INDIA'S SECOND NATIONAL REPORT

TO THE

CONVENTION ON BIOLOGICAL DIVERSITY

NBSAP-INDIA

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS

NEW DELHI

2001

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Please provide the following details on the origin of this report

Contracting Party	INDIA
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Date of submission:	30 July 2001

Please provide summary information on the process by which this report has been prepared, including information on the types of stakeholders who have been actively involved in its preparation and on material which was used as a basis for the report

The second National Report has been prepared through a consultative process including various stakeholders in the government and non-government sectors. These interalia include:

- concerned Central sectoral Government Ministries/Departments
- experts
- academicians
- NGOs

The relevant portions of the format of the National Report were sent to the above stakeholders. Through this interactive process, a draft of the Report was prepared. Thereafter, the draft was finalised in a consultative meeting.

Some other written and published material which was used for preparation of this Report interalia include:

(i) Implementation of Article 6 of the Convention on Biological Diversity in India – First National Report. 1998.

(ii) National Policy and Macrolevel Action Strategy on Biodiversity. 1999.

(iii) Annual Report of the Ministry of Environment & Forests. 2000-2001.

(iv) National Forestry Action Programme – India 1999.

(v) Country Paper on Biodiversity for ESCAP meeting

(vi) India Sustaining Development. 1998.

(vii) Environmental Action Plan - India. 1993

(viii) Guidelines for protection, maintenance, research and development in the Biosphere Reserves in India. 1999.

(ix) India's Wetlands, Mangroves and Coral Reefs. 1992.

(x) Biosphere Reserves and Management in India. 1998.

(xi) India – Voluntary Exchange of Information for CSD Fifth Session 1997.

(xii) Conservation, Management and Use of Agrobiodiversity 1988.

Please provide information on any particular circumstances in your country that are relevant to understanding the answers to the questions in this report

NONE.

The COP has established programmes of work that respond to a number of Articles. Please identify the relative priority accorded to each theme and the adequacy of resources. This will allow subsequent information on implementation of each Article to be put into context. There are other questions on implementation of the programmes of work at the end of these guidelines.

Inland water ecosystems

1. What is the relative priority for implementation of this work programme in your country?	
a) High	➢
b) Medium	
c) Low	
d) Not relevant	
2. To what extent are the resources available adequate for meeting the obligations and recommendations made?	
a) Good	
b) Adequate	
c) Limiting	➢
d) Severely limiting	

Marine and coastal biological diversity

3. What is the relative priority for implementation of this work programme in your country?	
a) High	➢
b) Medium	
c) Low	
d) Not relevant	
4. To what extent are the resources available adequate for meeting the obligations and recommendations made?	
a) Good	
b) Adequate	
c) Limiting	➢
d) Severely limiting	

Agricultural biological diversity

5. What is the relative priority for implementation of this work programme in your country?	
a) High	➢
b) Medium	
c) Low	
d) Not relevant	

6. To what extent are the resources available adequate for meeting the obligations and recommendations made?	
a) Good	
b) Adequate	
c) Limiting	➢
d) Severely limiting	

Forest biological diversity

7. What is the relative priority for implementation of this work programme in your country?	
a) High	➢
b) Medium	
c) Low	
d) Not relevant	
8. To what extent are the resources available adequate for meeting the obligations and recommendations made?	
a) Good	
b) Adequate	
c) Limiting	➢
d) Severely limiting	

Biological diversity of dry and sub-humid lands

9. What is the relative priority for implementation of this work programme in your country?	
a) High	➢
b) Medium	
c) Low	
d) Not relevant	
10. To what extent are the resources available adequate for meeting the obligations and recommendations made?	
a) Good	
b) Adequate	
c) Limiting	➢
d) Severely limiting	

Article 5 Cooperation

11. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

12. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

13. Is your country actively cooperating with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biological diversity?	
a) bilateral cooperation (please give details below)	➢
b) international programmes (please give details below)	➢
c) international agreements (please give details below)	➢

Decision IV/4. Status and trends of the biological diversity of inland water ecosystems and options for conservation and sustainable use

14. Has your country developed effective cooperation for the sustainable management of transboundary watersheds, catchments, river basins and migratory species through bilateral and multilateral agreements?	
a) no	
b) yes - limited extent (please give details below)	➢
c) yes - significant extent (please give details below)	
d) not applicable	

Decision IV/15. The relationship of the CBD with the CSD and biodiversity-related conventions, other international agreements, institutions and processes or relevance

15. Has your country developed management practices for transboundary protected areas?	
a) no	
b) yes - limited extent (please give details below)	➢
c) yes - significant extent (please give details below)	
d) not relevant	

Decision V/21. Co-operation with other bodies

16. Has your country collaborated with the International Biodiversity Observation Year of DIVERSITAS, and ensured complementarity with the initiative foreseen to be undertaken by the United Nations Educational, Scientific and Cultural Organization and the Secretariat of the Convention on Biological Diversity to increase scientific knowledge and public awareness of the crucial role of biodiversity for sustainable development?	
a) no	➢
b) to a limited extent	
c) to a significant extent	

Decision V/27. Contribution of the Convention on Biological Diversity to the ten-year review of progress achieved since the United Nations Conference on Environment and Development

17. *Is your country planning to highlight and emphasize biological diversity considerations in its contribution to the ten-year review of progress since the Earth Summit*?	
a) no	
b) yes	➢

Further comments on implementation of this Article

The Ministry of Environment and Forests (MoEF) which is the nodal Ministry for the CBD, is also the nodal agency in the country for United Nations Environment Programme (UNEP), South Asia Cooperative Environment Programme (SACEP), International Centre for Integrated Mountain Development, and International Union for Conservation of Nature and Natural Resources (IUCN). The MoEF also functions as the nodal agency for participation in international agreements relating to environment, in particular biodiversity, such as the Convention on International Trade in Endangered Species (CITES), Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar), Convention on the Conservation of Migratory Species of Wild Animals (CMS), Convention on Climate Change (FCC), Convention to Combat Desertification and Commission on Sustainable Development. The Ministry also handles bilateral cooperation matters relating to regional bodies such as UNEP, ESCAP, SAARC, SACEP. In order to complement and supplement work under the various Conventions, and to develop synergies, there is a close cooperation among the various units within the MoEF dealing with these Conventions. This cooperation is ensured interalia through: exchange of information/documents, seeking inputs on various agenda items before finalising country position, implementation of joint work programmes in a decentralised manner etc.

Article 6 General measures for conservation and sustainable use

18. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

19. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

20. What is the status of your national biodiversity strategy (6a)?	
a) none	
b) early stages of development	
c) advanced stages of development	➢
d) completed1	
e) completed and adopted2	
f) reports on implementation available	
21. What is the status of your national biodiversity action plan (6a)?	
a) none	
b) early stages of development	
c) advanced stages of development	➢
d) completed2	
e) completed and adopted2	
f) reports on implementation available	
22. Do your national strategies and action plans cover all articles of the Convention (6a)?	
a) some articles only	
b) most articles	➢
c) all articles	

1/ Please provide information requested at the end of these guidelines.

23. Do your national strategies and action plans cover integration of other sectoral activities (6b)?	
a) no	
b) some sectors	
c) all major sectors	➢
d) all sectors	

Decision II/7 and Decision III/9 Consideration of Articles 6 and 8

24. Is action being taken to exchange information and share experience on the national action planning process with other Contracting Parties?	
a) little or no action	
b) sharing of strategies, plans and/or case-studies	➢
c) regional meetings	
25. Do all of your country's strategies and action plans include an international cooperation component?	
a) no	
b) yes	➢
26. Are your country's strategies and action plans coordinated with those of neighbouring countries?	
a) no	➢
b) bilateral/multilateral discussions under way	
c) coordinated in some areas/themes	
d) fully coordinated	
e) not applicable	
27. Has your country set measurable targets within its strategies and action plans?	
a) no	
b) early stages of development	➢
c) advanced stages of development	
d) programme in place	
e) reports on implementation available	
If a developing country Party or a Party with economy in transition - 28. Has your country received support from the financial mechanism for the preparation of its national strategy and action plan?	
a) no	
b) yes	➢
If yes, which was the Implementing Agency (UNDP/UNEP/World Bank)?	UNDP

Decisions III/21. Relationship of the Convention with the CSD and biodiversity-related conventions

29. Are the national focal points for the CBD and the competent authorities of the Ramsar Convention, Bonn Convention and CITES cooperating in the implementation of these conventions to avoid duplication?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢

Further comments on implementation of this Article

Implementation of Article 6

Conservation and sustainable use of biological resources based on local knowledge systems and practices is ingrained in Indian ethos and way of life. Applications and practices for use of biodiversity in the country have developed over the years in a traditional scientific process.

