Addendum to the Biodiversity Conservation in Sri Lanka - A Framework for Action

CHAPTER REPORT ON *IN-SITU* CONSERVATION
(TASK FORCE NO-01)

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ADDENDUM TO THE BIODIVERSITY CONSERVATION IN SRI LANKA

A Framework for Action

CHAPTER REPORT - 02

IN-SITU

CONSERVATION

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ABBREVIATIONS

ADB	Asian Development Bank
BCAP	Biodiversity Conservation Action Plan
BDC	Biodiversity Conservation
BDS	Biodiversity Secretariat
BMARI	Bandaranaike Memorial Ayurvedic Research Institute
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CCD	Coast Conservation Department
CEA	Central Environmental Authority
CEPOM	Committees on Environmental and Policy Management
CIEDP	Committee on Integrating Environment and Development
CoP	Conference of Parties
CRI	Coconut Research Institute
CTB	Ceylon Tourist Board
CZMP	Coastal Zone Management Plan
DAP&H	Department Animal Production and Health
DFAR	Department of Fisheries and Aquatic Resources
DoA	Department of Agriculture
DS	Divisional Secretariat
DWLC	Department of Wildlife Conservation
FCC	Fisheries Coordination Committees
FD	Forest Department
FP	Forest plantations
GSMB	Geological Surveys & Mining Bureau
GN DIVISIONS	Grama Niladhari Divisions
HORDI	Horticultural research and Development Institute
ICTAD	Institute for Construction, Training and Development
IUCN	International Union for the Conservation of Nature and Natural Resources
IDB	Industrial Development Board
LA	Local Authorities
LMOs	Living Modified Organisms
LRC	Land Reform Commission
ME	Ministry dealing with Environment
Met	Department of Meteriology
M/Fisheries	Ministry dealing with Fisheries
MIM	Ministry dealing with indigenous Medicine
MoE&NR	Ministry of Environment and Natural Resources
MoFE	Ministry of Forestry and Environment
M/PI	Ministry dealing with Plantation Industries
NARA	National Aquatic Resources & Research Agency
NAQDA	National Aquaculture Development Agency
NASCAG	National Species Conservation Advisory Group
NASTEC	National Science and Technology Commission
NBRO	National Building and Research Organisation
NBSAP	National Biodiversity Strategy and Action Plan

NEC	National Experts' Committee
NEAP	National Environmental Action Plan
NGO	Non Governmental Organisation
NSC	National Steering Committee
NSF	National Science Foundation
NWSC	National Wetland Steering Committee
PC	Provincial Councils
PGRC	Plant Genetic Resources Centre
RRI	Rubber Research Institute
SAM	Special Area Management
SIP	Strategic Implementation Programme/Plan
TF	Task Force
TRI	Tea Research Institute
TWG	Technical Working Group
UDA	Urban Development Authority
VRI	Veterinary Research Institute

EXECUTIVE SUMMARY

THE NEED FOR A REVIEW AND METHODS USED

Sri Lanka's rich biological diversity lies mainly in her natural forests, wetlands and coastal and marine ecosystems, while the island's agricultural systems support a unique biodiversity due to hundreds of years of selection and cultivation by farmers. This is recognised in the BCAP. In cognisance with this, this review is based on the understanding that *in-situ* conservation of biodiversity in Sri Lanka should be addressed in the context of natural systems categorized as forests, inland wetlands, coastal and marine systems as well as cultivated (agricultural) systems and landscapes with the crop and livestock species/varieties/breeds they contain.

The main objectives of the review by Taskforce 1 for *in-situ* conservation are to:

- discern current relevance of BCAP 1999 recommendations due to the long time lag between preparation and implementation,
- identify new issues to be addressed at BCAP +5 to promote *in-situ* conservation of biodiversity, and
- propose recommendations in the form of an addendum to position it for action.

The review also:

a) provides an update on the implementation status of the BCAP 1999 recommendations pertaining to *in-situ* conservation in forest, wetland, coastal and marine and agricultural systems;
b) identifies lead institutions required to undertake responsibility for implementing individual recommendations for *in-situ* conservation;
c) identifies institutional needs for *in-situ* conservation; and
d) suggests broad strategies for the Biodiversity Secretariat (BDS) to address *in-situ* conservation action in the BCAP.

In-situ conservation is inexorably linked to and affected by institutional aspects that hamper institutional action required for biodiversity conservation. As such much of the work of this Taskforce was carried out jointly with the Taskforce on Institutional Aspects and Capacity Building. This included joint workshops and consultations and using the Tracking Schedule circulated by Taskforce 11. This helped identify the mandate and policy requirements for implementing actions in the BCAP for *in-situ* conservation and the capacity of institutions in respect of each of these actions in terms of funds, human resources and coordination. A similar exercise was done for all new recommendations emanating from this review. Taskforce 1, however, could not use the 'gap analysis' guide to the review due to various inconsistencies and gaps in it (Annex 4).

RESULTS OF THE REVIEW

- 73 % of recommended actions in the BCAP of 1999 for *in-situ* conservation are being currently implemented by various institutions as part of their programmes of action, or as special projects.
- 31 % of recommended actions that are implemented at present need enhancement by way of funds, human resources and/or coordination to continue or to be effectively implemented.

- 9 % of recommended actions have not commenced at all because they lack funds, human resources and/or coordination.

- Despite the time lag, the present review revealed that only one recommendation pertaining to forests, wetlands, coastal and marine systems and agro-biodiversity in the BCAP of 1999 should be deleted as no longer relevant; another required a major change in the wording.

- However, a further eight new recommendations have been added to enhance efforts for *in-situ* conservation in view of the current situation.

- **Institutional needs to facilitate *in-situ* conservation**
  The status of each BCAP recommendations for *in-situ* conservation and the key requirements to enhance effective action are given in this report in Tables 1-5. A major deficiency remains the lack of coordination, collaboration and capacity (funds, human resources, etc.) to implement the required actions. Among the many issues, there were six key concerns that severely hampered *in-situ conservation* of Sri Lanka's biodiversity:
  - There are anomalies within the existing PA systems managed by the DWLC and the Forest Department, leaving many biodiversity rich areas unprotected.
  - The absence of a lead agency responsible to overlook wetland conservation, especially the multitude of important wetlands outside the jurisdiction of the DWLC and Forest Department poses a major threat to conserving inland wetland biodiversity. [Editor's Note : this has since been rectified].
  - Research on, and monitoring of, both marine and freshwater biodiversity is recognisably constrained as NARA is unable to concentrate on biodiversity conservation at the required level due to lack of a specific organiztional mechanism with resources and man power.
  - There is no effective coordination mechanism to promote biodiversity conservation among the many institutions mandated to regulate resource use and to implement conservation measures in the coastal and marine region.
  - There is no central mechanism to integrate specific biodiversity conservation concerns into the agriculture and livestock sector.

- **To address institutional needs we propose:**

a) Establishment of a mechanism for greater collaboration between the DWLC and FD for effective identification and management of Protected Areas in the country. As a first step to build the necessary linkages, we propose a pilot programme for joint work in three crucial areas through a mutually acceptable mode of operation:
   - Joint identification of an optimal national protected area network of forests and their linkages taking into consideration the biodiversity hotspots outside the existing PAs, needs of threatened species, human animal conflicts, adequacy of coastal and marine reserves, and forests that are important hydrologically. In addition all the sensitive areas within the existing protected areas (without full protection) should be declared as environmentally sensitive areas under the CEA to arrest/stop further destructions to the habitats.
   - Setting up a joint database on forest biodiversity and its continual updating by both departments.
   - Organising common training programmes and other capacity building ventures for protected area management and threatened species conservation.

b) Establishment of a special wetland unit within the CEA to coordinate and take a lead role in wetland conservation and to report back progress to the BDS.

c) Establishment of a special biodiversity unit within NARA to take the lead role in regular monitoring, research and study of marine and freshwater biodiversity, with adequate resources, skilled manpower, equipment and a mandate to carry out these functions.

d) Strengthening the coordination mechanisms and inter-institutional liaison in the CCD and DFAR to promote *in-situ* conservation of coastal and marine biodiversity.

e) Establishment of a central mechanism within the ministries dealing with agriculture and livestock to integrate the BCAP recommendations for conservation of agro-biodiversity into sectoral institutional mandates and programmes and to implement them.

- **The broad strategy proposed for the BDS to facilitate implementation of BCAP recommendations for *in-situ* conservation of biodiversity are as follows:**

Overall:

- Establish a single Taskforce (note: they can also be termed biodiversity steering group if preferred) for *ex-situ* and *in-situ* conservation in forests, wetlands, coastal and marine systems and agricultural systems and for existing Conservation to which lead agencies responsible for implementing BCAP recommendations should report progress during a specific time frame.
- Prepare a Strategic Implementation Programme/Plan and assign responsibilities and time frames for action and specify mechanisms to track, monitor and facilitate progress.

Forests:

- Track and facilitate implementation of recommendations as required through the above TF and other mechanisms available within the MOENR.
- Help establish a pilot programme for collaborative action between the FD and DWLC.

Inland wetlands:

- Initiate and facilitate establishment of a wetland unit within the CEA.
- Track and facilitate implementation of the BCAP wetland recommendations through the above TF and other mechanisms available within the MOENR.

Wetland research and biodiversity monitoring:

- Facilitate through available channels such as the NSC the establishment of a special unit within NARA.

Coastal and marine biodiversity:

- As there are specific institutions mandated to use, manage and conserve coastal and marine resources, the main strategy of the BDS should be to facilitate the integration of BCAP recommendations and biodiversity concerns into plans and programmes such as the CZMP and the fishery development plans and policies.
- Establish a Taskforce for cross-sectoral integration and policy that can address such issues (as well as other integration and policy matters).
- Facilitate and strengthen the coordinating and monitoring role of the CCD in managing coastal habitats and bioresources and track progress.

Agricultural biodiversity:

- As there are specific institutions mandated with the *in-situ* and *ex-situ* development of agro-biodiversity, the overall strategy of the BDS in this sector should be to promote integration of BCAP recommendations and biodiversity concerns into the work plans, work programmes and research plans of ministries and departments dealing with agriculture and livestock development.
- Facilitate the establishment of a central mechanisms in these ministries to direct and coordinate biodiversity related actions in the departments under their purview.
- Facilitate the establishment of an institution that can address the conservation of livestock biodiversity as for crops in the PGRC.

- **Facilitating policy/laws to deal with biodiversity conservation**
  - Address in greater measure than at present *in situ* conservation of biodiversity in urban, agricultural (including traditional) areas and landscapes, catchments of tanks and riverine ecosystems that are presently outside forests through land related polices and programmes.
  - Incorporate biodiversity concerns into the draft land policy of the country and finalise within six months to create the background required for collaboration from sectors impinging on land issues to promote *in-situ* conservation.
    - Finalise the draft wetland policy to address wetland issues.
    - Review and revise (if required) the draft Wetland Act and enact to ensure wetland conservation in the country.

The BDS could also promote these actions through the CEIDP and CEPOMs on land and water and the mechanisms for implementing the National Environmental Action Plan.

REVIEW AND ADDITIONAL RECOMMENDATIONS FOR *IN-SITU* CONSERVATION

1.0 INTRODUCTION

1.1 The BCAP of 1999

In-situ conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings, and in the case of domesticated or cultivated species in the surroundings where they developed their distinctive properties.

The BCAP considers *in-situ* conservation under four major systems: forests, wetlands, coastal and marine and agricultural systems. This includes conservation of wildlife that occur in any of these systems. This 'system' based approach in presenting the status of national biodiversity addresses the significant ecological differentiation, the different issues affecting each of these areas and the practicality of division of responsibilities between the organizations that have to implement the BCAP recommendations. The Plan introduces 15 terrestrial and coastal bio-regions to view biodiversity conservation needs in the country - of which eight are prioritised for urgent attention. This is an important aspect to be considered when preparing plans and programmes for *in-situ* conservation.

The BCAP proposes a course of action for *in-situ* conservation that will ensure on-site conservation of biological diversity within the country, so that it can be used sustainably where appropriate, but without development programmes pursued by the different sectors causing serious or irreversible damage to it. This is in the best interests of the development process as it is of critical importance for long-term viability of national development and for the sustenance of local economies based on the use of components of the island's biodiversity. In fact "The BCAP urges that biodiversity conservation is of critical importance for the ecological and economic sustenance of the nation," and has sought to bring together within a single framework all the activity areas that need to be addressed for conservation and sustainable use of the country's biodiversity. The BCAP takes cognisance of the fact that agriculture, plantation industry and fisheries are vital sectors of Sri Lanka's development programme, and that sustainable use of biological resources in natural and agricultural systems is critical for the long-term sustenance of the national economy. It has also sought to promote the advantages of benefit sharing which is the right of host countries that are party to the CBD, and thereby to promote national interests in this regard. However, sustainable use of biodiversity is viewed in the BCAP as a means to an end - the conservation of biodiversity - so that one leaves open the possibility of future benefits through use, enjoyment, and sustenance of essential life support systems. This is appropriate as the Plan is for conservation of biodiversity, rather than for use of biodiversity merely for economic advancement *per se*. It is also recognized that sustainable use of biodiversity does not always ensure conservation of biodiversity or is always essential to conserve a biological resource (Robinson, 1998).

BOX 1: An overview of the BCAP

"The BCAP gives a comprehensive overview of the country's species diversity, as well as the specific aspects of biodiversity within the forest, wetland, coastal and marine and agricultural systems; the policies relating to them; and the institutions that have administrative powers over these systems. The conservation objectives and recommended action in the document cover these four systems as well as several cross-cutting and inter-sectoral thematic areas such as *ex-situ* conservation; biodiversity information; biodiversity related legal measures, research, education and awareness; institutional support for biodiversity conservation and valuation of biodiversity.

Overall the BCAP recommends a course of action to "ensure that the biological diversity within the country is conserved and used sustainably, and that development programmes pursued by the different sectors do not cause serious or irreversible damage to the indigenous biodiversity." The Plan also introduces for the first time 15 terrestrial and coastal bio-regions to address biodiversity conservation issues in the country; eight of which are prioritised for urgent attention.

"A significant feature of the BCAP is that it also brings together within a single document the biodiversity related actions identified in a host of other plans, programmes and national policy instruments. The mandates and ongoing programmes of the many government institutions directly responsible for biodiversity conservation have also been considered. These include plans and programmes of the Forest Department, Coast Conservation Department, Department of Wildlife Conservation, Central Environmental Authority, Department of Agriculture, the Botanical Gardens, Zoological Gardens, etc. Consequently, some of the recommended activities in the BCAP were already earmarked for action, or were in progress; but are nevertheless included in the document as it constitutes the most important policy instrument for biodiversity conservation at the national level. This approach has also served to integrate the BCAP with biodiversity concerns addressed by other existing policy documents, plans and programmes."

Source: MOFE, 1999 and various

This review of the BCAP (of 1999) and new recommendations for the addendum at BCAP + 4 identified in 2003[1] are based on the understanding that *in-situ* conservation of biodiversity in the context of Sri Lanka deals with natural terrestrial systems that may be categorized as forests, inland wetlands, coastal and marine systems and cultivated (agricultural) systems; with the latter including traditional agricultural systems and landscapes, and the crop and livestock species/varieties/breeds they contain.

1.2. *In-situ* conservation and the CBD

Article 6 of the Convention on Biological Diversity (CBD) requires each contracting party to: "(a) develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, *inter alia*, the measures set out in this Convention relevant to the contracting party concerned, and "(b) Integrate, as far as

[1] Now BCAP + 5 in 2005 as hereafter where BCAP +4 is referred to.

possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral plans, programmes and policies."

Sri Lanka ratified the Convention on Biological Diversity (CBD) and prepared the BCAP in 1999 in response to Article 6 of the CBD, in consideration of the need to conserve the island's valuable forests and wetlands with high endemism, the coastal and marine areas rich in bioresources, and agricultural landscapes with their crop varieties and traditional practices developed over many centuries.

The *in-situ* conservation actions in the BCAP of 1999 have taken into account the guidelines given for conservation of national biodiversity in the Biodiversity Convention in the CBD (**Box 2**). However the BCAP is not merely a document that fulfils the obligations of the CBD. It addresses at length the issues that threatened biodiversity in the country at the time, and the problems of conservation and ensuring sustainable and equitable use of biodiversity.

BOX 2: Article 8 of the CBD on *In-situ* Conservation

The Convention on Biological Diversity refers to *in-situ* conservation programmes to be developed under Article 8, signifying that each contacting party shall, as far as possible and appropriate to:

(a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
(b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
(c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
(d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
(e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
(f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, *inter alia* through the development and implementation of plans or other management strategies;
(g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;
(h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
(i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;
(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional life styles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;
(k) Develop or maintain necessary legislation and /or other regulatory provisions for the protection of threatened species and populations;

(l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and

(m) Cooperate in providing financial and other support for *in-situ* conservation outlined in subparagraphs (a) to (l) above, particularly to developing courtiers.

