995).

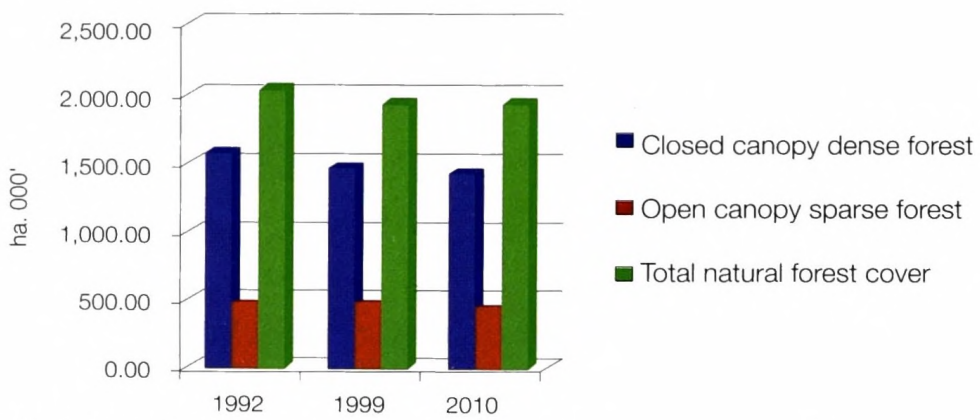


**Figure iii : Forest Cover depletion from 1992-2010**

*Source : Legg and Jewell (1995)[36] and [1] Forest Department Forest cover data for 1999 and 2010*

5 Source: Forest Department Data provided for this report.

**However, this alarming rate of deforestation in the past has attributed to several significant changes in forest management** including enforcing a logging ban in all natural forests in the country, boundary marking of most forest and wildlife reserves to halt encroachments, preparation and implementation of management plans for forest and wildlife reserves which is now a legal requirement and encouraging community participation in forest and protected area management. Similarly, significant positive steps have been taken in the non-forest tree resource sector ie, the massive national tree planting campaign (Deyata Sevena) that is currently underway, the community forestry programme implemented by the FD with financial assistance from Australian Aid.

Likewise, several positive features have occurred for conservation of wetlands in the past few years, but wetlands continue to be lost, degraded and their resource exploited beyond sustainable levels (BOX 9). **Some of the key positive trends in the wetland sector are;** establishment of a special Wetland Unit at the CEA to oversee the interests of wetlands and to implement the National Wetlands Policy of 2006; banning of converting rice fields into other uses in the Western Province; preparation of management plans for the Bolgoda Wetlands and Thalangama Wetlands (pending). establishment of a special Wetland Unit at the CEA to oversee the interests of wetlands and to implement the National Wetlands Policy of 2006, banning of converting rice fields into other uses in the Western Province, preparation of management plans for the Bolgoda Wetlands and Thalangama Wetlands (pending).

The loss of quality in most coastal and marine systems has continued since the last reporting period. **Some significant positive trends in the coastal and marine sector are;** increasing the coastal zone to cover 100 m of riparian land on either side of the 2 km water (Coast Conservation Amendment Act No 49 of 2011); the regulation of Illegal sand mining on the southwest coast; Coast conservation Act (CCA) amendment No 49 of 2011 which paves the way for more positive coastal zone management activities, and as a result coral mining for lime production has been stopped.

The agriculture sector includes rice, plantation crops, fruit crops, vegetables, root crops and field crops, minor export crops and livestock. **In recent years there has been a positive trend to conserve and use the germplasm of indigenous crops and their wild relatives** for varietal improvement in rice, vegetables, other field crops and minor export crops. Since year 2010, Sri Lanka has banned several non-conventional pesticides which are likely to be hazardous to human health and the environment by means of indiscriminate use and excessive environmental load. These measures are expected to improve ecosystem health of agricultural systems.[6]

## 1.3 Major threats to biodiversity in the country

The major threats to biodiversity in Sri Lanka are provided in table 1.10. Sri Lanka's unique biodiversity is currently under serious threat due to increasing population pressure on ecosystems which leads to degradation, fragmentation and loss of habitats. The major causes for these effects are unplanned development activities, sedimentation due to unplanned developments, illegal encroachments, pollution, over exploitation of species, spread of alien and invasive species, climate change and natural disasters etc. As a result of these reasons, most of the remaining habitats of endemic species in terrestrial, freshwater, coastal and marine ecosystems are under serious threat.