Article 48-A and Article 51-A(G) of the Directive Principles of State Policy in the Constitution of India state that 'the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife in the country', and 'to protect and improve the national environment including forests, lakes, rivers and wildlife, and to have compassion for the living creatures'. A focussed articulation of these concerns in programmes and policies began to be seen in the wake of 1972 Stockholm Conference which got further sharpened after 1992 Rio Conference. Between the Stockholm Conference and the Rio Summit, India has been able to develop a stable organisational structure for environment protection in the country. Legislation, policies and programmes were evolved during this period which were geared towards this objective. Numerous and wide ranging policies, programmes and projects were initiated which directly or indirectly serve to protect, conserve and sustainably use the country's biological resources.

India's strategies for conservation and sustainable utilisation of biodiversity in the past have comprised providing special status and protection to biodiversity – rich areas by declaring them as National Parks, Wildlife Sanctuaries, Biosphere Reserves, ecologically fragile and sensitive areas, offloading pressure from reserve forests by alternative measures of fuelwood and fodder need satisfaction, by afforestation of degraded areas and wastelands, creation of ex-situ conservation facilities such as gene banks etc.

These programmes and projects are briefly described below.

1**. Existing legal and policy regime**

Formal policies and programmes for conservation and sustainable utilisation of biodiversity resources date back to several decades. The concept of environmental protection is enshrined in the Indian constitution in Articles 48a and 51a(g).

Major central acts relevant to biodivesity are:

- Indian Forest Act, 1927
- Wildlife (Protection) Act, 1972
- Forest (Conservation) Act, 1980
- Environment (Protection) Act, 1986

The various central acts are supported by a number of State laws and statutes concerning forests and other natural resources.

Policies, strategies, and action plans directly relevant to biodiversity include:

- National Forest Policy amended in 1988
- National Conservation Strategy and Policy Statement for Environment and Sustainable Development
- National Agricultural Policy

- National Land Use Policy
- National Fisheries Policy
- National Policy and Macrolevel Action Strategy on Biodiversity
- National Wildlife Action Plan
- Environmental Action Plan
- National Forestry Action Programme

2.Surveys

Survey and inventorisation of the floral and faunal resources are carried out by the Botanical Survey of India (BSI) established in 1890, and the Zoological Survey of India (ZSI) established in 1916. The Forest Survey of India established in 1981 assesses the forest cover, with a view to develop an accurate database for planning and monitoring purposes. The Wildlife Institute of India undertakes studies of endangered species of animals and critical ecosystems.

3**.In situ conservation**

Approximately 4.3% of the total geographical area of the country has been earmarked for extensive in situ conservation of habitats and ecosystems. A protected area network of 89 National Parks and 496 Wildlife Sanctuaries has been created. The results of this network have been significant in restoring viable population of large mammals such as tiger, lion, rhinoceros, crocodiles, elephants etc.

To conserve the representative ecosystems, a Biosphere Reserve Programme is being implemented. Twelve biodiversity rich areas of the country have been designated as Biosphere Reserves applying the UNESCO/MAB criteria. These reserves aim at conserving the biological diversity and genetic integrity of plants, animals and microorganisms in their totality as part of the natural ecosystems, so as to ensure their self-perpetuation and unhindered evolution of the living resources.

Programmes have also been launched for scientific management and wise use of wetlands, mangroves, and coral reef ecosystems. Twenty one wetlands, 21 mangrove areas and four coral reef areas have been identified for intensive conservation and management purposes. The various activities under these programmes include protection, catchment area treatment, pollution control, weed control, wildlife conservation, sustainable fisheries development, environmental education and peoples' participation. National and sub-national level committees oversee and guide these programmes to ensure strong policy and strategic support. Mangroves conservation has been identified as one of the thrust areas of the Ministry of Environment and Forests

To focus attention on urban wetlands threatened by pollution and other anthropogenic activities, State Governments were requested to identify lakes that could be included in the National Lake Conservation Plan (NLCP). The activities of the NLCP include formulation of perspective plans for conservation based on resource survey using remote sensing technology and GIS, studies on biodiversity and related ecological matters, prevention of pollution from point and non-point sources, treatment of catchmen areast, desilting and weed control.

The Project Tiger, launched in 1973 has succeeded in stabilising and increasing the tiger population in the country. Presently there are 25 Tiger Reserves spread over 14 states and covering an area of about 33,875 sq. kms.

Project Elephant, launched in 1991-92 aims at ensuring long-term survival of viable population of elephants by restoring their lost and degraded habitats, mitigating man-elephant conflicts and establishment of a database on the migration and population dynamics of elephants. It integrates the concerns of improving the quality of life of people living around elephant habitats while maintaining viable population of elephants. Eleven elephant reserves have been identified for intensive management.

Rhinos have been given special attention in selected sanctuaries and national parks in the North East and North West India. All these programmes, though focussed on a single species, have a wider impact as they conserve habitats and a variety of other species in those habitats.

The Tura Range in Garo Hills of Meghalaya is a gene sanctuary for preserving the rich native diversity of wild Citrus and Musa species. Sanctuaries for rhododendrons and orchids have been established in Sikkim.

The Ministry of Environment and Forests constituted the National Afforestation and Eco-development Board (NAEB) in August 1992. NAEB has evolved specific schemes for promoting afforestation and management

strategies, which help the states in developing specific afforestation and management strategies and eco-development packages for augmenting biomass production through a participatory planning process of Joint Forest Management and microplanning.

4. Ex-situ conservation

To complement in situ conservation, attention has been paid to ex-situ conservation measures. According to currently available survey, Central Government and State Governments together run and manage 33 Botanical Gardens. Universities have their own botanic gardens. There are 275 zoos, deer parks, safari parks, aquaria etc. A Central Zoo Authority was set up to secure better management of zoos. A scheme entitled Assistance to Botanic Gardens provides one-time assistance to botanic gardens to strengthen and institute measures for ex-situ conservation of threatened and endangered species in their respective regions.

5. National Biodiversity Strategy and Action Plan

India has prepared a National Policy and Macrolevel Action Strategy on Biodiversity through an extensive consultative process. This document is a macro level statement of policies, gaps and further actions needed for conservation and sustainable use of biological diversity. For preparing detailed microlevel action plans at state and regional levels based on this framework document, India has accessed funding from the Global Environment Facility (GEF) for preparing a National Biodiversity Strategy and Action Plan (NBSAP).

The NBSAP project envisages assessment and stocktaking of biodiversity-related information at state level including distribution of endemic and endangered species and site specific threats and pressures. Key features of this project include an emphasis on decentralised state level planning, and the use of interdisciplinary working groups to involve all sectors concerned with biodiversity conservation.

The expected outcome of the NBSAP project is an implementable and a realistic and practicable action plan, which can be easily translated into a number of projects at the ground level in areas of priority that would contribute significantly towards conservation and sustainable use of biodiversity in the country.

For implementation of the NBSAP project, a consortium arrangement between a private company, Biotech Consortium India Ltd. (BCIL) and an NGO, Kalpavriksh has been worked out. While BCIL acts as the Coordinating Agency to deal with administrative financial and logistic arrangements, Kalpavriksh is the Coordinator of a Technical and Policy Core Group (TPCG) which is responsible for technical execution of the project.

NBSAP is India`s biggest planning and development process aiming at conservation and sustainable use of Biological Diversity. A decentralized approach has been adopted for developing the NBSAP. Under NBSAP, about 20 local micro-planning process at village to district levels, 33 State and Union Territory level processes, 10 planning exercises at ecological regions cutting across States, are engaged in collecting a variety of area specific information and perspectives. In addition, national working groups are preparing action plans on 14 themes. About 75 Executing Agencies at various levels across the length and bredth of the country are involved in the preparation of NBSAP. Each of these processes involves a variety of actors, from farmers and fisher folk and adivasis to scientists and academicians, governmental and non-governmental organizations, artists, corporate sector etc. Public hearings, workshops, festivals and exhibitions, media write-ups, advertisements are being used for attracting maximum public participation. A call for participation printed in 16 Indian languages is also being distributed to public. The entire exercise is supposed to be completed by mid 2002.