Source: IUCN, 1993.

1.3 The need for a review

The identification of issues and recommendations in the BCAP (1999) have been through extensive discussions and workshops spanning many months, involving heads of institutions that conserve, use, and/or impact on biodiversity. This was to help identify programmatic gaps and institutional inadequacies that hampered biodiversity conservation. Similar discussion have been held with many well-informed individuals, NGOs (with well over 100 NGOs being contacted) at the time by the ministry in charge of environment), and other informed members of the public as indicated in the page on the BCAP preparatory process (pages 91 and 92). Before finalisation of the draft document it has also been circulated again to the institutions that had to implement actions for their concurrence, and workshops held to make the required amendments. The BCAP was approved by the Cabinet in 1998 and published in 1999.

Despite the fact that mechanisms and mandates to oversee the implementation of the BCAP had been approved by the Cabinet, the Plan was not implemented in a holistic manner owing to subsequent problems and constraints, amongst which we understand were funding constraints to take the process forward. In the meantime many new projects and programmes were proposed and launched in the country between 1999 and BCAP+4. Some of these can have major implications on Sri Lanka's biological diversity. Similarly, the economic policies of the country and trends and directions for globalisation have changed in various degrees since 1999. This underscored the critical need to follow a planned approach for effective conservation of the country's biological diversity and the fact that the national BCAP should be implemented without delay.

This does not mean, however, that individual BCAP recommendations have not been implemented since 1999. As seen during this review, many of the recommendations for *in-situ* conservation have been implemented by various institutions as part of their programmes of action or as special projects. Some are reiterated in sectoral plans, such as the draft Coastal Zone Management Plan, the policies for forests and wildlife, etc. The problem then has been that the BCAP implementation has not happened in a coordinated, cross-sectoral and systematic manner, as envisaged by the preparation of a BCAP, which is critical for a planned approach for effective conservation of the country's biological diversity.

It is in the above context that the opportunity arose to commence the implementation of the BCAP by the ministry dealing with environment with funds from the Protected Area Management and Wildlife Conservation Project (PAM&WC) project in 2003. Due to the time lag since its publication, however, it was felt timely that the BCAP be first

reviewed, and any gaps in the current context be identified and incorporated into it by way of an addendum to assist its implementation.

1.4 Objectives of the review by Taskforce 1 (for *in-situ* conservation)

a) to discern whether the BCAP 1999 recommendations continue to reflect current national needs,
b) identify new issues to be addressed at BCAP +4 to promote *in-situ* conservation of biodiversity, and
c) propose recommendations in the form of an addendum to position it for action.

In addition, this review has also further helped position the BCAP for implementation by:

a) providing an update on the status of the BCAP 1999 recommendations pertaining to *in-situ* conservation in forest, wetland, coastal and marine and agricultural systems;
b) identifying lead institutions that should undertake responsibility for implementing individual recommendations for *in-situ* conservation;
c) identifying institutional needs for *in-situ* conservation; and
d) suggesting broad strategies to guide the Biodiversity Secretariat (BDS) to direct, implement, monitor and coordinate relevant institutions responsible to meet the country's goals of *in-situ* conservation.

The TOR for Taskforce 1 are in **Annex 1**

2. 0 BACKGROUND TO *IN-SITU* CONSERVATION Of BIODIVERSITY IN SRI LANKA

In the late 1980s, before the word biological diversity or biodiversity had gained usage in Sri Lanka, a Technical Committee for Conservation of Genetic Resources was constituted within the then Natural Resources Energy and Science Authority (NARESA)[2] in 1988. Since then much has been done to promote biodiversity conservation in the island. The concept of conservation of biological diversity in Sri Lanka is entrenched within the objectives of Sri Lanka's National Conservation Strategy (NSC):

- To maintain ecological systems and life sustaining processes that form the basis of primary production, clean air, hydrological balance, dry weather releases of water, nutrient cycling, prevention of erosion, silting, etc. on which human survival and development depend.
- To preserve genetic diversity, especially the biodiversity and endemic biota.
- To ensure the sustainable use of species and ecosystems providing habitats for fish and other wildlife in forests, waterways, etc.

The protection of wild animals and plants and the identification and establishment of conservation areas that are representative of unique landscapes, ecosystems, agricultural land and other land forms with natural features are all important for *in-situ* conservation and fit within these three principles.
In-situ conservation plays a vital and major role among the many options available for conservation of biodiversity. It is recognized as the most feasible way of maintaining species, ecosystems, and landscapes - both natural and man made - in the long-term,

[2] Now the National Science Foundation (NSF)

especially in biodiversity-rich but economically poor developing countries like Sri Lanka. *Ex-situ* conservation is, however, an important supplement for species and germplasm conservation in view of the large scale habitat destruction and over-exploitation of commercially important species from the wild.

2.1 Strategic directions for *in-situ* conservation

The best strategy for the long-term protection of biological diversity is the conservation of communities and populations in natural sites or habitats where they occur, through on-site preservation. This is because it is only under natural conditions where (a) these populations will be sufficiently large and diverse to prevent genetic erosion, and (b) species will be able to continue the process of evolutionary adaptations to changing environments in their natural state.

The great majority of Sri Lanka's species also exist only in the wild. Hence conservation of habitats containing biological communities - including agricultural habitats- is the most effective way to conserve species diversity in the island. The biodiversity of Sri Lanka, however, continues to experience multiple threats. This has led to the loss of populations among species and the large-scale loss of habitats. There has also been an escalation of erosion in size and quality of unique ecosystems often through encroachment, unplanned development, pollution, hunting or over collection of species and deliberate habitat alteration for short term-benefits. Despite this, it is no longer considered feasible to totally protect all unique areas and species in a developing country such as ours for various reasons. For example, many rural communities depend on wild bio-resources for their sustenance and economic advancement. Similarly industry and development efforts require bio-resources as raw material or as items for export. Thus *in-situ* conservation requires not only a knowledge about species and habitats and how to preserve them, but also how to take heed of the needs of local people, national development and industry while all the while ensuring that conservation needs are met with.

Whenever the *in-situ* conservation option is practiced, the "protected area" concept becomes important. Conserving biological diversity under *in-situ* programmes in Protected Areas requires considerable political will and financial resources: not only to establish protected areas but to ensure that they achieve their purpose once they are established. These areas should not be viewed as compartmentalised systems but as a part of the whole environment to ensure that the environment is made sustainable in the long- term and that people's needs are not overlooked. For example, wetland conservation requires conservation of critical watershed areas within forests - a view that has been taken into consideration in the BCAP of 1999 (recommendation 13 page 55), river sand mining inland is a major cause of coastal erosion which causes loss of coastal biodiversity and displacement of coastal communities (see recommendation 17 on sand and coral mining page 63 in the BCAP) and inland pollution of waterways (see recommendation 6 page 55) has serious impacts on other ecosystems and the people who depend on those resources. Similarly pollutants by way of agrochemicals from adjacent agricultural lands pose a severe threat to aquatic organisms - both freshwater and marine. This underscores the need for an ecosystem approach to conservation and to look beyond the boundaries and needs of Protected Areas *per se*.

Setting up areas for conservation also requires keeping in mind conservation trends and the development policies of the government and links to commercial or subsistence use of resources by communities. A significant problem associated with establishment of protected areas for *in-situ* conservation in Sri Lanka today is the inadequacy of up-to-date scientific information and its accessibility for conservation planners and managers to base vital decisions. *In-situ* conservation should also take heed of global trade trends to effectively manage national biodiversity to ensure that conservation needs are not jeopardised and equitable benefits are gained by the country for indigenous biological material used in biotechnology. These aspects have been identified and considered in the BCAP of 1999.

A holistic view to conservation of biological resources is not new to Sri Lanka as it was ingrained in the traditional practices of the peoples of this country centuries before colonial rule commenced. However, current trends in the loss of biodiversity reveal that these once revered traditional values and practices have been often overlooked by development policies of successive governments.

BOX 3: Terminology relevant to *in-situ* conservation

In-situ conditions: conditions where genetic resources exist within ecosystems and natural habitats; and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

In-situ conservation: the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings; and in the case of domesticated or cultivated species, in the surroundings where they developed their distinctive properties.

Protected areas: geographically defined areas that are designated or regulated and managed to achieve specific conservation objectives. In such an area access, activities and uses are regulated by means of legislation

2.2 Present status of biodiversity for *in-situ* conservation

2.2.1 Forests and terrestrial protected areas

Sri Lanka is a biodiversity hotspot among 35 in the world due to high endemism and threats to habitats (Myers *et al*, 2002). Much of this biodiversity lies within Sri Lanka's forests of which the present extent is around 20,352 km^2 or 31% of the island's 65,610 sq km land area. (Forest Department 2003 data, cited in Dela, 2003). Further, natural closed canopy forests comprise only about 22.5 % of the total land area. Much of these forests are secondary and lie within the dry zone. The tropical humid forests, which form the natural vegetation type of the island's ever-wet southwestern quarter, have, however, shrunk to about 9.5% of this region. Although much of the endemic species among both fauna and flora are concentrated in the wet zone, lowland rain forests of this region are heavily fragmented and comprise about 1.9% of the island's land area while wet sub-montane and montane forests cover a further 1.01 % and 0.05% respectively (Forest Department 2003 data, cited in Dela, 2003).

Forest plantations, which are maintained by the Forest Department, amounted to around 135,623 ha in 1999 (Central Bank, 2001; Bandaratilleke, 2000), and about 72,350 ha of viable forest plantations had been established by 2000 (Central Bank, 2001).

As much of Sri Lanka's indigenous species exist only in the wild, preserving/conserving habitats that contain unique biological communities, species and landscapes and are important gene banks become the most efficient and cost effective way of conserving them. Consequently one of the most critical steps in protecting Sri Lanka's forest biodiversity is the establishment of legally designated protected areas representative of areas with high biodiversity.

It is significant that over 28% of the total land area of Sri Lanka is reserved and administered by the Forest Department) and the Department of Wildlife Conservation (IUCN 1997a). As such, more than 60 per cent of closed canopy natural forest, or 55% of all natural forests, lie within the reserves of these two departments (MALF, 1995). But it is disturbing that although about 9,462 km ^{2} of natural forest and scrubland amounting to around 15% of the island is declared Protected, only about 18% of this network fall within the biologically rich wet zone.

While it is has been recognized for a long time that the protected area network must be reviewed and revised to eliminate these anomalies, the inadequacy of scientific information and poor accessibility of existing data for use in planning of the protected area network has hampered this process. What is required is not to merely increase the percentage of protected area of the country, but to conserve more biodiversity-rich habitats while permitting a greater degree of sustainable use in others. For this to happen it is important to consider the ecological requirements of species and communities rather than political boundaries. It is also important that sensitive areas within already established protected areas without full protected statu (i.e. Sanctuaries) are under threat. Thus, those areas must be brought under CEA as ecologically/ Environmentally sensitive areas category in consultation with respective agencies to arrest further destruction.

The National Conservation Review (NCR) provides valuable baseline information in respect of floral distribution in natural forests to identify the areas that need protection to conserve Sri Lanka's indigenous flowering plant biodiversity, especially the endemics (IUCN, 1997b). A similar database is lacking in the Department of Wildlife Conservation. Even so, although there is reasonable information in the Forest Department's NCR database on flowering plants, data sets on fauna and lower plant diversity are poor or absent due to its scope and goals. Subspecies requirements have also not been taken into account in the NCR survey, although this is particularly important for conserving mammals due to the pronounced genetic variation exhibited by many species in different parts of their geographic ranges. As the resources of one department are often inadequate to carry out the surveys required to build a reasonable database on forest resources, a cost effective and efficient way to approach this problem is by pooling resources through inter-institutional collaboration.

BOX 4: Institutions responsible for managing forest biodiversity

The Department of Wildlife Conservation manages 12.5% (8,618 km^2) of the island's land area under different management categories. These are Strict Natural Reserves, National Parks, Nature Reserves, Jungle Corridors and Sanctuaries. Sanctuaries can contain privately owned land, but all other categories are on state lands (MOENR, 2002).

The Forest Department manages an estimated 17% of natural habitats (10,670 km^2 of the land area) including grasslands, wetlands, secondary forests, climax rainforests and mangroves. The Designated Areas under the Forest Department up to 1995 were Forest Reserves, Proposed Forest Reserves and one National Heritage and Wilderness Area - the Sinharaja forest - declared under the National Heritage Wilderness Areas Heritage Act No. 3 of 1988. Since then, a category termed Conservation Forests has been introduced by an amendment to the Forest Ordinance (Act No 23 of 1995) to identify forests set aside for strict conservation. The Knuckles Conservation Forest and 14 mangrove areas have been legally declared under this category up to now. There are 31 other wet zone forests designated as Conservation Forests pending legal declaration and gazetting. Sri Lanka has two internationally recognised biosphere reserves - the Sinharaja and the Hurulu reserves - managed by the Forest Department (Dela, 2003).

The Forest and Wildlife Departments are responsible for the conservation of biodiversity in the country but they have worked independently in identifying Protected Areas and managing the areas under their jurisdiction to date.

The Departments dealing with Archaeology, Fisheries and Coast Conservation, the Urban Development Authority, the Agriculture Department, the Mahaweli Authority, Town Councils and The Tourist Board play a supplementary role for *in-situ* conservation of forest biodiversity as do regional and local agencies such as Divisional Secretariats and local authorities.

2.2.2 Wetlands

About 15% of the land area of Sri Lanka consists of both natural and man-made wetlands. The former comprises a network of 103 major rivers that constitute a total collective length of about 4,560 km, and cover an area of 59,245 km^2 (including river basins); streams; riverine floodplains, small isolated freshwater bodies, freshwater springs, seasonal ponds and freshwater marshes. About two-thirds of the total area of all wetlands are man-made, and consist of rice paddies, irrigation tanks, large reservoirs, canals and aquaculture ponds. Almost all wetlands (other than rice paddies) are under state ownership, while some are wholly or partly under private ownership. (MOENR, 2002).

Inland waters form the only source of water for drinking, other domestic requirements, irrigated agriculture and the generation of electricity through hydropower for Sri Lanka's population. The inland food fishery obtains resources from freshwater wetlands, as do some industries that earn foreign exchange. An example is the industry for export of freshwater ornamental fish. Wetlands also contribute a great deal towards recreation and tourism. The biodiversity of wetlands is decreased due to the demand for freshwater and wetland bio-resources as well as pollution and poor land use. To minimise these impacts, it is necessary to manage wetland

biodiversity more effectively (MOENR, 2002). The flow value for Sri lanka's rivers indicate that minimum value is 35% (Smakhtin, 2004). This flow should be maintained.

BOX 5: Institutions responsible for managing wetlands

At present* there is **no permanent state institution** to coordinate and take lead responsibility for biodiversity conservation of wetlands although there are many that have jurisdiction over wetlands (e.g., the Departments of Forests and Wildlife and DS divisions) and water resources (e.g. Department of Irrigation). However, the wetland project carried out through the CEA has addressed some aspects of wetland conservation and has prepared status reports and management plans for several. Currently there is a Wetlands Steering Committee chaired by the Secretary Ministry of Environment and Natural Resources and housed in the CEA, under which are four Task Forces on: wetland policy, education and awareness, research and development, and monitoring and evaluation.

The National Wetlands Policy of 1995 has been in draft form until recently, but now steps are being taken to finalise this. The draft Wetlands Act of 1989 should also be reviewed and finalised if Sri Lanka's wetlands are to be conserved.

2.2.3 Coastal and marine biodiversity and marine protected areas

Being an island, Sri Lanka has a high diversity of coastal habitats. This rich component of the country's biodiversity includes estuaries and lagoons, mangroves, sea grass beds, salt marshes, coral reefs and wide beaches including barrier beaches, spits and dunes. Many of these habitats have high species richness. The pelagic species of fish in marine and coastal waters identified as yet number over 1,800; five species of turtles come ashore in Sri Lanka to nest on the beaches; the dugong and 27 species of cetaceans including 21 species of small cetaceans are found in Sri Lanka's coastal waters and there are about 183 hard coral species, covering 68 genera and a multitude of reef associated species such as spiny lobsters, shrimps, molluscs (e.g. sacred chanks, cowries, cones and murex), sea anemones and sea cucumbers and perhaps as much as 900-1000 species of coral reef fish. Much of the various groups of marine coastal organisms are incompletely documented as yet (various authors cited in the chapter on habitats in the draft CZMP of 2003 and its annexes). The genetic diversity within coastal habitats is also suspected to be high and is possibly of considerable economic value, although this aspect has been hardly investigated as yet.