## 1.4 Possible future changes in biodiversity and their impacts

Habitat loss and fragmentation, degradation, spread of invasive alien species, pollution; over exploitation and climate change are now the most serious threats driving species loss in Sri Lanka. All most all the ecosystems in the country face some form of threats which ultimately result in habitat loss, degradation, change in species composition and loss of ecosystem services. Some of these may cause heavy expenditure to the government in terms of flood relief activities and to overcome health hazards etc.

6 Discussions with the Registrar of Pesticides, 2014

A positive factor in this regard is that rate of **deforestation has been significantly reduced during the last two decades.** Despite of threats, and issues, the other ecosystems such as wetlands, coastal and marine, agriculture are being managed satisfactorily causing minimum damage. *Mahinda Chintana* Policy Framework, *Haritha* (Green) Lanka Action Plan, BCAP, National Environmental Policy and other sectoral policies, **legislation, strategies and programs together will contribute positively to improve the conservation of biodiversity in the country.**

# 2 The National Biodiversity Strategy and Action Plan, its implementation, and the mainstreaming of biodiversity

The overall national goal of biodiversity conservation, as stated in the Biodiversity Conservation Action Plan (BCAP), is to 'conserve the biological diversity of Sri Lanka, while fostering its sustainable use for the benefit of the present and future generations'.

## 2.1 The Biodiversity Targets Set by Sri Lanka

The formulation of 'Biodiversity Conservation Action Plan' (BCAP), which was undertaken in response to Article 6 of the Convention on Biological Diversity (CBD) in early 1996, was finalized in 1997. It was followed by the preparation of an 'Addendum' to the BCAP in 2003. The BCAP which was approved by the cabinet of ministers in 1998 was published in 1999. Sri Lanka is yet to develop measurable targets to update the BCAP to incorporate national targets in line with the Aichi Biodiversity Targets of the Strategic Plan for Biodiversity 2011-2020. Therefore, two documents, BCAP and Addendum to the BCAP serve as the key strategic action plans as of today showing the pathways to achieve the key objectives governing biodiversity conservation in Sri Lanka.

The BCAP sets out the range of activities needed for addressing biodiversity conservation as a coordinated, holistic exercise, and urges that it is of critical importance for the ecological and economic sustenance of the nation, and brings together all activity areas that need to be addressed within a single framework, all activity areas that need to be addressed. In the BCAP, the ecosystem diversity of Sri Lanka was categorized into four broad thematic areas: (1) Forests; (2) Wetlands; (3) Coastal and Marine systems, and (4) Agricultural systems. Thereafter, several specific objectives and a number of recommended actions were included under each thematic area Table 1).

**Table 1: Specific objectives and recommended actions listed under BCAP thematic area**

| Objectives & Actions | Thematic Areas | | | | Total |
|---|---|---|---|---|---|
| | Forest | Wetlands | Coastal / Marine | Agricultural Systems | |
| Specific Objectives | 7 | 3 | 5 | 3 | 18 |
| Recommended Actions | 24 | 16 | 28 | 6 | 74 |

In addition to the 4 thematic areas, the BCAP identified specified objectives, recommended actions, and main implementing institutions for eight Cross-Cutting areas. These are: (1) Priority actions for selected bioregions, (2) Ex-situ conservation, (3) Research, (4) Education and awareness, (5) Biodiversity information, (6) Legal measures, (7) Institutional support, and (8) Valuation of biodiversity.

The BCAP comprised of 74 Recommended Actions to achieve 18 specific objectives listed under 4 thematic areas (Table1) and another 73 recommended actions to achieve 22 specific objectives listed under 7 cross-cutting areas.

There has not been a systematic approach to upgrade the BCAP by including measurable national targets developed in line with the Aichi Biodiversity Targets of the Strategic Plan for Biodiversity 2011-2020.

## 2.2 Updating the National Biodiversity Strategy and Action Plan to Incorporate Targets and to Serve as an Effective Instrument for Mainstreaming Biodiversity

The Addendum' to the BCAP was prepared with the objective of updating the BCAP to serve as an effective instrument. After following a lengthy process for preparation of the Addendum, 31 recommendations were made as final which fall into a "high priority category". However, there has not been a systematic mechanism in place to upgrade the BCAP by including measurable targets, especially to incorporate those Aichi Biodiversity targets to NBSAP.

## 2.3 Actions Taken to Implement the Convention since Submission of the Fourth National Report and their Outcomes

The key actions taken since Fourth National Report, major outcomes achieved and obstacles encountered through implementation of 74 recommended actions of BCAP (Table 1), under the thematic areas of Forests, Wetlands, Coastal and Marine systems, and Agricultural systems and 31 priority recommendations of the Addendum are provided in this report (Tables 2.4, 2.5, 2.6, 2.7 and 2.8).