Article 7 Identification and monitoring

30. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

31. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting		d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

32. Does your country have an ongoing inventory programme at species level (7a)?	
a) minimal activity	
b) for key groups (such as threatened or endemic species) or indicators	
c) for a range of major groups	
d) for a comprehensive range of species	➢
33. Does your country have an ongoing inventory programme at ecosystem level (7a)?	
a) minimal activity	
b) for ecosystems of particular interest only	
c) for major ecosystems	➢
d) for a comprehensive range of ecosystems	
34. Does your country have an ongoing inventory programme at genetic level (7a)?	
a) minimal activity	
b) minor programme in some sectors	➢
c) major programme in some sectors	
d) major programme in all relevant sectors	
35. Does your country have ongoing monitoring programmes at species level (7a)?	
a) minimal activity	
b) for key groups (such as threatened or endemic species) or indicators	
c) for a range of major groups	
d) for a comprehensive range of species	➢

36. Does your country have ongoing monitoring programmes at ecosystem level (7b)?	
a) minimal activity	➢
b) for ecosystems of particular interest only	
c) for major ecosystems	
d) for a comprehensive range of ecosystems	
37. Does your country have ongoing monitoring programmes at genetic level (7b)?	
a) minimal activity	➢
b) minor programme in some sectors	
c) major programme in some sectors	
d) major programme in all relevant sectors	
38. Has your country identified activities with adverse affects on biodiversity (7c)?	
a) limited understanding	
b) threats well known in some areas, not in others	
c) most threats known, some gaps in knowledge	➢
d) comprehensive understanding	
e) reports available	
39. Is your country monitoring these activities and their effects (7c)?	
a) no	
b) early stages of programme development	
c) advanced stages of programme development	➢
d) programme in place	
e) reports on implementation available	
40. Does your country coordinate information collection and management at the national level (7d)?	
a) no	
b) early stages of programme development	
c) advanced stages of programme development	
d) programme in place	➢
e) reports on implementation available	

Decision III/10 Identification, monitoring and assessment

41. Has your country identified national indicators of biodiversity?	
a) no	
b) assessment of potential indicators underway	➢
c) indicators identified (if so, please describe below)	

42. Is your country using rapid assessment and remote sensing techniques?	
a) no	
b) assessing opportunities	
c) yes, to a limited extent	
d) yes, to a major extent	➢
e) reports on implementation available	
43. Has your country adopted a “step-by-step” approach to implementing Article 7 with initial emphasis on identification of biodiversity components (7a) and activities having adverse effects on them (7c)?	
a) no	
b) not appropriate to national circumstances	
c) yes	➢
44. Is your country cooperating with other Contracting Parties on pilot projects to demonstrate the use of assessment and indicator methodologies?	
a) no	
b) yes	➢
45. Has your country prepared any reports of experience with application of assessment methodologies and made these available to other Contracting Parties?	
a) no	➢
b) yes	
46. Is your country seeking to make taxonomic information held in its collections more widely available?	
a) no relevant collections	
b) no action	
c) yes	➢

Decision V/7. Identification, monitoring and assessment, and indicators

47. Is your country actively involved in co-operating with other countries in your region in the field of indicators, monitoring and assessment?	
a) no	➢
b) limited co-operation	
c) extensive co-operation on some issues	
d) extensive co-operation on a wide range of issues	
48. Has your country made available case studies concerning the development and implementation of assessment, monitoring and indicator programmes?	
a) no	➢
b) yes - sent to the Secretariat	
c) yes – through the national CHM	
d) yes – other means (please specify)	

49. Is your country assisting other Parties to increase their capacity to develop indicator and monitoring programmes?	
a) no	
b) providing training	➢
c) providing direct support	
d) sharing experience	
e) other (please describe)	

Decisions on Taxonomy

Decision IV/1 Report and recommendations of the third meeting of SBSTTA [part]

50. Has your country carried out a national taxonomic needs assessment, and/or held workshops to determine national taxonomic priorities?	
a) no	
b) early stages of assessment	
c) advanced stages of assessment	
d) assessment completed	➢
51. Has your country developed a national taxonomic action plan?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) action plan in place	➢
e) reports on implementation available	
52. Is your country making available appropriate resources to enhance the availability of taxonomic information?	
a) no	
b) yes, but this does not cover all known needs adequately	➢
c) yes, covering all known needs	
53. Is your country encouraging bilateral and multilateral training and employment opportunities for taxonomists, particularly those dealing with poorly known organisms?	
a) no	
b) some opportunities	➢
c) significant opportunities	
54. Is your country investing on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections?	
a) no	
b) some investment	➢
c) significant investment	

55. Is your country encouraging partnerships between taxonomic institutions in developed and developing countries?	
a) no	
b) yes – stated policy	➢
c) yes – systematic national programme	
56. Has your country adopted any international agreed levels of collection housing?	
a) no	
b) under review	
c) being implemented by some collections	➢
d) being implemented by all major collections	

57. Has your country provided training programmes in taxonomy?	
a) no	
b) some	
c) many	➢
58. Has your country reported on measures adopted to strengthen national capacity in taxonomy, to designate national reference centres, and to make information housed in collections available to countries of origin?	
a) no	
b) yes – in the previous national report	➢
c) yes – via the clearing-house mechanism	
d) yes - other means (please give details below)	➢
59. Has your country taken steps to ensure that institutions responsible for biological diversity inventories and taxonomic activities are financially and administratively stable?	
a) no	
b) under review	
c) yes for some institutions	
d) yes for all major institutions	➢
60. Has your country assisted taxonomic institutions to establish consortia to conduct regional projects?	
a) no	
b) under review	
c) yes – limited extent	➢
d) yes – significant extent	

61. Has your country given special attention to international funding of fellowships for specialist training abroad or for attracting international experts to national or regional courses?	
a) no	
b) under review	
c) yes – limited extent	➢
c) yes – significant extent	
62. Has your country provided programmes for re-training of qualified professionals moving into taxonomy-related fields?	
a) no	
b) some	
c) many	➢

Decision V/9. Global Taxonomy Initiative: Implementation and further advance of the Suggestions for Action

63. Has your country identified its information requirements in the area of taxonomy, and assessed its national capacity to meet these requirements?	
a) no	
b) basic assessment	➢
c) thorough assessment	
64. Has your country established or consolidated taxonomic reference centres?	
a) no	
b) yes	➢
65. Has your country worked to increase its capacity in the area of taxonomic research?	
a) no	
b) yes	➢
66. Has your country communicated information on programmes, projects and initiatives for consideration as pilot projects under the Global Taxonomy Initiative to the Executive Secretary?	
a) no	
b) yes	➢
67. Has your country designated a national Global Taxonomy Initiative focal point linked to other national focal points?	
a) no	
b) yes	➢
68. Has your country participated in the development of regional networks to facilitate information-sharing for the Global Taxonomy Initiative?	
a) no	
b) yes	➢

If a developing country Party or Party with economy in transition -	
69. Has your country sought resources through the financial mechanism for the priority actions identified in the decision?	
a) no	➢
b) applied for unsuccessfully	
c) applied for successfully	

Further comments on implementation of these decisions

1. <u>Survey and Inventorisation</u>

The Botanical Survey of India (BSI)and the Zoological Survey of India (ZSI)are responsible for the survey and inventorisation of flora and fauna of the country.

The Survey organisations have published over the years, documents on flora and fauna at national , state and in some cases district levels and for selected ecosystems. Besides, extensive reports on inventories of resources indicating level of biodiversity in selected areas have also been brought out. The Surveys have also published Red Data Books on endangered species. The voucher specimens are preserved in Central National Herbarium (CNH) of BSI and National Zoological Collection (NZC) of ZSI.

The Forest Survey of India publishes every three years, a State of Forest in India report based on remote sensing and ground truth data.

2.Survey organisations

Botanical Survey of India

The Botanical Survey of India (BSI) has its headquarters in Kolkata and circle/field offices at nine places in the country. The primary and secondary objectives of the BSI given below:

Primary objectives

-Exploration and inventorisation of phytodiversity in general and protected areas, hotspots, fragile ecosystems, sacred groves etc. in particular.

-Documentation of phytodiversity in the form of National, State and District Flora; the flora of protected areas, hotspots, fragile ecosystems, sacred groves etc.

-Monitoring of phytodiversity to evaluate the qualitative as well quantitative changes in the biodiversity.

-Identification of threatened species including endemics, their mapping, population studies and identification of ecosystems needing conservation.

-Ex-situ conservation of critically threatened taxa in the Botanical Gardens through conventional and biotechnology methods.

Bioperspective survey of plant resources of the country to identify economically as well as ethnobotanically important species for their conservation and sustainable utilisation.

-To prepare National Database on the above, including herbarium collections (incl. Types), live collections, plant distribution etc.

Secondary objectives

-Environmental Impact Assessment studies as may be specifically called for.

-Pharmacological studies on medicinal plants used by tribals.

Phytochemical, palynological and cytological studies to provide additional tours to determine systematic position

and taxonomic status of closely related taxa.

-To collect and preserve plants and plant products, variously used by the people in the form of museum exhibits for general awareness amongst the masses.

-Human resource development and education in the methodology of study of phytodiversity.

-To organise environmental awareness programmes regarding role of plants in environmental protection and pollution amelioration.

The nine field stations of BSI are:

(1) The Eastern Regional Circle, Shillong

(2) The Northern Regional Circle, Dehradun

(3) The Southern Regional Circle, Coimbatore

(4) The Western Regional Circle, Pune

(5) The Central Regional Circle, Allahabad

(6) The Andaman and Nicobar Circle, Port Blair

(7) The Arid Zone Circle, Jodhpur

(8) The Sikkim Himalayan Circle, Gangtok

(9) The Arunachal Field Station, New Itanagar

The status of work done by BSI so far includes:

(1)Converage of 70% of territory of India by field surveys.

(2)Preservation of 23,89,000 specimens collected.

(3)Publication of 7 volumes of the Flora of India, 9 volumes of the State Flora and 48 volumes of district flora.

(4)Identification of 620 species of endangered plants in 3 volumes of Red Data Book. Work has also been nearly completed on 2 more volumes of Red Data Book containing about 200 species each.