The available information shows that estuaries, lagoons and coral reefs are very important fishing grounds. Estuaries and lagoons, coral reefs, mangroves, sea grass beds and salt marshes are also critical breeding and/or nursery grounds for numerous species of fish, crustaceans and molluscs of commercial value in both the inshore and offshore fishery. Coastal habitats such as wide sandy beaches, coral reefs, mangroves, and estuaries/lagoons are key attractions in the tourism industry, the fourth highest income earner for the island (draft CZMP of 2003). Beaches around the country also abound with sites of religious, archaeological and historic value, and accommodate homesteads for a considerable section of the coastal population, particularly the fishing communities (Draft CZMP, of 2003). Consequently coastal and marine habitats and their resources have sustained the nation for centuries.

*At the time this report was prepared a wetland unit had not been set up in the CEA.

Despite the undeniable socio-economic importance of the coastal and marine capture fishery and aquaculture, the coastal tourist industry and many other coastal and marine uses, most of them make heavy demands on this environment. This has served to erode coastal and marine biodiversity. Another issues is that despite the mandate for coast conservation awarded to the CCD management of coastal biodiversity is constrained due to the plethora of institutions that have jurisdiction or major interest in the coastal zone, some of which have conflicting interests. This underscores the need for more effective coordination for conservation and management of coastal biodiversity.

BOX 6: Institutions responsible for managing coastal and marine biodiversity

The Coast Conservation Department (CCD) is the prime agency for coastal issues with a mandate for conservation and management of the environment in the area defined as the Coastal Zone. The is conferred under the Coast Conservation Act of 1981 and the relevant regulations gazetted in 1983. The CCA of 1981 also confers a legal responsibility on the Director Coast Conservation Department to prepare and update the national Coastal Zone Management Plan (CZMP). It is noteworthy that the CZMP of 2004 will address, amongst others, the Conservation of Coastal Habitats, Controlling Coastal Water Pollution, Integrating Coastal Fisheries and Aquaculture with Coastal Zone Management and the management of special coastal areas termed Special Area Management (SAM) sites which have high social, economic and ecological significance but are beset by severe management issues. All these chapters have a direct bearing on conservation of coastal biodiversity.

The line ministry in charge of the fisheries and ocean resources is primarily responsible for formulating policies, plans and programmes for the development of fisheries and ocean resources (fisheries sector) and the revision of Fisheries Laws and Regulations.

The Department of Fisheries and Aquatic Resources (DFAR) is the government agency mandated with the management, regulation, conservation and development of fisheries and aquatic resources in the country; the National Aquaculture Development Authority (NAQDA) is the main state sector organization responsible for the development of aquaculture and inland fisheries. The National Aquatic Resources Research and Development Agency (NARA) is the research arm of MFOR and is mandated to carry out research and development activities on all living and non-living aquatic resources (both marine and freshwater). The Marine Pollution Prevention Authority (MPPA) is mandated to control the pollution of marine waters when it involves offshore sources under the Marine Pollution Prevention Act No.59 of 1981.

Currently there are only two marine reserves and both are under the jurisdiction of the Department of Wildlife Conservation.

Source: Draft Coastal Zone Management Plan circulated for review (2003)

2.2.4 Agricultural systems

It is very important that agricultural biodiversity be considered as a part of *in-situ* conservation action although this is often over looked. Agro-biodiversity is especially of value in view of its economic, cultural and nutritional importance for the country. Particularly important are indigenous traditional varieties and breeds that harbour

genetic material for crop and livestock enhancement programmes and development of biotechnology.

The land under agriculture in Sri Lanka consists mainly of the food sector with rice paddies and field crops such as cereals, grain legumes, condiments and oilseeds, vegetables and yams; the plantation sector which amounts to about 772,000 ha under tea, rubber, coconut and sugarcane; land under minor export crops such as coffee, cocoa, spices (including cloves, cinnamon, nutmeg, mace, pepper, cardamom, etc.), cashew kernels, arecanut, betel leaves, essential oils and unmanufactured tobacco. Similarly home gardens are a source of economically and culturally important bio-resources, both wild and cultivated. The plantation sector too has been enriched with numerous new local cultivars during this century. Sri Lanka's agricultural habitats and home gardens have evolved over many centuries and thereby harbour produced a rich diversity of cultivated species of grains, vegetables, fruits, spices and livestock (MOFE, 1999 and MOENR, 2002).

This rich agro-biodiversity in the island's farming systems is experiencing many threats at present are due to unplanned land use, pollution, fragmentation and alteration of farming systems and home gardens and the large scale switch to high yielding new varieties and breeds of crops and livestock. The erosion of agro-biodiversity needs to be stemmed as agriculture has been the mainstay of Sri Lanka's economy for more than 2,500 years, even though its importance has declined over the years with the increasing importance of the manufacturing sector. Conservation of agro-biodiversity *in-situ* is thus of significant importance both economically as well as culturally, and its loss will also lead to considerable loss of invaluable traditional knowledge and age-old cultural practices in the country.

BOX 7: Institutions responsible for managing agro-biodiversity

The non-plantation food crops sub-sector falls within the purview of the Ministry dealing with Agriculture. Under this functions the Department of Agriculture (DOA), which was established in 1912 as the premier institution concerned with research and development for the national food crop sector. The mandate of the DOA covers over a hundred crops assigned to three major institutions, namely the Rice Research and Development Institute (RRDI); the Field Crops Research and Development Institute (FCRDI) which deals with coarse grains, grain legumes and condiments and the Horticultural Crops Research and Development Institute (HORDI) which deals with fruit, vegetable species and root and tuber crops. These institutes also maintain field gene banks for the crops under their purview. In addition, there are six Regional Agricultural Research and Development Centres (RARDCs) and a further network of research sub-stations island-wide. The process of agricultural technology transfer to the farmers is carried out by the Extension and Communication Centre, which has the national responsibility to disseminate information on agricultural technologies.

The DOA also has under it the National Plant Quarantine Service and the Seed Certification and Plant Protection Centre to address plant quarantine and seed health. Their functions also cover issues related to the entry of alien invasive species that are a threat to crops. *Ex-situ* conservation of agrobiodiversity is facilitated through three Botanical Gardens* in the low, mid and upcountry regions of the Wet Zone, and the Plant Genetic Resources Centre (PGRC) which is the main repository of *ex-situ* crop germplasm which are also under the DOA.

The Department of Export Agriculture is concerned with the development and preservation of coffee, cocoa, cardamom and clove germplasm and the plantation crop sector comes under the Ministry dealing with Plantations. The Tea Research Institute (TRI), Coconut Research Institute (CRI), Rubber Research Institute (RRI) and the Sugarcane Research Institute (SRI) are under this Ministry and deal with research and development of their respective crops and the protection of crop germplasm.

The livestock sector is at present under the purview of a Ministry dealing with livestock. The Department of Animal Production and Health and the Veterinary Research Institute (VRI) are concerned with research and development in the livestock sub-sector and conservation of important indigenous livestock breeds. Research in the livestock sector is addressed by several institutions, mainly by the Veterinary Research Institute (VRI) which is mandated to carry out research in all aspects of animal production and health. These activities are, however, constrained due to insufficient funds and infrastructure.

The Council for Agricultural Research Policy (CARP), established in 1987, facilitates co-ordination of agricultural research dispersed in various ministries and institutions and sets polices and priorities in this sphere.

Source: MOENR, 2002

3.0 METHODS USED FOR THE REVIEW

The approach adopted for reviewing the *in-situ* conservation of biodiversity followed the 'system' based approach of the BCAP of 1999 as it enabled addressing the practical division of responsibilities between different organizations that have to implement the recommendations for *in-situ* conservation. This was confirmed during the workshops to discern institutional constraints for *in-situ* conservation in forests, wetlands, coastal and marine resources and agricultural systems.

*The three Botanic Gardens and the National Zoological Gardens are now under a separate Ministry.

Sri Lanka's rich biological diversity for *in-situ* conservation lies mainly in her natural forests, wetlands, and coastal and marine ecosystems as well as in the island's agricultural systems and home gardens due to hundreds of years of selection and cultivation by our farmers. This is recognised in the BCAP. Consequently agro-biodiversity was considered under Task Force 1 on *in-situ* conservation of biological diversity.

There are also several issues relevant to *in-situ* conservation that have now assumed significance, particularly in respect of agro-biodiversity. These are the issues of alien invasive species and the release of GMOs and LMOs into natural and cultivated systems. While these issues have grown in magnitude in recent years this Taskforce does not address them as they are expected to be addressed by the Task Forces on Biosafety and legal issues.

As problems of *in-situ* conservation are inexorably linked with institutional deficiencies (such as inadequate capacity or lack of mandate/policy) as well as problems of coordination and collaboration, joint workshops were held with the Task Force on Institutional aspects and capacity building to:

(a) review of recommendations in the BCAP of 1999 pertaining to *in-situ* conservation in forests, wetlands, coastal and marine systems and agricultural systems to gauge their relevance at BCAP +4 to ensure *in-situ* conservation of biodiversity in Sri Lanka.

(b) identify issues not addressed in the BCAP in the context of needs for *in-situ* conservation of biodiversity of Sri Lanka at BCAP+4 and to recommend appropriate actions.

(c) identify recommendations in the BCAP that are no longer relevant at BCAP +4 in the context of *in-situ* conservation of biodiversity of Sri Lanka as the issues they sought to solve were no longer prevalent or had been successfully addressed.

(d) to identify:

i. the current status of actions pertaining to *in-situ* conservation in forests, wetlands, coastal and marine systems and agricultural systems recommended in the BCAP.

ii. the institutions that should take a lead/key role in implementing individual actions as well as the new recommended actions emanating from this review.

iii. institutional needs (new institutional arrangements, capacity building of exiting institutions/units,) funds and coordination mechanisms to:

- continue ongoing actions in the BCAP of 1999 that are relevant at BCAP +4 or to make them effective as desired, and
- commence the actions in the BCAP (that had not been possible due to institutional/other needs) and the new recommendations.

(e) suggest strategies to guide the Biodiversity Secretariat (BDS) to direct, coordinate, and assist relevant institutions responsible to meet the country's goals of *in-situ* conservation.

(f) provide information relevant to the BDS for the preparation of a detailed implementation programme for implementation of the recommendations on *in-situ* conservation in the BCAP.

Due to the time lag in implementation, the status of mandates and policy for implementing all actions in the BCAP of 1999 for *in-situ* conservation and the capacity of institutions that have to implement them in terms of funds, human resources, coordination, etc. were re-checked during this review.

The workshops used the Tracking Schedule circulated by Taskforce 11 (**Annex 2**) to guide the discussions. These workshops were attended by heads of key institutions (or their representatives) responsible for *in-situ* conservation in the forest, wetland, coastal and marine and agricultural systems including the livestock sector. Some members of the *in-situ* Task Force also participated in the workshop for *ex-situ* conservation organized by the Task Force on Institutional Aspects and Capacity Building and had discussions with members of the Task Force on legal Issues on relevant matters. Information was also gained through literature reviews and informal discussions with experts in the field of *in-situ* conservation. The list of persons who attended these workshops and the people consulted individually are given in **Annex 3.**

This Task Force did not follow the 'gap analysis' provided as a guide to the review due to various inconsistencies and gaps in it. An analysis of the 'gap analysis' is given in Annex 4 to support this view.

4.0 RESULTS OF THE REVIEW

4.1. Review of *in-situ* conservation in the BCAP of 1999

- Overall the BCAP gives a comprehensive overview of the country's species diversity, as well as the biodiversity within the forest, wetland, coastal and marine and agricultural systems; the issues that pose a treat to these systems; the policies relating to *in-situ* conservation in them and the institutions that have administrative powers over these systems as at 1999.

- The mandates and ongoing programme of the many government institutions directly responsible for biodiversity conservation is considered by the BCAP of 1999. These include plans and programmes of the Forest Department, Coast Conservation Department, Department of Wildlife Conservation, the Central Environmental Authority, Department of Agriculture, the Botanical Gardens, Zoological Gardens, etc. Several of recommended activities in the BCAP had been already earmarked for action at the time, or in progress; but have been nevertheless included in the document to make it a comprehensive policy instrument for biodiversity conservation at the national level. This has helped to link the BCAP with biodiversity concerns addressed in other policy documents, plans and programmes.

- The BCAP has thus brought together within a single document the actions for *in-situ* conservation of biodiversity identified in a host of other plans, programmes and national policy instruments as well as to those required to address issues relevant at the time. It thus provides a single document within which are nested the recommendations required to promote *in-situ* conservation along with other recommendations for biodiversity conservation. The BCAP thus indicates the entire framework within which biodiversity conservation has to be considered holistically.

- However, the BCAP of 1999 goes beyond being a "Framework Action Plan" because most of the recommendations on *in-situ* conservation are quite specific, as shown by the fact that most are being implemented.

  - 73 % of recommended actions relevant for *in-situ* conservation have been taken up for implementation by various institutions as part of their programmes of action, or as special projects (Figure 1).

  - 31 % of recommended actions that are implemented at present need help by way of funds, human resources and/or coordination to continue or to be effectively implemented.

  - 9 % of recommended actions have not commenced because they lack funds, human resources and/or coordination.

  The status of BCAP recommendations pertaining to *in-situ* conservation in forests, wetlands, coastal and marine systems and agricultural systems and the requirements for their effective implementation are given in detail in Table 1.

- The present review also revealed that:
  - all except one recommendation pertaining to forests, wetlands, coastal and marine systems and agro-biodiversity in the BCAP of 1999 were relevant at BCAP +4.

  - A further **eight** new recommendations were deemed required to enhance efforts for *in-situ* conservation in view of the current situation. These are:

    Forests
    - Identify critically important biodiversity hot spots in the country, including those outside forests, and bring under an appropriate protected area category.
    - Study the status/trends in wildlife areas and identify the needs for wildlife corridors and linkages as an option for species conservation.
    - Prepare and implement recovery plans for threatened species that need special conservation action (in terms of both *in-situ* and *ex-situ*) in addition to habitat conservation.
    - Make arrangements to address the sawn timber requirements of communities living within the 2 km radius of protected areas/forests, where private timber depots are not permitted, in a manner that will not promote timber felling from the protected areas by the establishments of state run timber depots.

    Wetlands

    Ensure that development projects impacting on riverrine wetlands and water flow down-stream do not make significance changes in mean water river flows from scientifically accepted flow requirements for Sri lankan rivers.

    Coastal and marine
    - Give priority for funding of research projects that focus on conservation and management of areas in coastal Special Area Management (SAM) sites.

- Prepare integrated zonal plans for expansion of aquaculture in a manner that is environmentally compatible and identify areas suitable for aquaculture expansion.

Agriculture

- Identify and establish critical biodiversity areas in plantations and other agriculturally important landscapes.
- Address the problems of agriculture pollutants entering soil and water ways as they have serious impacts on terrestrial as well as aquatic biodiversity in both coastal and marine systems.

- The wording required amendment in **three** recommendations in the BCAP of 1999 (as shown by italics):
  - 6.2(2) Strengthen and enhance current efforts to identify critically important wetlands in terms of biodiversity, *give priority attention for their conservation* and prepare site reports and management plans where necessary.
  - 6.6.(1) Promote the leasing of suitable state land for agroforestry and mixed cropping on the traditional home garden pattern and extend the leasing period of the land for farmers and leaseholders who demonstrate their commitment to conservation of biodiversity in their land holdings. *(two recommendations have been joined here)*
  - 6.6.(5) Improve facilities at NARA for the *ex situ* conservation of indigenous *aquatic species including* ornamental fish.

- **One** recommendation was deleted as it was deemed no longer relevant:
  - 6.6.(4) Secure ownership of the land for farmers and leaseholders who demonstrate their commitment to conservation of biodiversity in their landholdings. [*the essence of this is incorporated in 6.6 (1)*]

4.2. Institutional requirements for *In-situ* conservation

4.2.1. Capacity needs for individual recommendations

There were many institutional capacity needs to promote implementation of the BCAP recommendations and some inadequacies of institutional mandates and sectoral policy in the current situation. These are given in **Tables 1, 2, 3 and 4** and are summarised in **Figure 1.**

4.2.2 Major institutional needs to facilitate *in-situ* conservation

a) Mechanism for greater collaboration between the DWLC and FD

- Commence a special pilot programme for closer collaboration between the FD and DWLC in areas where coordinated action is most essential for more effective identification and management of Protected Areas /conservation areas in the country.

- We therefore propose that as a first step key specific actions on which the two departments could collaborate should be identified and agreed upon by the two departments. The recommended areas for collaboration are:

    - Reviewing the existing protected area system and identifying and establishing an optimal protected area network of forests (ref BCAP 6.1. recommendation 8), including a minimum network of marine reserves (ref BCAP 6.3. recommendation 9). BCAP recommendation 6.2 (13)to: ensure that the forests identified as important hydrologically through the NCR study are brought within the protected area system and given strict protection should also be addressed through this PA system.