## 2.4 Effectiveness of Mainstreaming Biodiversity into Relevant Sectoral and Cross Sectoral Strategies, Plans and Programs

Sri Lanka is committed to contributing towards achieving the objectives of the CBD, BCAP including its Addendum. In recent times, the major positive steps have been taken to mainstream biodiversity conservation in to relevant sectoral and cross sectoral plans, strategies and programs. These include development of relevant policy frameworks, legislations, strategies and action plans that drive the country in achieving the targets of conservation of biodiversity is being fulfilled.

Overall, there are more than 30 state institutions and 15 laws directly involved in conservation and sustainable use of biological diversity in Sri Lanka (Table 2.9). The strategy for conservation and sustainable utilization of biodiversity evolved from various initiatives framed and formulated largely by the Ministry of Environment and Renewal Energy (MoERE), focal point for biodiversity conservation in Sri Lanka and complemented by other related Ministries/Departments and affiliated agencies dealing with Forestry, Wildlife, Environment, Agriculture, Export Agriculture, Fisheries & Aquatic Resources, Botanic and Zoological Gardens etc.

As national level capacity building is a primary requirement for mainstreaming biodiversity into relevant sectoral and cross sectoral plans and programs, large number of projects and programmes have been implemented for this purpose after ratifying the CBD. Another key area in this regard is mobilizing stakeholders at multiple levels in support of biodiversity conservation. Over the years, this has been done through public awareness and extension programs.

## 2.5 Progress of implementation of the National Biodiversity Strategy and Action Plan

In general, the level of implementation of recommended actions of BCAP shows satisfactory (including partially achieved) results in thematic areas of Forests and Coastal and Marine systems. This achievement is over 70%. However, the level of implementation of recommended actions in Wetlands and Agricultural systems show less than 40% success (Figure 2.5). According to the results of the analysis carried out by the Technical Working Group, the progress of implementation of 31 priority recommendations in the Addendum shows satisfactorily results only in 19.4% of the recommended actions (Figure 2.6).

# 3. Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 targets of the Millennium Development Goals (MDGs)

## 3.1 Progress towards achieving the 2020 Aichi Biodiversity Targets

This section analyses the progress made towards each of the 2020 targets of the Strategic Plan for Biodiversity 2011-2020 by using the information from part I and part II of this report. The Aichi Biodiversity targets cross-cut all sectors of the national economy that affect ecology and human well- being. The policies, programmes and projects of different ministries/Departments which are directly or indirectly related to biodiversity conservation are vital for achieving progress towards Aichi Biodiversity targets. Although there is no updated common action plan for biodiversity conservation, many actions have been achieved or are ongoing in different sectors which are in line with Aichi Biodiversity targets.

An analysis of the progress presented in this report is based on the stakeholder discussions held in the Technical Working Group workshops. A summary of the progress on Strategic Plan 2010-2020 and Aichi Biodiversity Targets is presented in Table 3.1 of this report. The table presented below (Table 2) is a summary of the progress of achieving Aichi Biodiversity Targets based on Strategic Goals.

**Table 2: The Progress of Achieving Aichi Biodiversity Targets**

| Strategic Goal | Improving | | Little or no overall change | | Deteriorating | | Insufficient or no comparable data | |
|---|---|---|---|---|---|---|---|---|
| | T | % | T | % | T | % | T | % |
| A | 4 | 100 | - | - | - | - | - | - |
| B | 6 | 100 | - | - | - | - | - | - |
| C | 3 | 100 | - | - | - | - | - | - |
| D | 2 | 67 | 1 | 33 | - | - | - | - |
| E | 4 | 100 | - | - | - | - | - | - |
| Total | 19 | 93.4 | 1 | 6.6 | - | - | - | - |

*T – Number of Aichi Targets;  % - Percentage of Achievement*

Based on above analysis, Strategic Goals A *(Address the underline causes of biodiversity loss by mainstreaming biodiversity across government and society)*, B *(Reduce the direct pressures on biodiversity and promote sustainable use)*, C *(Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity)* and E *(Enhance implementation through participatory planning, knowledge management and capacity building)* show relatively the best progress by achieving all the targets (100%) in the "improving" ranking. Similarly, Strategic Goals D *(Enhance the benefits to all from biodiversity and ecosystem services)* shows the next performance by achieving only 02 targets (67%) in the