So far, 47,000 species of flowering and non-flowering plants representing about 12% of the recorded world's flora have already been identified. Comparative statement of recorded number of plant species in India and the world is given below:

Comparative statement of recorded number of plant species in India and the world

Taxa	**Species**		**Percentage of India to**
	India	**World**	
Bacteria	850	4,000	21.25
Viruses	Unknown	4,000	-
Algae	6,500	40,000	16.25
Fungi	14,500	72,000	20.14
Lichens	2,000	17,000	11.80
Bryophyta	2,850	16,000	17.80

Bryophyta	2,850	16,000	17.80
Pteridophyta	1,100	13,000	8.46
Gymnosperms	17,500	250,000	7.00

Zoological Survey of India

The Zoological Survey of India (ZSI) has its headquarters in Kolkata and 16 field stations in other places. The primary and secondary objectives of ZSI are given below:

Primary objectives

a)Exploration and survey of faunal resources

b)Taxonomic studies

c)Status survey of endangered species

d)Publication of Results through Departmental Journals

e)Publication of Fauna of India

f)Maintenance and development of National Zoological Collections.

g)Central Referral, Information, Advisory and Library Services.

Secondary objectives

a)Maintenance of museums at headquarters and regional stations.

b)Environmental impact studies wherever specifically asked for.

The sixteen regional/field stations of ZSI are:

1)Eastern Regional Station, Shillong (Meghalaya)

2) Western Regional Station, Pune (Maharashtra)

3)Northern Regional Station, Dehradun (Uttar Pradesh)

4)Southern Regional Station, Madras (Tamil Nadu)

5)Central Regional Station, Jabalpur (Madhya Pradesh)

6)Desert Regional Station, Jodhpur (Rajasthan)

7)Gangetic Plains Regional Station, Patna (Bihar)

8)High Altitude Zoology Field Station, Solan (Himachal Pradesh)

9)Marine Biological Station, Madras (Tamil Nadu)

10)Andaman & Nicobar Regional Station, Port Blair (Andaman & Nicobar Islands).

11)Freshwater Biological Station, Hyderabad (Andhra Pradesh).

12)Sunderban Field Research Station, Cunning (West Bengal)

13)Estuarine Biological Station, Berhampur (Orissa)

14)Western Ghats Field Research Station, Kozhikode (Kerala)

15)Arunachal Pradesh Field Station, Itanagar (Arunachal Pradesh)

16)marine Aquarium-cum-Research Centre, Digha (West Bengal).

The status of the work done so far by ZSI includes:

1)Coverage of 70% (average) of the territory of India by field surveys.

2)Publication of 32 volumes of Fauna of India and 24 volumes of Fauna of various states and

3)Identification of 173 species of mammals and other species of animals under various degrees of threat in one volume of Red Data Book.

A total of 89,451 animal species have been recorded in India which represents 7.28% of the faunal species recorded in the world. A comparative statement of recorded number of animal species in India and the world is given below:

Comparative statement of recorded number of animal species in India and the world

Taxa	**Species**		**Percentage of India to the world**
	India	**World**	
Protista	2,577	31,259	8.24
Mollusca	5,070	66,535	7.62
Arthropoda	68,389	9,87,949	6.90
(Insecta, Crustacea etc.)			
Other invertebrates	8,329	87,121	9.56
Protochordata	119	2,106	5.65
Pisces	2,546	21,723	11.72
Amphibia	209	5,150	4.06
Reptilia	456	5,817	7.84
Aves	1,232	9,026	13.66
Mammalia	390	4,629	8.42

3.*Capacity Building in Taxonomy*

Taxonomy is the science of identification, classification and naming of organisms. Taxonomic work involves study of morphological characteristics and phylogenetic relationship of organisms which is essential for applied biological sciences including medicine, agriculture, forestry and fisheries. A sound taxonomic knowledge base is a prerequisite for environmental assessment; ecological research, effective conservation, management and sustainable use of biological resources. At this crucial juncture, when the need for a taxonomic stocktaking of the earth's biodiversity is becoming increasingly important and urgent, the taxonomic expertise is aging and declining in number, both nationally and globally. This decline of taxonomic expertise is a critical problem that needs to be addressed urgently. Current requirements of taxonomic work and available expertise and studies indicate a dire need to encourage excellence and motivate experts to do work in hitherto neglected groups of organisms e.g., microbes, lower groups of plants, animals etc. The challenges is quite serious because while on the one hand the existing expertise is aging and retiring, on the other not many young scholars are opting for studies in taxonomy. A comparison of number of species described and estimated in the world and in India in some major taxonomic groups and the number of available taxonomists in the country is given below:

Comparison of number of species described & estimated in the world and in India in some major taxonomic groups and the number of available taxonomists in India

Group	No. of species described so far		No. of species guess-estimates only		*No. of available taxonomists*	
	World	India	World	India	BSI/ZSI	Elsewhere
Plants						
Bacteria	4,000	850	4,00,000	85,000	Nil	15
Fungi	70,000	23,000	10,00,000	3,29,000	1	19
Algae	40,000	2,500	2,00,000	13,000	4	15
Seed Plants	2,50,000	16,873	3,00,000	20,000	90	40
Animals						
Insects	9,50,000	60,383	80,00,000	5,08,500	35	50
Molluscs	70,000	5,050	2,00,000	14,500	6	2
Vertebrates	45,000	4,800	50,000	5,500	28	48

It is evident from the above that taxonomic expertise is not evenly distributed for the various taxonomic groups. The distribution is skewed with very low or nil expertise in certain groups. Further the availability of experts is inversely proportional to the guess estimate number of species. For example, in fungi and bacteria, number of guess estimated species are about 85,000 and 3,29,000 respectively. The taxonomic experts available in these areas are 15 and 20 respectively. On the other hand the guess estimated number of species in angiosperms are only 20,000 but the experts available are 130.

In this background, the Ministry of Environment and Forests, Government of India organised a two-day National Workshop at Jaipur in February 1997. This workshop was attended by the top taxonomic experts of the country. The meeting identified the critical gap areas in which taxonomic expertise in the country was either nil or fast dwindling. One of the recommendations of the workshop was to develop an All India Coordinated Project for Capacity Building in Taxonomy. Thereafter, the Ministry set up a Technical Group to develop the All India project and after interministerial consultations, the project was approved.

The project envisages establishment of centres for research in identified priority gap areas (e.g., virus, bacteria, microlepidoptera, etc.) in the field of taxonomy, education and training (fellowships, scholarships, chairs, career awards etc.) and strengthening of BSI and ZSI as the coordinating units. The modalities of implementing the All India Project, and prioritising activities under the project have been decided after detailed consultations with experts.

The Ministry has launched the All India Coordinated Project on Capacity Building in Taxonomy (AICOPTAX) in the financial year 1999-2000. So far, 11 centres for research and two centres for training have been established. These are:

1. Animal viruses
2. Bacteria & Archaea
3. Fungi
4. Lichens & Bryophytes
5. Palms
6. Grasses and bamboos
7. Helminthes & Nematodes

8. Microlepidoptera
9. Mollusca
10. Pteridophytes & Gymnosperms
11. Orchids
12. Training in plant biosystematics
13. Training in animal biosystematics.

For each centre, an experienced taxonomic expert has been identified as the Coordinator who in turn has identified 4-5 collaborators across the country. The Coordinators of the Centres together with the Collaborators are required to undertake the following activities through training of two Research Scholars each:

- survey, collection, identification and preservation
- maintain collections and taxonomic databanks
- develop identification manuals
- train college teachers and students and local communities in parataxonomy.

Financial assistance is provided to each of these centres for undertaking these activities. Thus each research centre is engaged in training 10 to 12 research scholars. In addition the training centres are imparting training in biosystematics through the use of latest technologies. The project is initially for a period 5 years.

A high level Steering Committee headed by taxonomist has been constituted to oversee the implementation of the project.

4. Use of remote sensing

India has a well developed remote sensing applications programme. Mapping of forest ecosystems and biodiversity is one of the thrust areas of remote sensing applications. State-of-art technology has been developed for mapping of forest ecosystems including their density and vigour. For mapping of biodiversity, methodologies have been developed at the landscape level. The technology has been widely disseminated and transferred to many user agencies. Remote sensing techniques are being used routinely for monitoring of natural resources in the country.

The Forest Survey of India prepares a comprehensive State of Forest Report including national forest vegetation map once in every two years and also prepares thematic maps once in ten years using remote sensing data. The forest cover maps and thematic maps are prepared on a scale of 1:50,000.

In addition, remote sensing and GIS data is also being used for change detection, delineating forest fires, habitat management, mapping of wetlands, mangroves and coral reefs etc.