    - Building up of a joint database on forest biodiversity (including photographic material and GIS data) and continual updating of the biodiversity database on forests and the species they contain (ref 6.1. recommendation 11) building on the NCR database.

    - Organising at least some common training programmes and other capacity building ventures for protected area management and threatened species conservation (e.g. participatory forest management, GIS mapping, techniques for optimising impact of environmental communisation, managing PAs for visitor use, etc.)

An acceptable mode of operation would have to be worked out by the two departments as to how the resources in their custody are to be used jointly.

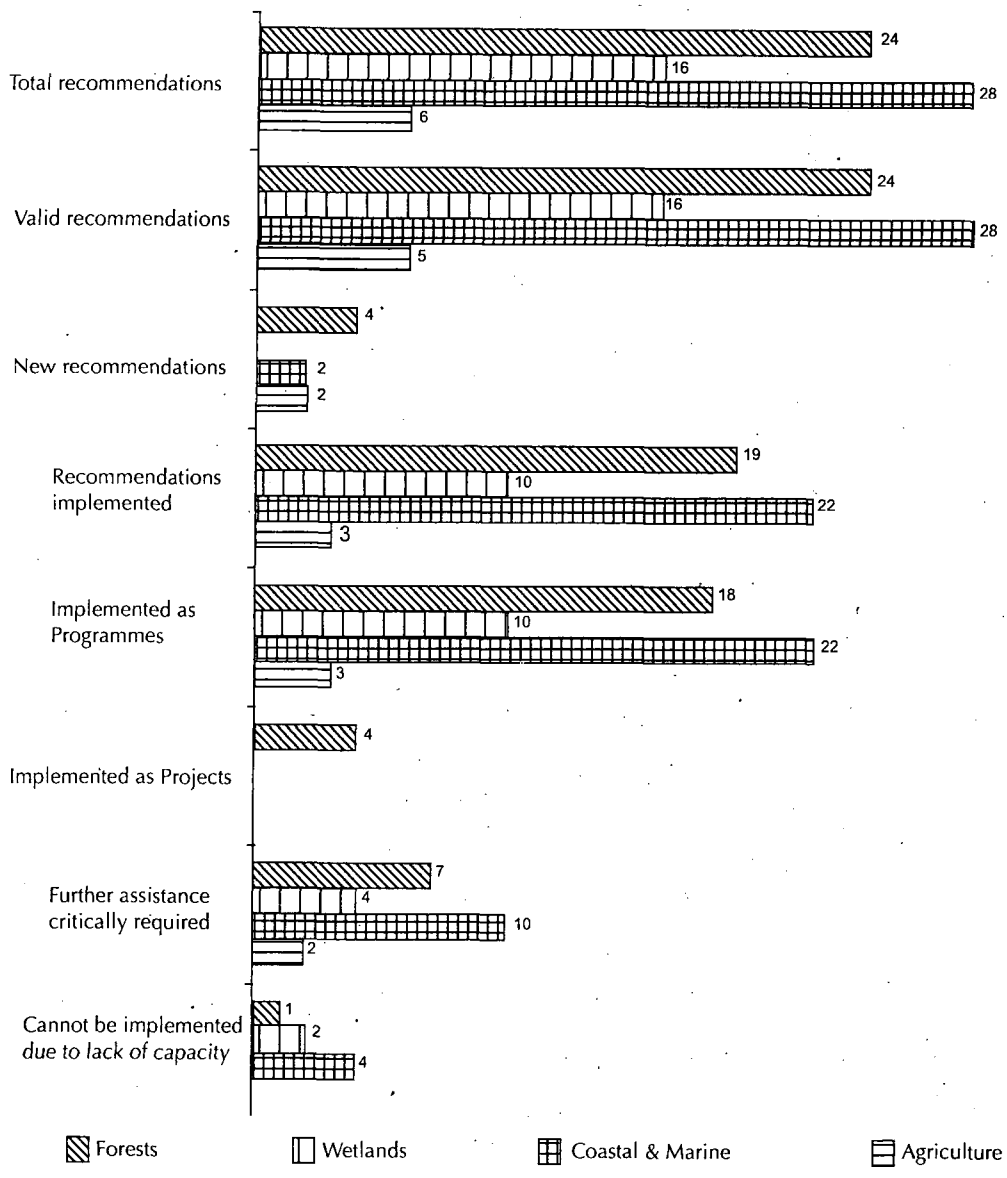

Figure 1: Summary of status of actions for *in situ* conservation in the BCAP

- However, we do not propose that the two departments be amalgamated, or that the functions of one be taken over by the other or by another institution. Such a measure would also negate much of the investments made by the Sri Lanka government through the past decades for staff training and capacity building in the DWLC and FD. These two departments also have distinct institutional histories and have evolved individual strengths that the other institution could draw upon though collaborative action.

Role of the Biodiversity secretariat:

The BDS should help the establishment of a pilot project for collaborative action between the FD and DWLC (**Table 1**). This can be through the Taskforce dealing with *in-situ* conservation (preferably through a TF dealing wit both *in-situ* and *ex-situ* communication). The assistance of a short-term Working Group under this

Taskforce could be considered. The secretary of the ministry under which these departments function can give directions to facilitate this process.

Box 8: Justification for greater collaboration between the DWLC and FD

Among the recommendations in the BCAP of 1999 for conservation of forest biodiversity is the need to rectify the anomalies in the present Protected Area network with active collaboration between the DWLC and the Forest Department. However, this requirement remains unsolved to date.

Due to historical facts there is a high coverage of protected areas and forests in the dry zone compared with those in the wet and intermediate zones, despite the fact that (a) biodiversity and endemism are highest in the low country and montane wet zones and (b) natural forests are severely fragmented in the wet zone with high pressure on these forest remnants because of high population pressure. **Therefore the recommendation in the BCAP for the DWLC and the Forest Department to jointly identify a network of PAs that are more representative of indigenous biological diversity is reiterated.**

- The new recommendations to:
  - Identify critically important biodiversity hot spots in the country, including those outside forests, and bring under an appropriate protected area category.
  - Study the status/trends in wildlife areas and identify the needs for wildlife corridors and linkages as an option for species conservation.
  - Prepare and implement recovery plans for threatened species that need special conservation action (in terms of both *in-situ* and *ex-situ*) in addition to habitat conservation.

  clearly require a more collaborative approach between the two departments responsible for forest biodiversity to make valid decisions on protected areas and conservation of critical biodiversity rich areas outside protected area and for their inclusion in the PA network. Many threatened species and natural habitats and agricultural and traditional landscape/cultural/traditional systems, marine areas and marine species are outside the current protected area network. Therefore it is necessary to identify such "hot spots" and bring them under some sort of protected area category. For example they could be made sanctuaries or MAB reserves. A systematic survey is, however, necessary for the identification of new "hot spot" areas. This also requires a strong biodiversity oriented land use policy and accurate information on species, ecosystems and habitats in different bioregions and bio-units, recognizing the importance of connectivity and location of protected areas under both the FD and DWLC to provide year round need for long ranging animals.

- There is need for common or complementary categories of PAs to be developed in the long-term. This should however be a gradual process with dialogue between the FD and DWLC, facilitated by a pilot scale collaboration programme for a few selected areas as a first step.

- A comprehensive, scientific and systematic survey and analysis of existing protected areas as well as critical "hot spots" with no protection is required based on the assessment of the extent of each habitat, ecosystem and species to identify those that are under represented or not-represented in the PA network. The data gathered could be added to the database derived from the NCR that can be updated and expanded by both FD and DWLC.

b) **Institutional requirement specifically to address wetland biodiversity conservation**

- Establish a special wetland unit within the CEA to coordinate and take a lead role in wetland conservation (**Table 2**) and to report back progress to the Taskforce dealing with *in-situ* conservation within a specified time frame.

The CEA is best suited to house this unit due to its past involvement with the wetland conservation project and as it currently houses the National Wetland Steering Committee on Wetland Conservation. However, adequate funds, human resources, skills and coordination are required to make the unit operational. If required this unit could be set up through a special project.

Role of the Biodiversity secretariat:
The Biodiversity Secretariat should take initiatives to establish the wetland unit within the CEA. If resource assistance is required to set up this unit this can be done via a special project. Project formulation can be assisted through a working group under the Taskforce addressing wetland conservation.

The BDS should also promote a link between the wetland unit and the *Ex-situ* Conservation Expert's Group proposed at the *ex-situ* conservation review workshop. (see report of the TF on Institutional Aspects and Capacity Building)

c) **Institutional requirement for NARA to meet requirements of the BCAP**

- Establish a special biodiversity unit within NARA to take the lead role in regular monitoring, research and study of marine and freshwater biodiversity and to report back to the Taskforce addressing wetland/coastal and marine issues within a specified time frame. At present NARA is carrying out many activities recommended in the BCAP **(Table 3)** but their effectiveness is severely curtailed due to the lack of resources, skilled manpower, equipment and manpower. The unit established should, however, have adequate resources and a mandate to carry out its functions.

Role of the Biodiversity Secretariat:
- The Secretariat should facilitate the establishment of such a special unit within NARA and could obtain assistance from the NSC. If required, the BDS could help formulate proposals for funding, capacity enhancement etc. through a working group convened for this purpose under the Taskforce addressing *in-situ* conservation.

d). **Existing integration and coordination mechanisms to be promoted in the coastal sector**

- Integrate *in-situ* conservation of coastal and marine biodiversity Conservation the plans and programmes of the very specific institutions already mandated to oversee coast conservation and fishery (e.g. CCD, DFAR, DoFOR, NAQDA) through reiteration in the CZMP and the fishery development plans and policies.

- Strengthen the coordination mechanism for coast conservation within the CCD. For example a Technical Evaluation Committee constituting of *ex-officio* and appointed members has been proposed in the draft Coast Conservation revised Act in addition to the Coast Conservation Advisory Council in place. This new mechanism could be expanded to promote the necessary inter-institutional liaison as well as providing technical advice on coast conservation matters.

Role of the Biodiversity Secretariat:
BDS should facilitate the integration of BCAP recommendations into the CZMP and the fishery development plans and policies through a special Taskforce for Integration and policy[3] with guidance from the Taskforce dealing with *in-situ* conservation in which the coastal and fishery would be represented. The concurrence of the NSC and the relevant ministries could be obtained to achieve this.

e). A central mechanism within Agriculture and livestock sector to address biodiversity conservation

- Establish a central mechanism within the ministries dealing with agriculture and livestock for implementing the BCAP recommendations to conserve agrobiodiversity - including livestock biodiversity (**Table 4**). This mechanism could be used to report back progress to the BDS and the relevant Taskforce dealing with agro-biodiversity (e.g. a Taskforce dealing with both *in-situ* and *ex-situ* conservation).

- Integrate conservation of agro-biodiversity into the plans and programmes of the very specific institutions already mandated for the development of the agriculture and livestock sector through reiteration in their agriculture/livestock development plans and policies and research plans (DOO/DEA/CARP, draft; CARP, 1999).

The role of the Biodiversity Secretariat:

As there are specific institutions that are mandated with the *in-situ* and *ex-situ* conservation of agro-biodiversity and there is adequate coordination within the agriculture and livestock development sectors, the overall strategy of the BDS in these sector should be to promote integration of BCAP recommendations into the plans, work programmes and research plans of ministries and departments dealing with agriculture and livestock. This can be assisted through the NSC with guidance from the Taskforce dealing with *in-situ* and *ex-situ* conservation.

The Secretariat should also promote the establishment of the required central mechanisms in the Ministries dealing with agriculture and livestock.

4.2.3. Facilitating policy to deal with biodiversity conservation

- At present, adequate attention is not give to *in situ* conservation of biodiversity in urban, agricultural (including traditional) areas and landscapes,

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[3] Suggest establishing a Taskforce or Biodiversity Steering Committee on Integration and policy to deal with Integrating biodiversity concerns into cross-sectoral issues, the private sector, NGO activities and community actions (chapter 7) and the harmonization of cross-sectoral policies and major development efforts with biodiversity conservation needs (could liase with the Legal TF where required to review laws). This Taskforce/Committee could address impacts of global conventions to which Sri Lanka is a signatory and national trade laws/agreements and foreign policies and their impacts on national biodiversity conservation.

catchments of tanks and riverine ecosystems that are presently outside the protected area network.

BCAP recommendation 24 under Forests does address this question partly through its recommendation to:

- expand and maintain the programme of setting up urban forests, and develop educational and awareness programmes in relation to these forests.

- Furthermore, threatened and endangered species in urban areas have not been adequately covered by the institutions that are responsible for this, highlighting the need to set up biodiversity refuges in such areas in consultation with urban authorities.

The role of the Biodiversity Secretariat:

The BDS through a Taskforce dealing with cross-sectoral policy should move for the development of:

- a biodiversity related land policy for the country within six months to create a background for the required coordination of sectors impinging on land issues, and
- finalise the draft wetland policy to address wetland issues.
- the draft wetland Act should be taken up for review to and finalised to ensure wetland conservation in the country.

The BDS could also promote these actions through the CEIDP and CEPOMs on land and water and the mechanisms for implementing the National Environmental Action Plan.

4.2.4. Taking the *in-situ* recommendations forward

It is proposed that the BCAP implementation process will involve the preparation of a detailed SIP for implementing the BCAP (+addendum) *in-situ* conservation recommendations. This document should be prepared with the assistance of the Taskforce dealing with *in-situ* conservation. It should:

- list the specific institutions identified for specific tasks/actions and corresponding timeframes to achieve progress and the end result envisaged (targets for monitoring), and
- specify mechanisms to monitor, track and coordinate the implementation of the recommendations

It involves the participation of departmental heads that have to implement these actions (some of them are expected to participate as TF members) so that a realistic commitment for implementation of the individual recommendations can be expected.

This requires considerable time, coordination and full time specific personnel as well as a coordination mechanism that will enable obtaining the participation of relevant

sectors and institutions. As such this remains outside the purview of this present Taskforce of 5 members and should be undertaken by the Taskforces (or biodiversity working Committees) proposed by the present Taskforce on Institutional Aspects and Capacity Building. However, the process followed and the information we have provided should provide the background information for such a programme.

We strongly feel that this should be participatory and should be subject to discussion so that institutions are ready to take responsibility for the actions that they are committed to carry out within the next five years.

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Objectives in the BCAP for in-situ Conservation under Forests

1. To ensure that threatened forest ecosystems and species are given adequate protection.
2. To put in place a system for monitoring forest biodiversity and taking corrective action when necessary.
3. To promote conservation of indigenous forest species both within and outside protected areas.
4. To involve communities living on the fringes of forests in participatory activities for the conservation and sustainable use of biodiversity.
5. To promote mixed cropping with indigenous species in private lands and state lands leased for agroforestry.
6. To increase timber supplies through forest plantations, which will have the effect of reducing the pressure on natural forests for producing timber.
7. To promote public awareness of the environmental benefits of conserving forest biodiversity.