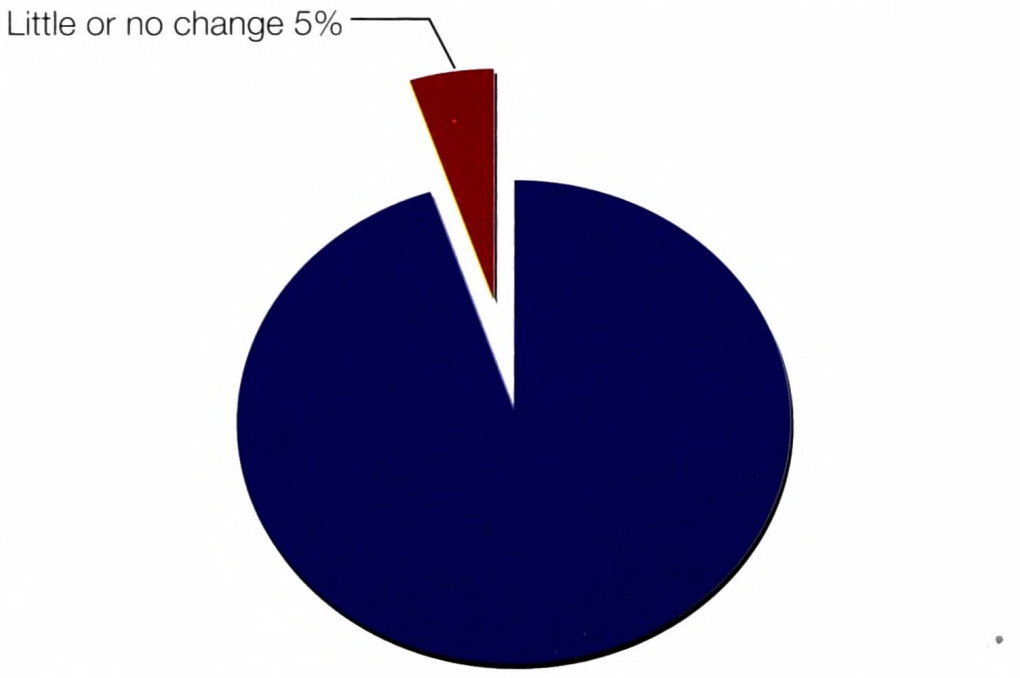


**Figure iv : Progress of Achieving of Aichi Biodiversity Targets**

"improving" category, and the other target does not show a significant improvement. However, none of the actions related to Aichi target are deteriorating. Overall, out of 20 actions related to Aichi Biodiversity Targets, 19 are improving (93.4%) and little or no overall change in 01 target (6.6%). Therefore, it can be stated that the achievement of Aichi Biodiversity Targets shows a good progress (Figure iv).

## 3.2 Achievement of the relevant 2015 Targets of the Millennium Development Goals (MDGs)

"Mahinda Chinthana, Vision for a new Sri Lanka" has provided high priority for achieving MDGs and shown its determination to meet the set targets within the stipulated time frame. Among the eight Goals of MDGs, the most relevant goal for biodiversity is Goal 7 which focuses on ensuring environmental sustainability. However, attempts are being made to mainstream biodiversity into not only for the 7th MDG, but also across other MDGs, as achieving the targets of the MDGs will directly or indirectly impinge on the status and use of biodiversity.

The Department of Census and Statistics (DCS) as the authority on official statistics in Sri Lanka published a mid-term review in 2010 in which MDG indicators for Sri Lanka have been identified. With regard to Goal 7, it has identified eight indicators to be measured for the purpose of achieving environmental sustainability. Table 3.2 of this report indicates the assessment of progress in relation to the 4 targets and 8 indicators listed under Goal 7.

## 3.3 Lessons learned from the implementation of CBD in Sri Lanka

There are several areas in need for improvements and effectiveness. The lessons learnt from the implementation of the Convention should form a very important part of the process of formulating the new NBSAP. This report presents seven (07) key lessons learned and issues to be addressed in the formulation of the next NBSAP.

Some of the key recommendations provide timelines for implementation of biodiversity targets and actions; capacity improvement; details on the necessary resources to implement biodiversity conservation policies; legislation; and programmes; to improve coordination among key implementing institutions; improve cross sectoral integration of biodiversity concerns into the plans, policies and programmes of development sectors; formulate an effective mechanism for the collection, analysis and sharing of biodiversity information; enhance the research capacity in the field of biodiversity; integrate biodiversity values and ecosystems services into development planning and resource allocation; introduce cohesive and comprehensive monitoring mechanisms for biodiversity monitoring.

Yala National Park
© Ranil Nanayakkara

# PART 1