Article 8 In situ conservation [excluding Articles 8h and 8j]

70. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

71. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

72. Has your country established a system of protected areas which aims to conserve biological diversity (8a)?	
a) system under development	
b) national review of protected areas coverage available	
c) national protected area systems plan in place	
d) relatively complete system in place	➢
73. Are there nationally adopted guidelines for the selection, establishment and management of protected areas (8b)?	
a) no	
b) no, under development	
c) yes	➢
d) yes, undergoing review and extension	
74. Does your country regulate or manage biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use (8c)?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) programme or policy in place	➢
e) reports on implementation available	

75. Has your country undertaken measures that promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings (8d)?	
a) no measures	
b) some measures in place	
c) potential measures under review	
d) reasonably comprehensive measures in place	➢
76. Has your country undertaken measures that promote environmentally sound and sustainable development in areas adjacent to protected areas (8e)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) reasonably comprehensive measures in place	
77. Has your country undertaken measures to rehabilitate and restore degraded ecosystems (8f)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
78. Has your country undertaken measures to promote the recovery of threatened species (8f)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
79. Has your country undertaken measures to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology (8g)?	
a) no measures	
b) some measures in place	
c) potential measures under review	
d) comprehensive measures in place	➢
80. Has your country made attempts to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components (8i)?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) programme or policy in place	➢
e) reports on implementation available	

81. Has your country developed and maintained the necessary legislation and/or other regulatory provisions for the protection of threatened species and populations (8k)?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) legislation or other measures in place	➢
82. Does your country regulate or manage processes and categories of activities identified under Article 7 as having significant adverse effects on biological diversity (8l)?	
a) no	
b) under review	
c) yes, to a limited extent	➢
d) yes, to a significant extent	
If a developed country Party - 83. Does your country cooperate in providing financial and other support for *in- situ* conservation particularly to developing countries (8m)? ***If a developing country Party or Party with economy in transition -*** 84. Does your country receive financial and other support for *in situ* conservation (8m)?	
a) no	➢
b) yes (if so, please give details below)	

Decision II/7 Consideration of Articles 6 and 8 of the Convention

85. Is action being taken to share information and experience on implementation of this Article with other Contracting Parties?	
a) little or no action	
b) sharing of written materials and/or case-studies	➢
c) regional meetings	

Further comments on implementation of this Article

In situ Conservation

Institutional management of biodiversity in situ started with the establishment of the first National Park in the country, the Hailey NP (now Corbett NP) in 1935. Following this, more than 500 Protected Areas were set up representing a wide range of ecosystems. The Wildlife Institute of India proposed a biogeographic classification system recognising ten zones divided into 25 provinces in which over 300 landforms were identified. The existing network of PAs was evaluated for its representativeness vis-à-vis the classification system. Sites were identified to fill the gaps and the suggested network recommended 148 National Parks and 503 Sanctuaries covering 151,000 sq. kms. Which is about 4.3% of the country's total geographic area. These suggestions have found extensive support and already 4.3% of the total geographical area (excluding the open seas) has been brought under the system of Protected Areas (PAs). Currently there are 89 National Parks and 496 Wildlife Snactuaries covering 1.83 lakhs sq. kms. in the major biogeographic zones of India.

The results of this network have been significant in restoring viable populations of large mammals such as tiger, lion, rhinoceros, crocodiles, elephants etc.

The Indian Council of Forestry Research and Education (ICFRE) has identified 309 forest preservation plots of representative forest types for conservation of biodiversity. 187 of these plots are in natural forests and 112 in plantations, covering a total area of 8,500 hectares.

A programme called "Ecodevelopment" for in situ conservation of biological diversity involving local communities has been initiated in recent years. The concept of ecodevelopment integrates the ecological and economic parameters for sustained conservation of ecosystems by involving the local communities with the maintenance of earmarked regions surrounding protected areas. The economic needs of the local communities are taken care of under this programme through provision of alternative sources of income and a steady availability of forest and related produce.

Institutional efforts at in situ conservation of endangered animals were initiated in the country more than 25 years ago with the launching of Project Tiger. An All India Tiger census conducted in 1972 revealed that there were only 1,827 tigers in the country as against an estimated 40,000 at the turn of the century. Taking this as an indication of the deteriorating health of India's wilderness, the Government of India launched the Project Tiger in 1973 with the support of WWF-International. Twenty seven PAs in the country have been designated as Tiger Reserves covering an area of 37,761 sq. km. and spread over 14 States. The tiger has not been the only beneficiary – a number of other endangered species such as the swamp deer, elephant, rhino and wild buffalo have received protection through Project Tiger. This programme has thus had a direct impact on conservation of biodiversity.

India holds the largest number of Asian elephants with 20,000 – 24,000 in the wild and nearly 3,000 in captivity. The status of the elephant in India was officially recognised in 1990 by the Government of India when MoEF set up a task force to prepare the baseline document for a conservation project on the species. The task force identified several elephant reserves throughout the country in addition to providing the basic guidelines for management. Project Elephant covering all the elephant states in the country was formally launched in 1992 based on these recommendations. The main activities of Project Elephant are:

-Ecological restoration of existing natural habitats and migratory routes of elephants.

-Development of scientific and planned management for conservation of elephant habitats and viable population of wild Asiatic elephant in India.

-Promotion of measures for mitigation of man-elephant conflict in crucial habitats and moderating pressures of human and domestic stock activities in crucial elephant habitats.

-Strengthening of measures for protection of wild elephants from poachers and unnatural causes of death.

-Research on Project Elephant management related issues.

-Public education and awareness programme.

-Eco-development.

-Veterinary care.

Other special conservation programmes have also been initiated, and these include the Indian Rhino, Lion, certain primates, and aquatic mammals especially river dolphins.

In situ conservation of selected species of birds and reptiles have been fortified through captive breeding programmes. The Government of India started the crocodile breeding and management project in 1976 to save the three endangered crocodilian species namely the fresh water crocodile, salt water crocodile and the rare *gharial*. The project surveyed the crocodile habitats and facilitated their protection through declaration of sanctuaries and national parks. Captive breeding and reintroduction or restocking programmes involved the careful collection of eggs from the wild. Thousands of crocodiles of the three species have been reared at 16 centres and several of these have been released in the wild. Eleven sanctuaries have been declared specially for crocodile protection including the National Chambal Sanctuary in Madhya Pradesh, one of the largest in India.

To conserve the representative ecosystems, a Biosphere Reserve Programme is being implemented. Twelve biodiversity rich areas of the country have been designated as Biosphere Reserves applying the UNESCO/MAB criteria. These reserves aim at conserving the biological diversity and genetic integrity of plants, animals and microorganisms in their totality as part of the natural ecosystems, so as to ensure their self-perpetuation and unhindered evolution of the living resources.

Programmes have also been launched for scientific management and wise use of fragile ecosystems. Specific programmes for management and conservation of wetlands, mangroves and coral reefs systems are also being implemented. National and sub-national level committees have been set up to oversee and guide these programmes to ensure strong policy and strategic support.

Six internationally significant wetlands of India have been declared as “Ramsar Sites” under the Ramsar Convention. Additionally, eleven wetlands of national importance have been identified for intensive conservation and management. The number can be enlarged based on need assessment.

Under the World Heritage Convention, five natural sites have been declared as “World Heritage Sites”.

The Tura Range in Garo Hills of Meghalaya is a gene sanctuary for preserving the rich native diversity of wild Citrus and Musa species. Sanctuaries for rhododendrons and orchids have been established in Sikkim.

Several non-government organisations in the country are engaged in specific areas or target species based in situ conservation measures through external or national assistance or through a combination of assistance from both. An example is in situ conservation for medicinal plants by Foundation for Revitalisation of Local Health Traditions (FRLHT) in the southern states of the country. In addition, a large number of State Government organisations are engaged in developing strategies and undertaking in-situ conservation. Network of medicinal plants conservation areas has been established in Kerala, Tamil Nadu and Karnataka by the Forest Departments in collaboration with FRLHT. This experiment has been extended to Andhra Pradesh and Maharashtra. Similar network is proposed for other States, including Madhya Pradesh.

The complementary nature of in situ and ex situ conservation methodologies have become clear in recent years leading to advocacy of a holistic approach, combining these two technologies in suitable proportions that suit best in specific situations, and also to the needs of species or species groups under attention. Whereas in situ methods provide for continuity of evolutionary process (creating of new variability and new species) and sustainable use of

biodiversity, the ex-situ techniques provide better safety under controlled conditions and easy access to and also more efficient use of collected genetic variability. However, the main drawbacks of ex situ techniques are the cutting off of the evolutionary process in collected accessions, possible genetic erosion during rejuvenation/ multiplication and the results of system-failures.

On-farm conservation of agrobiodiversity is an important step in the integrated approach to conservation of genetic resources. Traditionally, farmers have conserved a variety of crops and landraces in their farms and home gardens. Recognising the need to strengthen the conservation traditions of farming communities, a number of steps have been taken by the NGO and Governmental sectors.