Table 1: Status of BCAP recommendations and implementation needs in forests
(recommendatations from joint workshop with TF11)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: objective met BCAP objection for instes casercation 1. To ensure that threatened forest ecosystems and species are given adequate protection 3. To promote conservation of indigenous forest species both within and outside protected areas. **BCAP recommendation** 6.1.(8) Define, demarcate and establish an optimal protected area system network utilizing scientific and distributional data available from the NCR & other data available, paying special attention to the conservation of endemic species of plants and animals. **Status:** FD has expanded their PA system based on available data.	**Institution/s for action:** FD and DWLC to jointly identify a national PA system. **Policy need** Requires mandate/policy for coordinated action between the two departments on specific areas for action.	**Coordination mechanism need** BDS to establish a strategic coordinating monitoring mechanism between the FD and DWLC with reporting back to a TF during a specified time frame as identified in an implementation programme plan. BDS should take the initiatives to establish this coordination mechanism through a special Taskforce with a mandate to facilitate BCAP implementation. **Institutional need** For this process provide dedicated officers to the biodiversity secretariat to take necessary action on BCAP implementation. (details of this are given in the report of the TF11) **Suggested action for this recommendation:** The Biodiversity Secretariat to set up a special Technical Committee (or similar) with the relevant mandate to ensure coordination between the FD & DWLC to (a) initiate joint enhance capacity (b) identify the protected area net work (c) development of a common data base on forests and species Monitoring by NEC/BDS

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. **New recommendation** Identify critically important biodiversity hot spots in the country outside forests and bring under a relevant protected area category.	**Institution/s for action:** FD and DWLC to jointly carry out this activity under above action. **Policy need** Requires mandate/policy for coordinated action	Same as above
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. **New recommendation** Study the status/trends in wildlife areas and identify the need for wildlife corridors and linkages as an option for species conservation. **Status:** **FD** - ongoing* through an institutional programme **DWLC: ?** **Problem** - presence of private lands in wildlife linkages between protected areas.	**Institution/s for action:** FD and DWLC to jointly identify this in connection with the above PA system. **Policy needs** Requires mandate/policy for coordinated action **Comment:** 1. need to address the issue of private lands (and LRC lands) between PAs identified as linkages. 2. need to recognise that requirements for linkages are different for different species and should be specific for each PA.	Same as above

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection 2. To put in place a system for monitoring forest biodiversity and taking corrective action when necessary. **BCAP recommendation** 6.1(11) Establish a mechanism to continually expand and update the Forest Department's database on faunal and floral species in forests and other natural habitats. **Status*:** a comprehensive database set up through NCR exists in the FD for woody plants. Though less comprehensive data on some vertebrate groups are also present in this system. This could be made a common database for FD and DWLC to update continuously The DWLC too is developing a National Biodiversity Database and carrying out baseline surveys and habitat mapping with Special project funds; Data from is to be incorporated into a database.	**Institution/s for action:** FD and DWLC to setup a common database Review the FD database, and if mechanism is adequate, make it a centralised database on the country's forests and protected areas for use by both the FD and DWLC. Identify the floral and faunal groups that are inadequately covered by the NCR and promote surveys to cover the gaps and expand the database.	Same as above
Objectives met: 1, 2 3, 4, 7 **BCAP recommendation** 6.1(6) The Forest Department and Department of Wildlife Conservation to collaborate to strengthen their capabilities in protected area management.	**Institution/s for action:** FD and DWLC	Same as above
6.1(17) Establish a suitable mechanism for ensuring co-ordination in the management of protected areas and the conservation of biodiversity between the Forest Department and the Department of Wildlife Conservation.		
Objective met: 1.To ensure that threatened forest ecosystems and species are given adequate protection. 4.To involve communities living on	**Institution/s for action:** FD and DWLC **Capacity enhancement needs** FD: Funds and technical assistance for preparation and implementation	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to TF with specified time frame using a SIP

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
the fringes of forests in participatory activities for the conservation and sustainable use of biodiversity. **BCAP recommendation** 6.1(4) Complete the preparation of management plans (including surveying and boundary marking) for all protected areas; ensure that such plans continue to recognize the participatory role of communities living in proximity to the areas under protection and adequately address the conservation and sustainable use of biodiversity. **Status:** **FD** - ongoing* through an institutional programme. Some have been done. Amendments to Act will compel FD to prepare management plans. **DWLC** - On going programme. Plans have been prepared for 9 cluster PAs.	of management plans for all forests DWLC: Extend preparation of Management Plans to all Protected areas under the Departments by the end of BCAP implementation. Time frame: **to be decided by TF set up by BDS**	
Objectives met: To ensure that threatened forest ecosystems and species are given adequate protection. To involve communities living on the fringes of forests in participatory activities for the conservation and sustainable use of biodiversity. **BCAP recommendation** 6.1(5): Actively implement the conservation-management plans of protected areas, giving due attention to buffer zone activities involving the peripheral communities. **Status:** **FD**- ongoing through institutional programmes and special projects. Expected to implement management plans for other forests. **DWLC** - Ongoing through institutional programmes and special projects for some protected areas.	**Institution/s for action:** FD and DWLC **Capacity enhancement** Funds needed to continue implementation of existing plans and to extend to other areas.	BDS to establish a strategic coordinating monitoring mechanism with reporting back to TF with specified time frame using a SIP

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1.To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. 4.To involve communities living on the fringes of forests in participatory activities for the conservation and sustainable use of biodiversity. **BCAP recommendation** 6.1. (9) Ensure that activities in forests outside protected areas are governed by management plans that pay adequate attention to the conservation of biodiversity. **Status:** **FD-** Areas in Buffer Zones of protected areas are covered by MGT plans. Can also prepare management plans for multipurpose forests and buffer zones **Problem:** LRC lands with forest *outside jurisdiction of FD for* management	**Institution/s for action:** FD and DWLC as leads MOENR to coordinate ***Other:*** LRC, DS, others. **Coordination need:** Coordination of institutions to continue implementation ***Others:*** LRC, private sector, private owners **Policy/mandate needs** MOENR and FD MOENR: Declare relevant LRC and privately owned lands as environmentally fragile areas through a biodiversity oriented policy on land use with adequate legal weightage.	MOENR to take action through the BDS/CEPOMs/TF on policy for the development of a biodiversity related land policy for the country which within six months which will enable the required coordination. BDS to coordinate and report back to relevant TF on progress within specified time frame as per a SIP
Objective met: 3. To promote conservation of indigenous forest species both within and outside protected areas. 7. To promote public awareness of the environmental benefits of conserving forest biodiversity. **BCAP recommendation** 6.1. (24) Expand and maintain the programme of setting up urban forests, and develop educational and awareness programmes in relation to these forests. **Status: Institution/s for action:** **FD-** ongoing* **Problem-** getting lands for urban forests **UDA- check** **DWLC** - Ongoing **IUCN** - a case study on Colombo Urban Refuges **check what is happening**	**Institution/s for action:** FD, UDA, DWLC (to take lead role) ***Other:*** **NSF-** awareness creation and discussions for promotion through Forestry Research Committee NGOs to support Provincial and regional action **Policy need-** **to develop/maintain urban forests**	Same as above
Objective met: 2. To put in place a system for monitoring forest biodiversity and	**Institution/s for action:** **FD and DWLC** - to take lead role institutionalise a simple system of reporting of perceived threats to	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to TF with specified

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
taking corrective action when necessary **BCAP recommendation** 6.1(1) Develop a system for the regular monitoring of forest biodiversity, and take remedial action to rectify any negative trends as and when necessary, including threats from invasive species. **Status:** FD can be expected to commence at BCAP + 4 and can undertake by including reporting back by Field Officers to Head Quarters on perceived threats. A circular can be sent to field staff. DWLC- can undertake action through reporting back by field officers	biodiversity by the field staff of FD, DWLC. Can commence now. CEA (i.e. Divisional Environmental Officers) to report to FD/DWLC as relevant. **Capacity enhancement need** Technical help to train field staff to identify threats to be reported. *Other institutions to assist:* **Dept. of Ayurveda** **CEA** - Divisional Environmental Officers and others to report back to FD/DWLC (as relevant) of any perceived threats during field inspections.	time frame using an SIP **Reporting institutional findings** FD Research Committee & DWLC Research Committee to report to the Dept. Heads and Dept. Heads to report directly to the National Experts Committee on Biodiversity and BDS TFs **Institutional coordination need** **Inter-institutional reporting** MOENR to set up a coordination mechanism between FD/DWLC and other institutions to institutionalise the reporting mechanism. BDS to coordinate and report back to relevant TF on progress within specified time frame as per a SIP
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. **BCAP recommendation** 6.1(3) Take action to prevent the use of high-forest areas and fragile ecosystems for *chena* cultivation. **FD**- ongoing through an institutional programme. Chena cultivation in high forest areas is already banned. **Problem**- FD cannot take action in high forest areas under LRC. DWLC - (Considered as encroachments)	**Institution/s for action:** **FD/DWLC** -lead role *Other* LRC Grama Niladhari/ DS- coordinated action required MA **Policy need** **Needed a policy to take over high forest areas under LRC by FD and DWLC**	MOENR to take action through the BDS/CEPOMs and TF on policy for the development of a biodiversity related land policy for the country which within six months which will ensure the required coordination. BDS to coordinate and report back to relevant TF on progress within specified time frame as per a SIP
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. **BCAP recommendation** 6.1.(13) Review the issue of *deniya* permits for cultivation in forests in relation to the impact of this practice on biodiversity. **Status:** In Forest Ordinance, there is a provision to give *deniya* permits, but no new permits are given although existing permits are renewed on annual basis.	**Institution/s for action:** **FD** - can commence Need for FD to review necessity of continuing the issue of *Deniya* permits, but taking into consideration traditional practices that are non-destructive.	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to a TF with specified time frame using a SIP

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. **BCAP recommendation** 6.1.(10) Both within and outside protected areas, promote *in situ* conservation activities that specially target threatened species. **Status:** MOENR envisages preparing national species conservation strategies to address threatened species. Expected to commence with the help of experts (in NGOs, universities and researchers) **FD-** ongoing through institutional programme but inadequate focus on fauna. **DWLC-** ongoing through an institutional programme to protect the ecosystem whereby both fauna and flora are considered.	**Institution/s for action:** National Experts' Committee on Threatened Species to take lead roles with the collaboration of FD/DWLC. (could link up with committee setup in relation to *ex-situ* conservation of species and captive breeding Joint action with help of species experts that can be drawn upon from the special committee on species. **Technical capacity enhancement** As habitat conservation alone may not ensure conservation of threatened species adequately, there is need to enhance capacity of FD and DWLC to give consideration to threatened species (both fauna and flora) that need special action in their areas. Exchange of expertise between the DWLC through the proposed coordination mechanism between the two departments is required. Joint action with help of species experts that can be drawn upon from the special committee on species.	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to TF with specified time frame using a SIP

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. **New recommendation** Prepare and implement recovery plans for threatened species that need special conservation action (both *in-situ* and *ex-situ*) in addition to habitat conservation **Status:** **MOENR** envisages preparing national species conservation strategies to address threatened species. Expected to commence with the help of experts (in NGOs, universities and researchers). Private parties are also engaged in breeding of endangered spp. (e.g. fish (*Puntius* sp) - release to habitat by DWLC. Needs monitoring	**Institution/s for action:** M/E & NR through National Species Conservation Advisory Group Others FD and DWLC - for implementation of recovery plans in collaboration with relevant experts on individual species groups with high priority of threat in their areas. *Ex-situ* conservation facilities, NGOs, universities and researchers.	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to a TF with specified time frame using a SIP
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3.To promote conservation of indigenous forest species both within and outside protected areas. **BCAP recommendation** 6.1.(14) Strengthen research capacity and pursue research to determine sustainable use thresholds for selected forest species. **Status:** **FD** - ongoing through an institutional programme at Forestry Research Institute at Kumbalpola **DWLC**- does not have a research institute	**Institution/s for action:** FD and DWLC With support from the DOA and its research institutes **Short-term capacity enhancement:** FD needs funds, human resources and capacity building, and coordination mechanism to strengthen and expand the existing research institute in the short term. Expand research programmes of universities (Depts. of Botany and Agriculture) to cover this aspect. for Forestry and Wildlife related research. **Long term:** Establish an autonomous Forestry Research Institute to service both Forestry and Wildlife requirements.	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to a TF with specified time frame using a SIP **Coordination/Monitoring** MOENR/BDS to ensure that the DOA for this type of research provides support and that this is included in the DOA research plans.

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 3. To promote conservation of indigenous forest species both within and outside protected areas. **BCAP recommendation** 6.1. (16) Promote the conservation and propagation of indigenous medicinal plants. **Status** There has been a special project for this by **M/IM, IUCN, FD.** Status to be checked.	**Institution/s for action:** Dept. of Ayurveda-check Private sector **Needs** Identification of the needs of the private sector to promote this.	MOENR to establish a technical committee to give technical guidance for the private sector on biodiversity related ventures and on other matters such as better design standards that will reduce the use of wood, and other resources negatively affecting biodiversity conservation.
Objective met: 1: To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. 4. To involve communities living on the fringes of forests in participatory activities for the conservation and sustainable use of biodiversity. **BCAP recommendation** 6.1.(18) Expand programmes for afforestation, reforestation and forest rehabilitation, paying attention to the use of indigenous species as far as possible. **Status:** **FD-** ongoing through institutional programmes	**Institution/s for action:** **FD** - can continue through institutional programmes	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. 3. To promote conservation of indigenous forest species both within and outside protected areas. 6. To increase timber supplies through forest plantations, which will have the effect of reducing the pressure on natural forests for producing timber. **BCAP recommendation** 6.1.(19) Promote the improved utilization of timber and the use of alternative materials in place of timber. **Status** **Check** 6.1. (21) Establish forest plantations on currently non-productive land as entrepreneurial ventures in collaboration with the private sector to cater to the timber and fuelwood demand. **Status:** **FD**-ongoing through an institutional programme **Private sector**-ongoing	**Institution/s for action:** FD to take lead role (but check on policy) ***Others*** TC M/Industries M/Plantations Industrial Development Board (IDB) NBRO ICAD - to facilitate good design that minimizes use of wood NSF-to promote through awareness creation, funding and research on alternative materials and good design **Policy/coordination needs** M/E &NR to take the lead role and give policy directions and mechanism of coordination to promote industries to take this up. A mechanism is necessary for the private sector to be more involved on a holistic and scientific basis that targets the conservation objective and recommendations 6.1(19) and 6.1(21).	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to a TF with specified time frame using an SIP. **BDS direct action** Coordinate different players and to give policy direction to prevent misuse and promote private sector involvement. BDS to also identify and form a group of people to give technical assistance for establishment of FPs to private sector recommended by the FD. Could link up with the technical committee to give technical guidance for the private sector on biodiversity related ventures and on other matters such as better design standards that will reduce the use of wood, and other resources negatively affecting biodiversity conservation under crosss-ectoral issues (Table 5).
Objective met: 7. To promote public awareness of the environmental benefits of conserving forest biodiversity. **BCAP recommendation** 6.1. (20) Organize skills enhancement and awareness programmes on biodiversity conservation for operational staff, NGO participants, CBO personnel and rural communities. **Status:** **FD-** has undertaken programmes to work with CBOs/NGOs **DWLC-** ongoing programmes for students, staff, local officials, community.	**Institution/s for action:** M/E & NR to take lead role FD, DWLC, CEA with CBOs/NGOs, students, staff, local officials, communities. **Needs-** Funds, human resources and coordination to build skills for, and to undertake, special projects for capacity building and enhance the skills of different target groups	BDS to undertake directly and report back to relevant TF within specified time frame in a strategic implementation programme.

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. **BCAP recommendation** 6.1. (22) Review legal instruments relating to the collection of forest plants and animals, including regulations relating to export, and amend in order to eliminate anomalies and strengthen the law, so as to afford protection to threatened species of indigenous plants and animals **Status:** Already being done by the FD Note: Send this to Legal and Ethical Aspects TF	**Institution/s for action:** To be completed once inputs from legal TF come in	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back a TF for each action under a specified time frame using a SIP. (reporting to Task Force on Legal Aspects to be set up)
Objective met: 1. To ensure that threatened forest ecosystems and species are given adequate protection. **BCAP recommendation** 6.1.(23) Strictly enforce the laws relating to collection, possession, sale, and export of plants and animals protected by law. **Status:** Enforcement already being done by the FD and DWLC. **Problem**- courts takes a long time (10-20yrs) to take action **DWLC** - introduce spot fines for minor offences.	**Institution/s for action:** To be completed once inputs from legal TF come in **Need:** Discuss with Legal TF the possibility of setting up a special court to deal matters related to forests to expedite action Legal TF to Identify capacity needs to Strictly enforce	BDS to establish a strategic coordinating/ monitoring mechanism with reporting back to a TF for each action under a specified time frame using a SIP. (also check with Task Force on Legal Aspects)

WETLANDS

Objectives: In-situ Wetlands

1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity.
2. To promote the restoration of ecologically important degraded wetlands.
3. To build public awareness of the importance of wetlands and the need for their conservation.