Article 8h Alien species

86. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	➢	c) Low	

87. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

88. Has your country identified alien species introduced?	
a) no	
b) only major species of concern	➢
c) only new or recent introductions	
d) a comprehensive system tracks new introductions	
e) a comprehensive system tracks all known introductions	
89. Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?	
a) no	
b) only some alien species of concern have been assessed	➢
c) most alien species have been assessed	
90. Has your country undertaken measures to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	

Decision IV/1 Report and recommendations of the third meeting of SBSTTA

91. Is your country collaborating in the development of projects at national, regional, sub-regional and international levels to address the issue of alien species?	
a) little or no action	
b) discussion on potential projects under way	➢
c) active development of new projects	
92. Does your national strategy and action plan address the issue of alien species?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	

Decision V/8. Alien species that threaten ecosystems, habitats or species

93. Is your country applying the interim guiding principles for prevention, introduction and mitigation of impacts of alien species in the context of activities aimed at implementing article 8(h) of the Convention, and in the various sectors?	
a) no	
b) under consideration	
c) limited implementation in some sectors	➢
d) extensive implementation in some sectors	
e) extensive implementation in most sectors	
94. Has your country submitted case-studies to the Executive Secretary focusing on thematic assessments?	
a) no	➢
b) in preparation	
c) yes	
95. Has your country submitted written comments on the interim guiding principles to the Executive Secretary?	
a) no	
b) yes	➢
96. Has your country given priority to the development and implementation of alien invasive species strategies and action plans?	
a) no	
b) yes	➢
97. In dealing with the issue of invasive species, has your country developed or involved itself in mechanisms for international co-operation, including the exchange of best practices?	
a) no	
b) trans-boundary co-operation	
c) regional co-operation	
d) multilateral co-operation	➢

98. Is your country giving priority attention to geographically and evolutionarily isolated ecosystems in its work on alien invasive species?	
a) no	
b) yes	➢
99. Is your country using the ecosystem approach and precautionary and bio-geographical approaches as appropriate in its work on alien invasive species?	
a) no	
b) yes	➢
100. Has your country developed effective education, training and public-awareness measures concerning the issue of alien species?	
a) no	
b) some initiatives	➢
c) many initiatives	
101. Is your country making available the information which it holds on alien species through the CHM?	
a) no	
b) some information	
c) all available information	
d) information available through other channels	➢
102. Is your country providing support to enable the Global Invasive Species Programme to fulfil the tasks outlined in the decision and its annexes?	
a) no	➢
b) limited support	
c) substantial support	

Article 8j Traditional knowledge and related provisions

103. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	
104. To what extent are the resources available adequate for meeting the obligations and recommendations made?					
a) Good		b) Adequate		c) Limiting	*
d) Severely limiting					
Further comments on relative priority and on availability of resources					
No comments.					

105. Has your country undertaken measures to ensure that the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity are respected, preserved and maintained?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	➢
d) comprehensive measures in place	
106. Is your country working to encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices?	
a) no	
b) early stages of development	
c) advanced stages of development	➢
d) programme or policy in place	

Decision III/4 and Decision IV/9. Implementation of Article 8(j)

107. Has your country developed national legislation and corresponding strategies for the implementation of Article 8(j)?	
a) no	
b) early stages of development	➢
c) advanced stages of development	
d) legislation or other measures in place	

108. Has your country supplied information on the implementation of Article 8(j) to other Contracting Parties through media such as the national report?	
a) no	
b) yes - previous national report	➢
c) yes - CHM	
d) yes - other means (please give details below)	➢
109. Has your country submitted case-studies to the Executive Secretary on measures taken to develop and implement the Convention's provisions relating to indigenous and local communities?	
a) no	➢
b) yes	
110. Is your country participating in appropriate working groups and meetings?	
a) none	
b) some	
c) all	➢
111. Is your country facilitating the active participation of representatives of indigenous and local communities in these working groups and meetings?	
a) no	
b) yes	➢

Decision V/16. Article 8(j) and related provisions

112. Has your country reviewed the programme of work specified in the annex to the decision, and identified how to implement those tasks appropriate to national circumstances?	
a) no	
b) under review	➢
c) yes (please provide details)	
113. Is your country integrating such tasks into its ongoing programmes, taking into account the identified collaboration opportunities?	
a) no	
b) not appropriate to national circumstances	
c) yes – to a limited extent	➢
d) yes – to a significant extent	
114. Is your country taking full account of existing instruments, guidelines, codes and other relevant activities in the implementation of the programme of work?	
a) no	
b) not appropriate to national circumstances	
c) yes – to a limited extent	➢
d) yes – to a significant extent	

115. Has your country provided appropriate financial support for the implementation of the programme of work?	
a) no	
b) not appropriate to national circumstances	
c) yes – to a limited extent	➢
d) yes – to a significant extent	
116. Has your country fully incorporated women and women's organizations in the activities undertaken to implement the programme of work contained in the annex to the decision and other relevant activities under the Convention?	
a) no	
b) yes	➢
117. Has your country taken measures to facilitate the full and effective participation of indigenous and local communities in the implementation of the Convention?	
a) no	
b) not appropriate to national circumstances	
c) yes – to a limited extent	➢
d) yes – to a significant extent	
118. Has your country provided case studies on methods and approaches concerning the preservation and sharing of traditional knowledge, and the control of that information by indigenous and local communities?	
a) no	➢
b) not relevant	
c) yes – sent to the Secretariat	
d) yes – through the national CHM	
e) yes – available through other means (please specify)	
119. Does your country exchange information and share experiences regarding national legislation and other measures for the protection of the knowledge, innovations and practices of indigenous and local communities?	
a) no	
b) not relevant	
c) yes – through the CHM	
d) yes – with specific countries	
e) yes – available through other means (please specify)	➢
120. Has your country taken measures to promote the conservation and maintenance of knowledge, innovations, and practices of indigenous and local communities?	
a) no	
b) not relevant	
c) some measures	➢
d) extensive measures	

121. Has your country supported the development of registers of traditional knowledge, innovations and practices of indigenous and local communities, in collaboration with these communities?	
a) no	
b) not relevant	
c) development in progress	➢
d) register fully developed	
122. Have representatives of indigenous and local community organizations participated in your official delegation to meetings held under the Convention on Biological Diversity?	
a) not relevant	
b) not appropriate	➢
c) yes	
123. Is your country assisting the Secretariat to fully utilize the clearing-house mechanism to co-operate closely with indigenous and local communities to explore ways that enable them to make informed decisions concerning release of their traditional knowledge?	
a) no	
b) awaiting information on how to proceed	➢
c) yes	
124. Has your country identified resources for funding the activities identified in the decision?	
a) no	➢
b) not relevant	
c) partly	
d) fully	

Further comments on implementation of this Article

Some of the measures that are being undertaken for implementing Article 8j are described below. India has been presenting information on these activities in various CBD fora such as CoP, ABS Panel, Working Group on 8j, as well as in the meetings of WIPO and WTO.

1. Peoples' Biodiversity Registers

Documentation of local people's knowledge on the status, uses and management of biological resources constitutes the People's Biodiversity Registers (PBRs). People, as part of their daily subsistence activities, have acquired knowledge about the use of a variety of biological resources, for example as graziers, as fisherfolk, as basket weavers. The information is almost exclusively orally transmitted. PBR is an attempt to document such knowledge.

PBR envisages the creation of decentralised country-wide database on status of biological resources. They also include local knowledge on properties and uses of biodiversity resources, for example, drought resistance of certain varieties, methods of preservation of foods, or use of certain plants in treating human or livestock diseases.

In India, preparation of village-wise People's Biodiversity Registers for documenting knowledge, innovations and practices has been undertaken in a few States. The State Plan for Kerala has also actively promoted documentation of local knowledge regarding biodiversity in people's biodiversity registers. One pilot project on this has been completed in Ernakulam District. Two other projects at Panchayat level have been initiated by the

Tropical Botanic Garden and Research Institute and the Kerala Forest Research Institute. In Himachal Pradesh, the State Council for Science, Technology and Environment has prepared a PBR for the Mehli village.

The state of Karnataka presents a unique example of NGO initiatives in the formulation of Peoples' Biodiversity Registers (PBRs). Some experts who were part of the State Planning Board recommended the Karnataka Biodiversity Conservation Order in 1996. This order envisaged biodiversity boards at the state and sub-state levels, with a wide range of stakeholders being members of the board, and envisaged PBRs as part of the responsibilities of the boards. One of the organised and widespread attempts of NGOs has been towards initiating and completing biodiversity registers.

Some of the other experiences include:

(a) The Centre for Ecological Sciences, Indian Institute of Science, Bangalore by mid 1998, 75 Peoples' Biodiversity Registers.

(b) Gene Campaign has undertaken work on documentation of biodiversity and knowledge relating thereto among three tribal populations: the Munnars in South Bihar (in the Chotanagpur region); the Bhils of Madhya Pradesh; and the Tharus of the Terai region. Medicinal plants and knowledge related thereto was sought to be documented with the help of educated tribal youth. Elders in the village, medical practitioners and traditional healers were consulted in the collection and understanding of the information.

(c) The Research Foundation of Science, Technology and Ecology (RFSTE) initiated a movement called the Jaiv Panchayat: Living Democracy in early 1999. According to the RFSTE, the Jaiv Panchayat movement aims to establish definitive sovereignty of local communities on their biodiversity resources. Activists from RFSTE and Navdanya have been interacting with local villagers in different parts of India to constitute informal community level institutions called Jaiv Panchayats comprising of volunteers from a village. The members of the Jaiv Panchayat are entrusted with the task of inquiring and recording information on biological resources, and various uses of the same in the form of Community Biodiversity Registers (CBRs).

(d) The efforts of Kalpavriksh and the Beej Bachao Aandolan (Save the Seeds Campaign), Tehri-Garhwal, Uttar Pradesh. Kalpavriksh, in collaboration with the villagers in Jardhar of the Teri Garhwal district of Uttar Pradesh, initiated an exercise in 1995 to document the various bio-resources used by the community and conservation practices. The members of the Beej Bachao Aaandolan – a network of local farmers who have been involved for a number of years now in reviving and spreading indigenous crop diversity, actively collaborated with the Kalpavriksh members. By mutual agreement between Kalpavriksh and the villagers, it was decided that a copy of the register will be kept in the village and another copy would be kept by Kalpavriksh, and that all the information in the register can be used and distributed only with the consent and knowledge of the villagers.

The creation of such a countrywide decentralized system of information will serve several important purposes. It will create a machinery for monitoring the fate of a variety of biodiversity resources throughout the country. Such information on medicinal plants, land-races of crops, breeds of livestock, or wild relatives of cultivated plants etc. could then form the basis of locally rooted, adaptive strategies for the conservation of these resources.

2. Honey Bee network

Honey Bee is a knowledge Centre/Network pooling solutions by people from different sectors throughout the country and the world. Honey Bee has collected over 10,000 examples of contemporary innovations and outstanding examples of the use of traditional local knowledge in the sustainable management of natural and other resources. These innovations are shared with local communities and individuals within India and in 75 other countries through the Honey Bee newsletter which is published in eight different languages (English, Spanish, Hindi, Gujarati, Tamil, Kannada, Pahari and Telugu). SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions), a NGO based in Ahmedabad, India, set up in 1993 to essentially sustain Honey Bee Newsletter and associated research and action activities. SRISTI supports Honey Bee Network by linking **six "Es" –**

ethics, equity, excellence, environment, education and efficiency in enterprise.

The Honey Bee Network has created new standards of accountability and ethics in dealing with grassroots innovations by strengthening people to people learning. The formal sector cannot use the traditional knowledge in the Newsletter without acknowledgement, citation and prior informed consent of the knowledge holder. The Honey Bee supported the concept of Prior Informed Consent much before the CBD came into existence. The Honey Bee Network approach promotes that for innovations in one part of the world, investments are made in the other.

The Honey Bee data base with thousands of innovations is being upgraded to multimedia capabilities. This will ensure that barriers of languages, literacy and localism can be overcome to connect innovators, potential entrepreneurs and investors across regions. The idea is that through using electronic, textual and oral media, a multilevel network can be put in place to support the documentation, experimentation and reward, both in material and non-material form of individual and collective grassroots innovations.

3. National Innovation Foundation

Many of the grassroot innovators do not have the capacity for value addition. Thus, there is a need for providing institutional support in scouting, spanning, sustaining and scaling up of grassroots innovations and to enhance technical competence and self reliance of these innovators, through establishment of green venture promotion funds and incubators.The Department of Science and Technology, Government of India constituted the National Innovation Foundation (NIF) with an initial corpus of Rs. 200 million (approx. 5 million US$) to respect, recognize and reward the creativity and innovation at the grassroots to help India become self-reliant and a global leader in sustainable technologies. The Foundation enables grassroots innovators to (a) build linkages with science and technological experts; (b) forge linkages with entrepreneurs and (c) pursue their intellectual property rights protection and get venture promotion support etc.

The NIF solicits entries about technological grassroots innovations attempted by individuals engaged in small and cottage industries, workshops, farming, craft, fishing and livestock rearing, herbal medicines and other biodiversity uses, household and workplace technologies used by women etc. Entries are also solicited from farmers, slum dwellers, local communities in managing natural resources, construction of low cost environmentally benign houses or small machines, products or any other technological aspects of survival in urban and rural areas. The purpose is to build the national register of grassroots inventions and innovations so that unsung heroes of our society get their due. The NIF was launched in October 2000.

4. Traditional Knowledge Digital Library (TKDL)

In the recent past, there have been several cases of biopiracy of traditional knowledge use of biological resources from India. First it was the patent on wound healing properties of haldi (turmeric), now patents have been obtained in other countries on hypoglyceimic properties of karela (bitter gourd), brinjal etc. These uses have been an integral part of traditional system of medicine in India. India had challenged the patent on haldi and because it was proved that this property is documented, it is not novel and is prior art, the patent on turmeric was revoked. Similarly the patent on fungicidal properties of neem was revoked by the European Union.

In this background, India has now initiated an exercise to prepare easily navigable electronic computerised database of documented traditional knowledge relating to use of medicinal and other plants. It is proposed to create Traditional Knowledge Digital Library (TKDL) covering 35,000 Ayurvedic formulations involving medicinal plants. The TKDL will include details of international patent classification and traditional knowledge resource classification, key words on plants and formulations, synonyms, dictionary of equivalent for Ayurvedic terminology, concepts and definitions, references to documents as well as shlokas in digital form. TKDL would be created in English, German, French and Japanese. This database will be sent to patent offices of US, EU, Japan and other countries to enable them to search and examine any prevalent use/prior art, and thereby prevent biopiracy.

India's efforts in this regard have been appreciated and in the last meeting of the Committee of Experts of the International Patent Classification (IPC) Union held in February 2001 and the IPC Union has agreed to set up a Task

Force on the Traditional Knowledge Resources Classification.

5.Provisions in the Biodiversity Bill 2000 and Patents (Second Amendment)Bill 1999

Realising the need to ensure that the holders of traditional knowledge which is not still in the public domain should be able to get the benefits arising from the use of such knowledge an enabling provision has been made for protecting the traditional knowledge in the proposed biodiversity legislation developed by the Ministry of Environment and Forests.Section 36(iv) provides for protection of knowledge of local people relating to biodiversity through measures such as registration of such knowledge, and development of a sui generis system.

For ensuring equitable sharing of benefits arising from the use of biological resources and associated knowledge, Sections 19 and 21 of the Biodiversity Bill 2000 stipulates prior approval of the National Biodiversity Authority (NBA) before their access. While granting approval, NBA will impose terms and conditions which secure equitable sharing of benefits.

Section 6 provides that anybody seeking any kind of intellectual property rights on a research based upon biological resource or knowledge obtained from India, need to obtain prior approval of the NBA. The NBA will impose benefit sharing conditions.

Section 18(iv) stipulates that one of the functions of NBA is to take measures to oppose the grant of IPRs in any country outside India on any biological resource obtained from India or knowledge associated with such biological resource.

In order to protect bio-resources and associated knowledge, the Patents (Second Amendment) Bill 1999, contains provisions for mandatory disclosure of source and geographical origin of the biological material used in the invention while applying for patents in India. Provisions have also been incorporated to include the non-disclosure or wrongful disclosure of the same as grounds for opposition and for revocation of the patent, if granted. Further to prevent patents based on knowledge, which is not always documented, provisions have been incorporated to include anticipation of invention by available local knowledge, including oral knowledge, as one of the grounds for opposition as also for revocation of patent, if granted.

Article 9 Ex situ conservation

125. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	
126. To what extent are the resources available adequate for meeting the obligations and recommendations made?					
a) Good		b) Adequate		c) Limiting	*
d) Severely limiting					
Further comments on relative priority and on availability of resources					
No comments.					

127. Has your country adopted measures for the *ex situ* conservation of components of biological diversity *native* to your country (9a)?	
a) no measures	
b) some measures in place	
c) potential measures under review	
d) comprehensive measures in place	➢
128. Has your country adopted measures for the *ex situ* conservation of components of biological diversity *originating outside* your country (9a)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
129. If the answer to the previous question was yes, is this being done in active collaboration with organizations in the other countries (9a)?	
a) no	
b) yes	➢
130. Has your country established and maintained facilities for the *ex situ* conservation of and research on plants, animals and micro-organisms that represent genetic resources *native* to your country (9b)?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
131. Has your country established and maintained facilities for the *ex situ* conservation of and research on plants, animals and micro-organisms that represent genetic resources *originating elsewhere* (9b)?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
132. If the answer to the previous question was yes, is this being done in active collaboration with organizations in the other countries (9a)?	
a) no	
b) yes	➢
133. Has your country adopted measures for the reintroduction of threatened species into their natural habitats under appropriate conditions (9c)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	

134. Has your country taken measures to regulate and manage the collection of biological resources from natural habitats for *ex situ* conservation purposes so as not to threaten ecosystems and *in situ* populations of species (9d)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
If a developed country Party - 135. Has your country cooperated in providing financial and other support for ex situ conservation and in the establishment and maintenance of ex situ conservation facilities in developing countries (9e)? ***If a developing country Party or Party with economy in transition -*** 136. Has your country received financial and other support for ex situ conservation and in the establishment and maintenance of ex situ conservation facilities (9e)?	
a) no	
b) yes	➢

Further comments on implementation of this Article

Ex-situ conservation of biodiversity in India was institutionalised with the establishment of Botanic Gardens and Zoological Parks. The tradition of Botanic Gardens dates back to 200 years when large spaces within major cities in India were set aside for the purpose. The Indian Botanic Garden at Calcutta was established in 1787. It now spreads over an area of 110 hectares and has around 15,000 plants belonging to 2,500 species. Besides the number of privately owned gardens, there are 33 Government managed and 33 university Botanic Gardens in the country. The Botanical Survey of India is attempting to network these gardens. The Government of India has also initiated establishment of National Botanical Garden in NOIDA in Uttar Pradesh.