Table 2: Status of BCAP recommendations and implementation needs in wetlands

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. 2. To promote the restoration of ecologically important degraded wetlands. **BCAP recommendation** 6.2(2) Strengthen and enhance current efforts to identify critically important wetlands in terms of biodiversity, give priority attention for their conservation and prepare site reports and management plans where necessary. **Status:** **CEA**-ongoing through a project **FD-check** **DWLC** - Ongoing within their PAs **Problem:** No dedicated organization to attend to wetland biodiversity Conservation	**Institution/s for action:** **CEA**-to take lead role, and to implement this as a special project through the National Wetland Steering Committee for the present. FD and DWLC to assist But for effective action a special unit should be set up within the CEA as a short term measure. **Needs:** Funds, human resources and skills and coordination are required to set up a special project to carryout this action. **Long-term measure** Identify institution to take up wetland conservation as decreed by the National Water Act and devolved functions to it.	BDS to establish a strategic coordinating monitoring mechanism with reporting back to a TF with specified time frame using a strategic implementation programme. BDS should take the initiatives to establish a unit within a relevant organisation (CEA or institution identified by the new National Water Act) to take lead role in wetland conservation action and report back to relevant TF within specified time frame in a strategic implementation programme. (see action for recommendation 6.1(8) BDS and TF to also help with formulating special project if required
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. 2. To promote the restoration of ecologically important degraded wetlands. **BCAP recommendation** 6.2(1) Continue to develop strategies and plans for the management of wetlands. **Status:** **CEA :** Ongoing as a special project The institutional mechanism exists within the CEA. **FD-check** **DWLC** - Ongoing as management plans for PAs include wetlands in PAs		

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. **BCAP recommendation** 6.2(3) Prepare suitable maps and implement the management plans for wetlands, taking into account the need for collaboration between the several state institutions concerned, including the provincial administration, and based on participatory management principles. **Status:** **CEA**—ongoing through a special project. Can manage until a more suitable/permanent body emerges (either a special unit within the CEA or organization identified under the Water Act.	Same as above	Same as above
Objective met: 3. To build public awareness of the importance of wetlands and the need for their conservation. **BCAP recommendation** 6.2(4) Increase public awareness of the importance of wetlands and their benefits to local communities through the print and electronic media (government departments in collaboration with the private sector, media and NGOs). **Status:** **CEA**- action being done under NWSC by the TF on Education and awareness	Same as above	Same as above
Objective met: **3.** To build public awareness of the importance of wetlands and the need for their conservation. BCAP recommendation 6.2(7) Increase the use of wetlands for education and eco-tourism. **Status:** CCD - **ongoing in coastal zone**	**Institution/s for action:** Same as above ***Others to support:*** CCD DWLC-check *Ceylon Tourist Board* NARA	Same as above
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. *BCAP recommendation* 6.2(8) Strengthen the capability of NARA and other relevant state institutions for regular monitoring of freshwater aquatic bio-diversity, in collaboration with universities and NGOs, and provide guidelines where necessary.	**Institution/s for action:** NARA to take lead role **Institutional need:** A special unit for wetland biodiversity for regular monitoring and research with adequate funds, human resources and coordination is required within NARA for more focused action. ***Others:*** CEA to support NARA through the special unit for wetland biodiversity (or new institution to be identified under the National Water Act to support)	BDS should take the initiatives to faciliate the establishment of a unit within NARA to take lead role in regular monitoring, research and study of freshwater aquatic bio-diversity and report back to relevant TF within specified time frame in a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. BCAP recommendation 6.2(9) Carry out studies on the impact of introduced exotic species of fish, and measures for their control if found to be harmful to indigenous wetland biodiversity. **Status :** **NARA**- ongoing, but ad hoc and needs coordination mechanism	**Institution/s for action:** Same as above **Institutional need:** Same as above. **Coordination needs** Mechanism to obtain support from Universities and NGOs and through National Wetlands Steering Committee	Same as above Also MoENR to directly set up mechanism to obtain support from universities and NGOs and through National Wetlands Steering Committee and BDS to establish a strategic coordinating monitoring mechanism with reporting back to a TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. **BCAP recommendation** 6.2(10) Undertake research programmes to culture threatened freshwater flora and fauna with emphasis on economically important species including those that are commonly exported. **Status:** **NARA**- ongoing. Has bred 12 endemic ornamental fish species and propagated many aquatic plant spp. **Problem**- These actions are being done on project basis and are ad hoc	**Institution/s for action:** NARA to take lead role **Institutional need:** Same as above.	
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity BCAP recommendation 6.2(12) Increase national funding for wetland associated research, with special emphasis on the ecology and culture of endangered and economically important freshwater species	**Institution/s for action:** NARA - to take lead role via spcial unit **Comment**- if a special unit is set up at NARA it can obtain national funding for activities MoENR ***Other:*** Universities to support research NSF- to give priority for funding such research	Same as above Also MoENR to directly set up mechanism to obtain support from universities and NGOs BDS to also establish a strategic coordinating monitoring mechanism with reporting back to a TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: 2. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. **BCAP recommendation** 6.2(11) Assist those in the aquarium trade to culture organisms for export with stringent monitoring and control by the state sector through a licensing scheme. **Status:** **NARA** -ongoing **NARA and IUCN SL** have helped with identification and	**Institution/s for action:** Zoological Gardens, BG, FD, DWLC and NARA (special unit to be set up) to implement licensing scheme assisted by the Expert's Committee recommended to enhance *ex-situ* conservation [rec.6.6 (4)]. ***Others to support:*** CCD, DFAR Fisheries and NAQDA	BDS should take the initiative to establish the Expert's Committee [see rec.*ex-situ* 6.6 (4)] and report back to relevant TF within specified time frame in a strategic implementation programme. Also BDS to monitor the actions of lead agencies through their reporting back to TFs (see action for recommendation 6.1(8)

Recommendation and status at BCAP,+4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
monitoring of some species		
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. 2. To promote the restoration of ecologically important degraded wetlands. BCAP recommendation 6.2(5) By prohibiting or strictly regulating collection from the wild and adopting active measures, promote the conservation of aquatic fauna and flora of species under threat. **Status:** **DWLC** - Ongoing **Dept. of Fisheries** -ongoing	**Institution/s for action:** **FD, DWLC** And DFAR (Dept. of Fisheries) to take lead role **Capacity enhancement need:** Capacity strengthening and awareness creation to identify whether endangered species/stocks are obtained from captive breeding (link to *ex-situ* conservation action [6.6 (4)] for this through an Expert 's Committee to ensure that breeding stock is adequate for commercially bred species.	BDS to establish a strategic coordinating monitoring mechanism with reporting back to a TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8) BDs to promote link to ex-situ conservation action for this [see rec.6.6 (4)] through an expert 's committee (and TF ?) to ensure that breeding stock is adequate for commercially bred species
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. BCAP recommendation 6.2 (13) Ensure that the forests identified as important hydrologically through the NCR study are brought within the protected area system and given strict protection.	**Institution/s for action:** **FD**- ongoing **DWLC - Ongoing** **Coordination need:** Coordinated action between these two institutions through a special mechanism recommended under forests.	BDS to establish a strategic coordinating monitoring mechanism between the FD and DWLC with reporting back to a TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: 1. To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. BCAP recommendation 6.2(14) Enforce the legal provisions for protecting river and stream reservations. **Status:** **DWLC**- ongoing (for riverine nature reserves) **Irrigation Dept.-check** FD -check **DS - check** **LA - check**	**Institution/s for action:** DWLC Irrigation Dept.- **check** **FD** DS LA New institutions to be set up under the new Water Act **Coordination need:** Needs coordinated action among all the relevant existing institutions and new institutions to be set up	BDS to establish a strategic coordinating monitoring mechanism between the relevant institutions with reporting back to a TF with specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8) Also MOENR to take action through the BDS/CEPOMs and other mechanisms for the development of a biodiversity related land policy for the country which within six months which will ensure the required coordination. BDS to report back status to TF during specified time frame in a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: **1.** To ensure that both natural and man-made wetlands are properly managed and to conserve and sustainably use wetland biodiversity. BCAP recommendation 6.2 (15) Review the legal framework that relates to the conservation of wetlands, identify gaps and rectify as necessary either through strengthening existing laws or enactment of new laws pertaining to wetlands. **Status :** **CEA-** expected to commence by the NWSC TF on Wetland Policy	**Institution/s for action:** **CEA-** expected to commence by NWSC TF on Wetland Policy **Policy/mandate needs** Needs initiative-action for policy. Review draft law covering wetlands and draft Wetland Policy and finalize **Note:** to take cognizance of recommendation of Legal and Ethical Aspects TF **Also see inputs by Legal TF**	
Objective met: 1. To promo'e the restoration of ecologically important degraded wetlands. **BCAP recommendation** 6.2(16) Examine government policies that may promote adverse activities concerning wetlands (e.g. reclamation of wetlands for urban development), and recommend remedial measures thorough the National Wetlands Steering Committee **Institution/s for action:** **CEA-** expected to commence through TF on Wetland Policy under NWSC	**Institution/s for action:** **CEA-** through TF on Wetland Policy under NWSC (special unit to coordinate action) ***Other*** **Sri Lanka Land Reclamation and Development Cooperation** -check does this require mandate to do so?	Same as above Also TF addressing wetlands to review adverse polices and initiate remedial action . BDS to track action.

COASTAL & MARINE SYSTEMS

Objectives: Coastal and marine systems

1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes.
2. To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc.
3. To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries.
4. To strengthen current government initiatives to increase stakeholder participation in the conservation of coastal and marine resources.
5. To increase collaborative participation among stakeholders with regard to policies and programmes that affect coastal and marine biodiversity and initiatives that support conservation, such as research.

Table 3: Status of BCAP recommendations and implementation needs in coastal & marine systems

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(28) Strengthen and expedite the preparation and implementation of the special area management programmes identified in "Coastal 2000" and the CZM Plan of 1997, and extend the programmes to other coastal sites as necessary. **Status:** **CCD**- ongoing, but needs enhancement	**Institution/s for action:** CCD DS LA PC F & CC DEF M/PI DFAR, DWLC and FD **Capacity enhancement needs Need funds and human resources to continue**	CCD to report to relevant TF on progress within specified time frame as per a strategic implementation programme. (see action for recommendation 6.1(8) BDS and TF to also help with formulating special project if required and on inter-institutional coordination for capacity enhancement of technical skills/sharing of experiences.
New recommendation Give priority for funding of research projects that focus on conservation and management of areas in SAM sites **Status:**	**Institution/s for action:** NSF- to take lead role Other funding Agencies **Does NASTEC have a role to play ?**	**Coordination mechanism need** BDS to establish a coordinating/ monitoring mechanism with reporting back to a TF during a specified time frame identified in a strategic implementation programme.
Objective met: 5.To increase collaborative participation among stakeholders with regard to policies and programmes that affect coastal and marine biodiversity and initiatives that support conservation, such as research. **BCAP recommendation** 6.3(22) Establish a strong and effective co-ordinating mechanism to secure the collaboration of all the concerned institutions in the effective management of the coastal zone.	**Institution/s for action:** CCD ???? Set up a coordinating body pending the CCD Act ???	Need to check whether new CCA recommends an effective mechanism.

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Status: **CCD** has inter-institutional coordination through the Coastal Zone Advisory Committees and the Special Area Management Coordinating Committee **Problem-** coordination is not as effective as desired.		
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. 3.To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. **BCAP recommendation** 6.3(27) Commence awareness programmes for different target groups to mitigate adverse effects of pollution, coral reef damage and over-harvesting of species from coastal and marine ecosystems. **Status:** **CCD-** lead role- ongoing **NARA** check whether can be taken by the unit **CEA** **NGOs** **M/e & NR**	**Institution/s for action:** CCD to take lead role and include in their plans and programmes of action and for coordination MOE &NR ***Other:*** NARA special unit to be set for BDC CEA NGOs FD (mangroves)	BDS to establish a monitoring mechanism with reporting back to a TF during a specified time frame identified in a strategic implementation programme. Also BDS to facilitate and assist coordinated action where necessary through CEPOMs/other mechanism
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(26) Develop and apply feasible methods for waste disposal from industries, tourist hotels and households in the coastal zone, through surveys, research and community projects. **Status:** **CCD-** lead role- ongoing also addressed in CZMP **M/E & NR** some action initiated **CEA** - some monitoring of coastal waters	**Institution/s for action:** **CCD** to take lead role and include in their plans and programmes and coordinate action NARA CEA M/ Industries UDA LA DS M/E & NR- enhance existing mechanism Ceylon Tourist Board	Same as above
Objective met: 4. To strengthen current government initiatives to increase stakeholder participation in the conservation of coastal and marine resources. **BCAP recommendation** 6.3(25) Enlist support of NGOs and rural communities to establish woodlots in sand dunes adjoining mangroves, with fast growing fuelwood trees such as *Casuarina*, to ameliorate pressure on mangrove vegetation.	**Institution/s for action:** FD and CCD with Community/CBO support	Same as above

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Status: **FD**- ongoing **CCD**- can be done through ongoing and proposed SAM **Community/CBO**		
Objective met: 3.To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. 4.To strengthen current government initiatives to increase stakeholder participation in the conservation of coastal and marine resources. 5. To increase collaborative participation among stakeholders with regard to policies and programmes that affect coastal and marine biodiversity and initiatives that support conservation, such as research. **BCAP recommendation** 6.3(24) Develop capacity for eco-tourism in selected coastal areas, with the participation of communities and local entrepreneurs, for viewing coral life, watching marine mammals, etc. **Status:** **CCD**- ongoing as a project **DWLC** **CEA** **Ceylon Tourist Board** **NARA**	**Institution/s for action:** **CCD**- to take lead role (ongoing as a project and expected to continue under SAM planning) **Needs** Funds, human resources and skills and coordination to continue effectively *Other*: **DWLC** - to handle regulatory aspects - special regulations needed. **CEA** **Ceylon Tourist Board** **NARA**	Same as above
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes **BCAP recommendation** 6.3(23) Initiate action in collaboration with agricultural and irrigation authorities and provincial/regional bodies to prevent siltation of lagoons, estuaries and marine ecosystems due to soil erosion inland. **Status:** **CCD**- addressed in CZMP	**Institution/s for action:** CCD to take lead role and include in their plans and programmes of action and for coordination lead role Use mechanism for coordination already established/to be established in the CCD *Other:* Irrigation Dept. DFAR	Same as above
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(21) Initiate and promote research programmes to determine the effects of sea level rise on marine and coastal habitats. **Status:** **CCD** - addressed in CZMP **NARA**- some actions have been taken by the Oceanographic Division	**Institution/s for action:** M/E & NR) CCD) lead roles Met Dept.) NARA **Needs** Funds and human resources and skills to continue as desired.	Same as above

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(20) Develop capacity among entrepreneurs and guidelines for aquaculture that take into account preservation of the natural environment **Status:** **NARA and NAQDA** have developed guidelines for shrimp culture only.	**Institution/s for action:** **NARA and NAQDA** Should prepared guidelines for others (than shrimp culture) if there is an expansion trend in aquaculture which will be guided by zonal planning	Same as above
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes **BCAP recommendation** 6.3(19) Carry out research in collaboration with universities and the private sector to produce alternative materials to replace marine coral-based lime for the building industry and to promote designing that obviates the use of lime plaster **Status:** **NSF** - has promoted research on this **CCD** - addressed in CZMP	**Institution/s for action:** **NBRO**- to take lead role and to coordinate and enhance efforts of others ***Others to support*** Universities (Moratuwa) CCD Private sector ITI NSF - promoting research	Same as above
Objective met: 1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes **BCAP recommendation** 6.3(18) Promote policy incentives for the use (including the import) of substitutes for coral based lime in the building industry **Status:** ongoing **NBRO and ICTAD** **CCD - addressed in CZMP** Also existing ban on use of coral based lime in state institutions	**Institution/s for action:** NBRO and ICTAD- to take key role ***Other:*** CCD PC/DS NASTEC	Same as above
Objective met: 1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(17) Increase institutional capability for strict enforcement of laws against sand and coral mining. **Status:** ongoing to enforce, but inadequate enforcement **CCD, GSMB, DS** involved in licensing for sand mining **FD**- sometimes sand mining permits has to be taken from FD But most sand mining in rivers is illegally done Coral mining is banned under the CCA Enforcement has to be strengthened	**Institution/s for action:** <u>Sand mining</u> CCD GSMB DS FD Police **Needs** Funds and training to increase institutional capability of DS <u>Coral mining</u> CCD - lead role DWLC Police **Need to discuss capacity**	Same as above **But see response of LTF**

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
	strengthening with the Legal TF	
Objective met: 2. To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. BCAP recommendation 6.3(16) By prohibition or strict regulation of collection from the wild and other active measures, promote the conservation of coastal and marine species of fauna and flora of species under threat. **Status:** **DWLC** - ongoing **CCD** - addressed in CZMP	**Institution/s for action:** DWLC CCD Fisheries Department (DFAR) Needs coordination and awareness creation to keep CCD informed of the activities of FD and DWLC in this regard **Check with Legal TF**	BDS to establish a monitoring mechanism with reporting back to a TF during a specified time frame identified in a strategic implementation programme. Also BDS to facilitate and assist coordinated action where necessary through CEPOMs/other mechanism
Objective met: 1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **New recommendation** Prepare integrated zonal plans for expansion of aquaculture in a manner that is environmentally compatible and identify the areas suitable for aquaculture expansion. **CCD** - has addressed in CZMP	**Institution/s for action:** Dept. of Fisheries NAQDA (has policy)	Same as above
Objective met: **1.**To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(15) Control the expansion of prawn farms into mangrove areas and salt marshes to prevent excessive biodiversity loss, and preserve all biodiversity rich areas as habitats for aquatic fauna and flora. **Status:** ongoing **Dept. of Fisheries** **NAQDA**- has policy to do this & is doing it.	**Institution/s for action:** NAQDA- has policy/mandate Dept. of Fisheries	Same as above
Objective met: 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(14) Strengthen capabilities to enforce existing	**Institution/s for action:** DWLC- lead role **Training need (very important),** For - DWLC & Fisheries Dept field officials, police, vet. surgeons to identify cetacean and turtle flesh	Same as above BDS could also promote and formulate special projects for the required training.

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
regulations against the slaughter of small cetaceans and turtles (including harvesting of their eggs), **Status:** enforcement weak **Comment:**	and NGOs (NGOs can bring attention/give information) **Coordination need** between DWLC & Fisheries Dept. **Check with Legal TF**	
Objective met: 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(14) Provide better protection for feeding, breeding and nesting grounds of marine species, including licensing and state monitoring of turtle hatcheries	**Institution/s for action:** DWLC- lead role ***Other:*** **NGOs** to assist in conservation action and training Communities **Training need** For hatchery owners DWLC to implement Turtle Conservation Action Plan	Same as above
Objective met: 1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes 2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(13) Enforce, strictly, the current laws against the use of explosives, illegal types of fishing gear and harvesting of juvenile and gravid lobsters in the sea. **Status:** **DFAR** - ongoing **CCD** - addressed in CZMP	**Institution/s for action:** Dept. of Fisheries- key role **Check with Legal TF**	Same as above
Objective met: **1.To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes.** **2.To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc** BCAP recommendation 6.3(12) Examine and monitor effects of fishing methods that may have adverse effects on biodiversity, and take appropriate action **Status:** **Dept. of Fisheries-** ongoing **NARA-** ongoing **CCD** - addressed in CZMP	**Institution/s for action:** Dept. of Fisheries- lead role NARA NAQDA CCD	Same as above
Objective met: **1.To promote the conservation of coastal and marine**	**Institution/s for action:** FD - lead role	Same as above

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. Also objectives 3, 4 ad 5 To strengthen current government initiatives to increase stakeholder participation in the conservation of coastal and marine resources. **BCAP recommendation** 6.3(11) Prepare and implement management plans and strengthen capability among stakeholders for conservation and management of mangrove areas using a participatory approach. **Status:** **FD**- ongoing **CCD**- addressing (also in CZMP)	CCD- to collaborate **Needs** Funds, human resources and coordination	
Objective met: To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(9) Carry out scientific biodiversity assessment of coral reefs and other important marine systems to identify a minimum network of marine reserves to conserve the totality of marine biodiversity based on principles similar to the National Conservation Review of forests **Status:** **NARA**- ongoing for corals **CCD, IUCN and DWLC**- GEF-RUK-project to identify coastal marine areas for conservation	**Institution/s for action:** **NARA**- to take lead role and to carry out by the special unit on BDC to be set up at NARA (see Wetland Section) ***Other :*** **CCD, DWLC, universities**	BDS should take the initiatives to faciliate the establishment of a unit within NARA to take lead role in regular monitoring, research and study of freshwater aquatic bio-diversity and report back to relevant TF within specified time frame in a strategic implementation programme. (see action for recommendation 6.2(8) BDS also to establish a strategic coordinating monitoring mechanism with reporting back to a TF by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: All **BCAP recommendation** 6.3(10) In collaboration with relevant state agencies, user groups and communities, prepare management plans for identified marine protected areas to conserve biodiversity, and strengthen capabilities for management **Status:** **DWLC**- -ongoing, but should be stepped up	**Institution/s for action:** DWLC- lead role CCD ***Others:*** NARA to provide background data Dept. of Fisheries CCD UDA (in urban areas) LA **Needs** Funds, human resources and coordination	Same as above BDS al so to facilitate a coordinating monitoring mechanism between DWLC and other institutions to promote the identification of marine protected areas and preparation of management plans. BDS also to establish a strategic coordinating monitoring mechanism with reporting back to a TF by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(8) Strengthen and enhance current efforts to map the biological resources, including corals, seagrass beds etc. in the coastal waters of Sri Lanka based on Geographical Information Systems. **Status:** **MPPA**- Environmental Sensitivity Index for coastal habitats being developed. The database is managed by NARA. INSTCOM- Oil spill contingency plan developed **NARA**- ongoing database management	**Institution/s for action:** MPPA- to take lead role ***Other:*** CCD NARA	BDS to establish a monitoring mechanism with lead agency reporting back to a TF during a specified time frame identified in a strategic implementation programme.
Objective met: To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries, salt marshes. **BCAP recommendation** 6.3(7) Preserve seagrass beds and encourage sustainable use of resources via proper *in situ* culture and harvest practices among local communities and entrepreneurs. **Status:** **M/Fisheries (ADB-RETA)** - main target is seagrass beds **CCD** - addressed in CZMP	**Institution/s for action:** **NARA**- to play key role and to collate information from other institutions ***Other*** **CCD** - for management **M/Fisheries (ADB-Reta)** - NGOs **DS** **Fishing and coastal community** (through fisheries coordinating Committees)	BDS should take the initiatives to faciliate the establishment of a unit within NARA to take lead role in regular monitoring, research and study of freshwater aquatic bio-diversity and report back to relevant TF within specified time frame in a strategic implementation programme. (see action for recommendation 6.2(8) BDS also to establish a strategic coordinating monitoring mechanism with reporting back to a TF by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 2. To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(6) Initiate a comprehensive programme to study wild stocks of marine mammals in Sri Lankan waters, the catch estimates and the feasibility of alternative income generation through eco-tourism, and carry out an islandwide awareness campaign to stop the killing and sale of flesh of these species. **Status:** **NARA-** has mandate and is to use NARA research vessel to promote whale watching A whale watching programme is expected to commence in collaboration with IOMAC	**Institution/s for action:** **NARA-** to play key role and to collate information from other institutions *Suggestion: for awareness creation* develop a project in collaboration with other institutes that carryout similar work - Fisheries Dept., NGOs **Needs** Funds, human resources and coordination	Same as above
Objective met: To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **BCAP recommendation** 6.3(5) Initiate and strengthen research for *ex situ* cultivation of economically important coastal and marine species and identify alternatives to selectively exploited species where possible; disseminate results to the industrial sector through seminars, workshops and training programmes **Status:** **NARA-** ongoing, but could be done effectively by the NARA Biodiversity unit to be set up. **NAQDA-** expected to commence **Note: send to education and awareness TF**	**Institution/s for action:** **NARA-** to take lead role through Biodiversity Unit to be set up **Needs** **funds, human resources and coordination** ***Other*** NAQDA National Institute of Fisheries and Nautical Engineering - Need for studies on marine resources. Include in academic courses of the institute and make it to diploma/degree programme	Same as above regarding NARA role. BDS to take action through the BDS/CEPOMs and other mechanisms (TFs) to promote or the development of courses on marine resources. Include in academic courses of the institute and make it to diploma/degree programme at the National Institute of Fisheries and Nautical Engineering
Objective met: 2. To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. 3. To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. *BCAP recommendation* 6.3(4) Monitor the extent and sustainability of harvesting coastal resources such as ornamental fish, sea-cucumber, molluscs, sponges, beche-de-mer, and other species with a market demand. **Status:** **Dept. of Fisheries-** ongoing	**Institution/s for action:** **Dept. of Fisheries-** lead role	BDS also to establish a strategic coordinating monitoring mechanism with reporting back to a TF by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: **2.**To promote the conservation of threatened marine species (e.g. marine mammals) as well as other species which are subject to exploitation for food, for the aquarium trade, etc. **3.** To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. **BCAP recommendation** 6.3(3) Promote research programmes to determine the sustainable levels of fish catches. **Status:** **Dept. of Fisheries-** ongoing **NARA-** research done **CCD** - addressed in CZMP	**Institution/s for action:** **Dept. of Fisheries-** lead role ***Other:*** **NARA-** research to be done by NARA BD unit for Dept. of Fisheries **CCD**	Same as above
Objective met: **3.** To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. **BCAP recommendation** 6.3(2) Promote the preparation of management plans for the sustainable use of the fisheries resource, taking into consideration the establishment of fisheries reserves where necessary and regeneration of the nearshore fishery resource. **Status:**	**Institution/s for action:** **Dept. of Fisheries-** lead role- ***Other*** **Universities** **CCD** **M/Fisheries** **NAQDA** **NARA- suggestion:** BD unit of NARA to collate information and pass to Dept. of Fisheries **PC** **CEA** **Coordination mechanism n eeded**	Same as above Also BDS to faciliate coordination through the BDS/CEPOMs and other mechanisms (TFs)
Objective met: **3.** To promote sustainability in the use of coastal and marine bioresources in the fisheries and tourist industries. **BCAP recommendation** 6.3(1) Strengthen and enhance current efforts to conduct a comprehensive fish resource assessment in Sri Lankan marine waters and an assessment of sustainable levels of harvesting for the food fishery. (including shrimp and shellfish) **Status:** **Dept. Fisheries-** ongoing as expected to commence as a special project. A proposal has been submitted for funding	**Institution/s for action:** **Dept. Fisheries-** ongoing	Same as above for monitoring

AGRICULTURE SYSTEMS

Objectives:

1. To adopt policies and programmes for the conservation of Sri Lanka's agricultural biodiversity.
2. To adopt agricultural and crop plantation practices that will enhance the conservation of biodiversity, including traditional varieties and agricultural landscapes.
3. To promote among farmers and other land owners practices for the conservation of biodiversity, including traditional farming practices.

Table 4: Status of BCAP recommendations and implementation needs in agriculture systems

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met: 2. To adopt agricultural and crop plantation practices that will enhance the conservation of biodiversity. 3. To promote among farmers and other land owners practices for the conservation of biodiversity. BCAP recommendation : 6.4.(1)Promote the leasing of suitable state land for agroforestry and mixed cropping on the traditional home garden pattern and extend leasing period of the land for farmers and leaseholders who demonstrate their commitment to conservation of biodiversity in their land holdings.	**Institutions for action** MOENR Ministry of Plantation Industries Ministry of Lands DOA - for technical support PC, LA, DS Policy need Policy required. could link with institutional aspects to recommendation 21 under *in-situ* conservation 6.1	MOENR to take action through the BDS/CEPOMs and other mechanisms for the development of a biodiversity related land policy for the country which within six months which will ensure the required coordination. BDS to establish a strategic coordinating/ monitoring mechanism with reporting back by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: 3.To promote among farmers and other land owners practices for the conservation of biodiversity. **BCAP recommendation** 6.4.(2) Improve co-ordination and provision of institutional support for home-gardens, which would include credit and technical assistance. Status Mandate present but has to be better focused.	**Institutions for action:** Ministry of Agriculture and relevant departments under it. (Dept of Agrarian Services) Capacity needs Require fund, human resources and co-ordination (could be carried out as a special project)	Same as above
Objective met : 3. To promote among farmers and other land owners practices for the conservation of biodiversity.	**Institutions for action** DOA (PGRC) -lead role for crops DAPH -lead role for livestock Suggestion Provide direct incentive	As above

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
BCAP recommendation : 6.4. (3) Facilitate access (by farmers) to seed material and germplasm of indigenous varieties of crops and livestock. Status PGRC has already a programme for this, but it is not well known and requires awareness creation. Problem:This concept is difficult to promote within the livestock sector.	payments to popularize cultivation of indigenous varieties and link to germplasm centers. **Institutional capacity need** Strengthen livestock sector including the Department of Animal Production and Health. PGRC and DOA require funds human resources and coordination	
Objective met: 2. To adopt agricultural and crop plantation practices that will enhance the conservation of biodiversity. 3. To promote among farmers and other land owners practices for the conservation of biodiversity. **BCAP recommendation** 6.4.(5) Provide economic incentives for the popularization of conservation farming; these could include fiscal measures, provision of services, improvements in land and tree tenure, training and awareness creation, etc.	**Institutions for action:** Ministry of Agriculture and relevant depts. - lead role Ministry of Plantation Industries MOENR	BDS to promote establishment of central mechanism at the Ministry of Agriculture for reporting to the BDS. BDS to establish a strategic coordinating/ monitoring mechanism with reporting back by lead agency within specified time frame using a strategic implementation programme. (see action for recommendation 6.1(8)
Objective met: 2. To adopt agricultural and crop plantation practices that will enhance the conservation of biodiversity. 3. To promote among farmers and other land owners practices for the conservation of biodiversity. **BCAP recommendation:** 6.4.(6) Provide incentives and technical another assistance for integrated farming in coconut, and support research on such activities under rubber and tea. **Status:** CRI and VRI- Ongoing	Institutions for action: Lead role Ministry of Plantation CRI, RRI, TRI, VRI TRI Under tea promote preservation of soil fertility and promotion of organic tea More research is required for integrated farming in rubber and tea plantations	BDS to promote action by Ministry of Plantation Ind.

Recommendation and status at BCAP +4 and 1999 BCAP objective met	Institutions for action and recommendations for implementation	Mechanism for coordinating/monitoring BCAP implementation
Objective met : 2. To adopt agricultural and crop plantation practices that will enhance the conservation of biodiversity. **New recommendation** Establish critical biodiversity areas in plantations and other agriculturally important landscapes	**Institutions for action:** **MOENR** **Ministry of Plantation Industries** **Plantation companies** **Identify environmentally sensitive areas and carry out social mobilization incentives and special projects**	Same as above

Ministry of Environment and Natural Resources
Biodiversity Secretariat
Protected Area Management and Wildlife Conservation Project
Component C - Sub Component 1 - Review of BAP
Preparation of Addendum to the BCAP

Annex 01

TOR for Task Forces

1 Review the present status of the given thematic area considering the out comes of the gap analysis of BCAP and SBCAP.

2 Identify the important missing areas of and areas which should be improved in, present BCAP related to given theme area.

3 Prepare a outline of review process and identify the structure of addendum specific to given thematic area

4 Collect and compile systematically available information. All statements must be based on substantial reference materials. Provide clear technical definitions to ensure avoid narrow conceptual definitions

5 Prepare concept/position papers on the important sections under given thematic area.

6 Design and finalize a baseline(information) on given thematic area including a comprehensive bibliography of all relevant documents and hand over those information to the Biodiversity Secretariat

7 Coordinate as much as possible with other Task Forces to avoid duplication and clear priority setting.

8 Identify clear recommendations and proposed modalities for the implementation and operationalizing the recommended action with respect to the given thematic area

9 Set priorities for identified recommended actions with future scenario vision for the given thematic area. This in term for the agreed National Biodiversity Policy for Sri Lanka

10 Establish the clear relationship between prioritize recommended actions and ecosystem approach

11 Prepare the Report on a addendum of given thematic area for BAP and finalize with all stake holders

12 Submit the above report with all relevant material to the Biodiversity Secretariat.

Annex 2:

TRACKING STATUS OF BCAP ACTIONS TO DEVELOP IMPLEMENTATION PROGRAMME FOR TASKFORCE ON INSTITUTIONAL ASPECTS AND CAPACITY

For Taskforce No 1: *IN-SITU* CONSERVATION OF BIODIVERSITY

BCAP 6.1. Forest recommendations

Institutions listed for action in section 6.1 of the 1999 BCAP are: FD, DWLC, Survey Department, Department of Ayurveda, Mahaweli Authority, MFE, Ministry in charge of plantations and provincial administration, law enforcement agencies (police, Customs, Attorney General).

BCAP + 4 = status as at 2003

(1) 1999 BCAP Recommendations		(2) Regarding BCAP 1999 recommended action:		(3) Institution/s for action at BCAP +4:		(4) Mandate for implementation at BCAP + 4:		(5) If mandate present, status of action between BCAP and BCAP+4:								(6) Mechanism/ institutional structure required to monitor/ track/facilitate BCAP implementation		
								Capacity *adequate to commence* action between BCAP and BCAP +4						*Can not commence/ implement* due to lack of:			Exists		Establish
								(a) Ongoing through:		(b) Needs action	Assistance vital to continue implementation under (a) and (b):								
Section and rec. no:	Forests (section 6.1)	Relevant at BCAP+4	Not relevant at BCAP+4	Individual action possible	Coordinated action required	Requires Mandate/policy	Has mandate/policy	Institutional programme	Special project	Expected to commence at BCAP +4	Funds	Human resources	Coordination (state institutions/ mechanism)	Funds	Human resources and skills	Coordination	Adequate	Enhance	New mechanism
6.1 (1)	Develop a system for the regular monitoring of forest biodiversity, and take remedial action to rectify any negative trends as and when necessary, including threats from invasive species.	√		**FD** **DWLC** Dept. of Ayurveda CEA Divisional E/officers CCD Univsersities NGOs		→	√	?		√		Training / help							Improve information flow. (Research Committee-Dept. Heads — National Experts Committee on BD)

(2)	Take effective action to stop further encroachments on the wet zone forests (bioregions 4,5 and 6). ?	√		FD DWLC ?	→	→	→	√	√										
(3)	Take action to prevent the use of high-forest areas and fragile ecosystems for *chena* cultivation.	√		FD/ LRC DWLC Grama N DS Mahaweli A ?	√		√ Needs Policy for LRC	√											Needs a coordination mechanism of all the institutions involved
(4)	Complete the preparation of management plans (including surveying and boundary marking) for all protected areas; ensure that such plans continue to recognize the participatory role of communities living in proximity to the areas under protection and adequately address the conservation and sustainable use of biodiversity.	√		FD DWLC ?			√ √	√	 √		FD may need funds in future								
(5)	Actively implement the conservation-management plans of protected areas, giving due attention to buffer zone activities involving the peripheral communities.	√		FD DWLC ?			√ √	√	√	√	√	→							→
(6)	The Forest Department and Department of Wildlife Conservation to collaborate to strengthen their capabilities in protected area management.	√		FD DWLC	√		?												Coordinated projects with community participation in selected areas

TRACKING STATUS OF BCAP ACTIONS TO DEVELOP IMPLEMENTATION PROGRAMME FOR TASKFORCE ON INSTITUTIONAL ASPECTS AND CAPACITY

For Taskforce No 1: *IN-SITU* CONSERVATION OF BIODIVERSITY

BCAP 6.2. Wetlands recommendations

Institutions listed for action in section 6.2 of the 1999 BCAP are: NARA, CEA, FD, DWLC, MFE, UDA, the provincial administration, universities

BCAP + 4 = status as at 2003

(1) 1999 BCAP Recommendations		(2) Regarding BCAP 1999 recommended action:		(3) Institution/s for action at BCAP +4:		(4) Mandate for implementation at BCAP + 4:		(5) If mandate present, status of action between BCAP and BCAP+4:									(6) Mechanism/ institutional structure required to monitor/ track/facilitate BCAP implementation		
								Capacity *adequate to commence* action between BCAP and BCAP +4							*Can not commence/ implement* due to lack of:			Exists		Establish
								(a) Ongoing through:		(b) Needs action	Assistance vital to continue implementation under (a) and (b):								
Section and rec. no:	Wetlands (section 6.2)	Relevant at BCAP+4	Not relevant at BCAP+4	Individual action possible	Coordinated action required	Requires Mandate/policy	Has mandate/policy	Institutional programme	Special project	Expected to commence at BCAP +4	Funds	Human resources and skills	Coordination (state institutions/ mechanism)		Funds	Human resources and skills	Coordination	Adequate	Enhance	New mechanism
6.2 (1)	Continue to develop strategies and plans for the management of wetlands.	√		CEA Project FD DWLC		√	√								√					A central body for coordination. New policies needed. Should have technical representation in Committees.

(2)	Strengthen and enhance current efforts to identify critically important wetlands in terms of biodiversity, and prepare site reports and management plans where necessary.	√		CEA FD DWLC															
(3)	Prepare suitable maps and implement the management plans for wetlands, taking into account the need for collaboration between the several state institutions concerned, including the provincial administration, and based on participatory management principles.	√		NEC CEA ?										√	√	√			Set up a Wetland Unit in CEA ?
(4)	Increase public awareness of the importance of wetlands and their benefits to local communities through the print and electronic media (government departments in collaboration with the private sector, media and NGOs).	√		CEA—NWSC TF-education & awareness + CEA unit				√											
(5)	By prohibiting or strictly regulating collection from the wild and adopting active measures, promote the conservation of aquatic fauna and flora of species under threat.	√		DWLC Dept. of Fisheries CCD FD				√											
(6)	Carry out a comprehensive awareness programme to combat disposal of household and industrial refuse into wetlands and enhance capability for law enforcement.	√		**CEA** LA M/E&NR Provincial admin.				√											

TRACKING STATUS OF BCAP ACTIONS TO DEVELOP IMPLEMENTATION PROGRAMME FOR TASKFORCE ON INSTITUTIONAL ASPECTS AND CAPACITY

For Taskforce No 1: *IN-SITU* CONSERVATION OF BIODIVERSITY

BCAP 6.3. Coastal and Marine Systems recommendations

Institutions listed for action in section 6.3 of the 1999 BCAP are: CCD, NARA, DFAR, DWLC, FD, CEA NARESA, and the provincial administration

BCAP + 4 = status as at 2003

(1) 1999 BCAP Recommendations		(2) Regarding BCAP 1999 recommended action:		(3) Institution/s for action at BCAP +4:		(4) Mandate for implementation at BCAP + 4:		(5) If mandate present, status of action between BCAP and BCAP+4:									(6) Mechanism/ institutional structure required to monitor/ track/facilitate BCAP implementation		
								Capacity *adequate to commence* action between BCAP and BCAP +4							*Can not commence/ implement* due to lack of:			Exists	Establish
								(a) Ongoing through:		(b) Needs action	Assistance vital to continue implementation under (a) and (b):								
Section and rec. no:	Coastal and Marine Systems (section 6.3)	Relevant at BCAP+4	Not relevant at BCAP+4	Individual action possible	Coordinated action required	Requires Mandate/policy	Has mandate/policy	Institutional programme	Special project	Expected to commence at BCAP +4	Funds	Human resources	Coordination (state institutions/ mechanism)	Funds	Human resources and skills	Coordination	Adequate	Enhance	New mechanism
6.3 (1)	Strengthen and enhance current efforts to conduct a comprehensive fish resource assessment in Sri Lankan marine waters and an assessment of sustainable levels of harvesting for the food fishery.	√		Dept. of Fisheries CCD						√									

(2)	Promote the preparation of management plans for the sustainable use of the fisheries resource, taking into consideration the establishment of fisheries reserves where necessary and regeneration of the nearshore fishery resource.	√		Dept. of Fisheries Universities CCD M/FOA NAQDA NARA NEPC CEA PC				√										
(3)	Promote research programmes to determine the sustainable levels of fish catches.	√		FD CCD ?				√										
(4)	Monitor the extent and sustainability of harvesting coastal resources such as ornamental fish, sea-cucumber, molluscs, sponges, beche-de-mer, and other species with a market demand.	√		Dept. of Fisheries				√										
(5)	Initiate and strengthen research for *ex situ* cultivation of economically important coastal and marine species and identify alternatives to selectively exploited species where possible; disseminate results to the industrial sector through seminars, workshops and training programmes.	√		NARA NAQDA National Institute of Fisheries and Nautical Engineering														?

TRACKING STATUS OF BCAP ACTIONS TO DEVELOP IMPLEMENTATION PROGRAMME FOR TASKFORCE ON INSTITUTIONAL ASPECTS AND CAPACITY

For Taskforce No 1: *IN-SITU* CONSERVATION OF BIODIVERSITY

BCAP 6.4. Agriculture Systems recommendations

Institutions listed for action in section 6.4 of the 1999 BCAP are: DOA, DEA, FD, Department of Animal Production and Health, Mahaweli Authority, TRI, CRI, RRI, MAL, Tea Small Holdings Development Authority, Rubber Development Authority, Coconut Cultivation Board.

BCAP + 4 = status as at 2003

(1) 1999 BCAP Recommendations		(2) Regarding BCAP 1999 recommended action:		(3) Institution/s for action at BCAP +4:		(4) Mandate for implementation at BCAP + 4:		(5) If mandate present, status of action between BCAP and BCAP+4:								(6) Mechanism/ institutional structure required to monitor/ track/facilitate BCAP implementation		
								Capacity *adequate to commence* action between BCAP and BCAP +4						*Can not commence/ implement* due to lack of:			Exists		Establish
								(a) Ongoing through:		(b) Needs action	Assistance vital to continue implementation under (a) and (b):								
Section and rec. no:	Agriculture Systems (section 6.4)	Relevant at BCAP+4	Not relevant at BCAP+4	Individual action possible	Coordinated action required	Requires Mandate/policy	Has mandate/policy	Institutional programme	Special project	Expected to commence at BCAP +4	Funds	Human resources	Coordination (state institutions/ mechanism)	Funds	Human resources and skills	Coordination	Adequate	Enhance	New mechanism
6.4. (1)	Promote the leasing of suitable state land for agroforestry and mixed cropping on the traditional home garden pattern.																		
(2)	Improve co-ordination and provision of institutional support for home-gardens, which would include credit and technical assistance.																		

(3)	Facilitate access (by farmers) to seed material of indigenous varieties.																		
(4)	Secure ownership of the land for farmers and leaseholders who demonstrate their commitment to conservation of biodiversity in their landholdings.																		
(5)	Provide economic incentives for the popularization of conservation farming; these could include fiscal measures, provision of services, improvements in land and tree tenure, training and awareness creation, etc.																		
(6)	Provide incentives and technical and other assistance for integrated farming in coconut, and support research on such activities under rubber and tea.																		

Annexed are tasks with time targets listed as indicators of BCAP implementation (p 87 and 88) for consideration against the BCAP recommended actions as and where relevant.

Also appended are other BCAP recommendations relevant for *in-situ* conservation under other sectoral and cross-sectoral needs (**see blue schedule**). These have been circulated to the relevant task forces as well.

Institutions for these actions are listed under their relevant sections in the BCAP

Annex. 3

List of Persons consulted (including workshop participants)

1. Mr U K D G Jayasinghe	- CEA
2. Dr P P G S N Siriwardene	- Director General, NARA
3. Mr R A D B Samaranayake	- Director, CCD
4. Dr U K G Padmalal	- Open University
5. Dr Channa Bammaradeniya	- IUCN Sri Lanka
6. Dr Siril Wijesundera	- Director, National Botanical Gardens
7. Brig. H A N T Perera	- Director, National Zoological Gardens
8. Ms Srimathie Dissanayake	- PGRC
9. Mr Asoka de Silva	- Freelance Consultant
10. Dr Kumudu Fernando	- Director, Seed Certification & Plant Protection Centre, DoA
11. Dr R Wickramasinghe	- Director, VRI
12. Mr Sanjiv de Silva	- IUCN
13. Mr Arjan Rajasuriya	- NARA
14. Dr P Balakrishna	- Head, IUCN Asia Biodiversity Programme
15. Prof. Ajit Abeysekera	- University of Sri Jayewardenepura
16. Mr Jagath Gunawardene	- Attorney-at-Law
17. Mr. H.D. Goonawardena	-Deputy Conservator of Forests
18. Mr. H.D. Rathnayake	-Deputy Director Department of Wildlife Conservation
19. Dr. L.G.H.S. Sumathipala	Ecologist-UN
20. Prof. Madduma Bandara	Prof of Geography University of Peradeniya
21. Ms. Hasula Rajapakse	Open University
22. Mr. Sarath Fernando	Conservator General; Forest Deparment

Annex 4: Review of the gap analysis for the addendum

Overall comments:

1. The gap analysis talks of revision (a re-write) of the BCAP and proposes a structure, while the task forces have been informed that any revision would be included in an addendum as a parallel exercise to moving forward with the implementation of the existing BCAP.
2. The analysis refers to a Biodiversity Framework Action Plan (BDFAP) in some places and a BCAP in others. At present there is no document called the BDFAP. The Plan which received Cabinet approval in 1998 was the Biodiversity Conservation Action Plan (BCAP) as clearly revealed in the introduction to the document (paragraph 2, column 2 of page 1 of the BCAP of 1999 and subsequent references to the BCAP in page 2).
3. Sri Lanka via the Ministry dealing with Environment has time and time again informed the Biodiversity secretariat that Sri Lanka had prepared a Biodiversity Action Plan and had fulfilled national obligations under Article 6 of the CBD. This would be erroneous if there was in deed no BAP.
4. The phrase "a framework for action" does not mean that it is a "Framework Action Plan." and that an Action Plan is pending. Biodiversity Action Plans (BAP) (especially in biologically rich countries with a plethora of issues affecting biodiversity) cannot be expected to give detailed solutions for all its recommended actions. It is significant that the UK BAP of 1994 which is even more a 'framework for action' is being implemented successfully. The Indian National Strategy and Action Plan is another case in point and addressed the overarching national issues and has been drawn from the more detailed state NBSAPs.
5. The key purpose of the gap analysis is given as identifying (1) gaps in implementing the BCAP from 1999 to date, and (2) gaps between the BAP strategy of 1994 and the 1999 BCAP. The latter is dangerous as some recommendations in the 1994 strategy were left out deliberately in the BCAP in view of stakeholder concerns. (e.g. the issue concerning a database on Biodiversity. In addition the revieww has attempted to identify gaps in the BCAP of which many require reconsideration. .

Some specific comments

(1) The BCAP reference 6.3.8 on awareness as given in the gap analysis: There is no such item in the BCAP. Even if this is interpreted as referring to action 8 of section 6.3, it reads as: **"Strengthen and enhance current efforts to map the biological resources, including corals, seagrass beds etc. in the coastal waters of Sri Lanka based on Geographical Information Systems."**

Reference 6.3.8 is not on page 7 of the Annexed table as said.

(2) It is not clear what 6.3.1 and 6.3.4 refer to actions or objectives in the BCAP.

Review of BCAP recommendations/interpretation of gaps:

(1) The gap analysis addressed "coastal" and "marine" separately. There are accepted definitions of "coastal" but this differentiation and what it is based on is not clear. Example:

(a) Under the heading coastal one finds (if this refers to action 8 of section 6.3 in the BCAP) **"Strengthen and enhance current efforts to map the biological resources, including corals, seagrass beds etc. in the coastal waters of Sri Lanka based on Geographical Information Systems."**

(b) Under the heading marine one finds: (if this refers to recommendation 9 of section 6.3) **"Carry out scientific biodiversity assessment of coral reefs and other important marine systems to identify a minimum network of marine reserves to conserve the totality of marine biodiversity based on principles similar to the National Conservation Review of forests."**

The index to Annex II (of gap analysis) which is a review of the BCAP:

(1) has the response no action [recommended] under the topic **mining.** In reality action 17 of the Section 6.3 of the BCAP addresses the aspects of mining that have the most adverse impacts on biodiversity:
"Increase institutional capability for strict enforcement of laws against sand and coral mining.
There are two other recommendations that are also aimed at reducing coral mining (actions 18 and 19):
"Promote policy incentives for the use (including the import) of substitutes for coral based lime in the building industry."
"Carry out research in collaboration with universities and the private sector to produce alternative materials to replace marine coral-based lime for the building industry and to promote designing that obviates the use of lime plaster."

(2) states that watershed issues are not addressed in the BCAP. However, recommendations 13 and 14 (p 55) under section 6.2 refers directly to a crucial aspects of conserving watersheds.

(a) Ensure that the forests identified as important hydrologically through the NCR study are brought within the protected area system and given strict protection.

(b) Enforce the legal provisions for protecting river and stream reservations.

There are several other recommendations in the BCAP on this issue with a bearing on watersheds that have not been spotted.

(3) has failed to see action 26 under section 6.3 of the BCAP as relevant for pollution in coastal areas:
"Develop and apply feasible methods for waste disposal from industries, tourist hotels and households in the coastal zone, through surveys, research and community projects."

(4) states that there are no BCAP recommendations that have a crucial bearing on land use as it affects biodiversity (which should be the focus of the BCAP - not land use per se). Actually there are many under the different sections. Examples are:

(a) Forests: **Take action to prevent the use of high-forest areas and fragile ecosystems for *chena* cultivation.**

(b) Wetlands: **"Examine government policies that may promote adverse activities concerning wetlands"**

(c) Coastal and marine: **Control the expansion of prawn farms into mangrove areas and salt marshes to prevent excessive biodiversity loss, and preserve all biodiversity rich areas as habitats for aquatic fauna and flora.**

(d) Agriculture: **"Secure ownership of the land for farmers and leaseholders who demonstrate their commitment to conservation of biodiversity in their landholdings.**

There are many others throughout the BCAP that have a crucial bearing on land use as relevant for biodiversity conservation.

(5) The gap analysis has missed that section 6.12 deals with valuation of Biodiversity (page 9 of gap analysis: response none for valuation).

(6) The comment that a specific chapter has not been allotted to species conservation, implying that species concerns are not fully addressed with specific actions (Page 6 of the gap analysis) is unfounded as:

(a) chapter1 gives a comprehensive introduction to species biodiversity of Sri Lanka.

(b) each section dealing with the four major systems considered: Forests, wetlands, coastal and marine areas and agricultural systems where species diversity in each is highlighted.

(c) issues impinging on conserving species are taken up separately in Chapter 6 for each system and recommendations are given to alleviate threats. In addition, cross-cutting species issues are considered under sections on *ex-situ* conservation, research, legal issues, etc.

(d) section 6.6 on conservation specifically deals with species conservation outside their natural ranges, where warranted.

(e) it was not the intention of the BCAP to analyse threats to all threatened species and recommend species-specific action. That has to be dealt with in the implementation. (An example is the UK BAP which recommended species and habitats action and was followed in the implementation phase by the preparation of species and habitat Action Plans)

(f) an example of species-specific action has been included in page 47 to indicate that species conservation requires multifaceted action, and sometimes very specific actions.

(g) If species conservation *per-se* was treated as a separate chapter included in the BCAP: The sections on forest, wetland, coastal and marine biodiversity would have been incomplete (species are a component of biodiversity) or warranted unwieldy repetition. Treating species and ecosystems separately for conservation is also not in keeping with the ecosystem approach to biodiversity conservation.

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