The first zoo in India dates back to 1854, being the private zoo of a royalty. The first public zoo in India was established in Chennai by the municipality. Current statistics place the number of zoos, animal parks, aquaria, etc., at 300. Species-oriented captive breeding programmes have been initiated in many of these zoos throughout the country. There are exclusive crocodile and turtle breeding parks established since the 1970s in India.

A Central Zoo Authority (CZA) has been set up under MoEF to provide guidelines to all zoos and monitor their activities. It also oversees the functioning of zoos which can sensitise the visitors about the need for protecting wildlife and habitats and carry out planned breeding of endangered species for augmenting their population in the wild. Captive Breeding Specialist Groups (CBSG) exist for a wide range of organisms in India.

The Government of India has finalised a National Zoo Policy for strengthening scientific and technical capacity for the management of zoos.

Besides the number of zoos and aquaria in India that conserve animals ex situ, NGOs have contributed by maintaining large collections of crocodiles, turtles/tortoises, snakes and lizards. Important NGO maintained reptile parks in India are Chennai Snake Park, Madras Crocodile Bank, Pune Serpentarium and Calcutta Snake Park.

The Indian Council for Agricultural Research, has set up a number of gene banks for the ex-situ conservation of plants, fishes and animals under the National Bureau of Plant Genetic Resources (NBPGR), the National Bureau of Animal Genetic Resources (NBAGR), and the National Bureau of Fish Genetic Resources (NBFGR).

Plant Genetic Resources

The Indian National Plant Genetic Resources System (IN-PGRS) spearheaded by the National Bureau of Plant Genetic Resources (NBPGR) is among the most dynamic systems in the world which now hold a prominent place. The NBPGR has been entrusted with the national responsibility to plan, conduct, promote, co-ordinate and take lead in activities concerning germplasm collection, introduction, exchange, evaluation, documentation, conservation and sustainable management of diverse germplasm of crop plants and their wild relatives with a view to ensure their availability for use over time to breeders and other researchers. It includes NBPGR network of 10 regional stations/base centres/quarantine centres over different phyto-geographic zones of the country and active collaboration and linkages with over 30 National Active Germplasm Sites (NAGS).

The IN-PGRS is responsible for conservation and management of PGR and their use through an effective collaboration between the NBPGR and the user agencies. NBPGR is the nodal organisation operating the Indian PGR system and has the authority to import and export plant germplasm for research purpose through the single window system. It is also fully equipped with very effective and efficient plant quarantine facilties. NBPGR has assisted several collaborating institutes/centres in establishing medium-term seed storage; computer and data documentation facilities. In addition it also imparts need based, on the job training to scientist and technicians.

Animal Genetic Resources

The establishment of the National Bureau of Animal Genetic Resources (NBAGR) at Karnal in 1984 marked the beginning of India's formal efforts to conserve the livestock genetic resources in the country. The large infrastructure for research and conservation of indigenous germplasm of livestock includes state and central animal husbandry departments, species-specific institutes of the Indian Council of Agricultural Research (ICAR), and state agricultural universities. Many livestock farms maintain indigenous breeds which can form the nuclear herds for in situ conservation. Various bull mother farms and frozen semen banks are interlinked for ex situ conservation of semen of indigenous breeds for posterity.

To increase effectiveness of its conservation programmes, a comprehensive plan for 25 years has been prepared by the NBAGR. An All India Network Programme was recently initiated to form linkages between the various organisations in the country associated with animal genetic resources and to best utilise the vast infrastructure and necessary labour for the genetic characterisation and conservation of indigenous germplasm that now face extinction

.

Fish Genetic Resources

India abound in fish genetic resources that inhabit its river systems, wetlands, coastal areas and marine zones. Out of nearly 20,000 documented fish species of the world, 2200 fin fish species have been recorded in India from cold fresh waters of upper stretches of the Indus, the Ganges and the Brahamaputra (73 species), warm waters of its 14 major river systems draining the plains (544 species), brackish waters of estuarine areas (143 species) and marine waters of the three surrounding seas (1440 species). Twenty seven species are considered to be rare/endangered/vulnerable.

The National Bureau of Fish Genetic Resources (NBFGR), located at Lucknow and administered by the Indian Council of Agricultural Research, is devoted to the conservation and sustainable utilisation of fish diversity in India with a mandate that includes:

- Collection, classification, and evaluation of information on fish genetic resources of India;
- Cataloguing genotypes;
- Maintenance and conservation of fish germplasm in collaboration with other centres;
- Conservation of endangered species; and

- Monitoring the introduction of exotic fish species in Indian waters.

Germplasm facilities

Recognising the need for sophisticated facilities for research and development and providing services, the following additional germplasm facilities have been set up:

i) The National Facility for Microbial Type Culture Collection at the Institute of Microbial Technology, Chandigarh, with over 1,600 cultures in its stock.

ii) The National Facility on Blue Green Algal Collection at the Indian Agriculture Research Institute, with over 500 strains and several pure cultures as well as soil-based cultures, which have been supplied to farmers for production of biofertilisers.

iii) The National Facility for Marine Cyanobacteria at the Bharatidasan University, Tiruchirapalli, which is co-ordinating extensive surveys on the southern coast.

iv) The National Facility for Plant Tissue Culture Repository at NBPGR, New Delhi, which has undertaken in vitro conservation of germplasm (seed, pollen in vitro culture) over the medium and long term, particularly for those species for which conventional methods are inadequate. It has 650 accessions of crop species and employs molecular methods of characterisation and classification.

v) The National Facility for Laboratory Animals at the Central Drug Research Institute, Lucknow and the national Institute of Nutrition, Hyderabad have made available quality animals for biomedical research and industry in the country.

vi) The National Facility for Animal Tissue and Cell Cutre, Pune, an autonomous institution under Department of Bitechnology (DBT) has 1127 stock cultures comprising 594 different cell strains. The facility has supplied 401 culture consignments to 84 institutions throughout the country. It also has 50 vectors, plasmids and genomic libraries.

vii) Three National Gene Banks for Medicinal and Aromatic Plants at the Central Institute of Medicinal and Aromatic Plants, Lucknow and the NBPGR, New Delhi, both for the northern region; and the Tropical Botanical Garden and Research Institute, Trivandrum, for peninsular India have been established. These banks will conserve important species of proven medicinal value, which are categorised as endangered, threatened or rare, are used extensively in traditional systems of medicine, are difficult to propagate, have significance for R&D for the future, and are of commercial value. India is the regional co-ordinator for Asia and also the overall co-ordinator for the establishment of Gene Banks of Medicinal and Aromatic Plants among G-15 countries.

viii) The Centre for Cellular and Molecular Biology has been undertaking the development and maintenance of DNA profiles.

Article 10 Sustainable use of components of biological diversity

137. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

138. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

139. Has your country integrated consideration of the conservation and sustainable use of biological resources into national decision making (10a)?	
a) no	
b) early stages of development	
c) advanced stages of development	➢
d) programme or policy in place	
e) review of implementation available	
140. Has your country adopted measures relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity (10b)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
141. Has your country put in place measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements (10c)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	

142. Has your country put in place measures that help local populations develop and implement remedial action in degraded areas where biological diversity has been reduced (10d)?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
143. Does your country actively encourage cooperation between government authorities and the private sector in developing methods for sustainable use of biological diversity (10e)?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) programme or policy in place	➢
e) review of implementation available	

Decisions IV/15. Relationship of the Convention with the Commission on Sustainable Development and biodiversity-related conventions

144. Has your country submitted to the Secretariat information on tourism and its impacts on biological diversity, and efforts to effectively plan and manage tourism?	
a) no	➢
b) yes – previous national report	
c) yes – case-studies	
d) yes – other means (please give details below)	
145. Has your country submitted to the Secretariat information on biodiversity-related activities of the CSD (such as SIDS, oceans, seas and freshwater resources, consumption and production patterns)?	
a) no	➢
b) yes - previous national report	
c) yes – correspondence	
d) yes - other means (please give details below)	

Decision V/24. Sustainable use as a cross-cutting issue

146. Has your country identified indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity?	
a) no	
b) assessment of potential indicators underway	➢
c) indicators identified (if so, please describe below)	

147. Has your country assisted other Parties to increase their capacity to implement sustainable-use practices, programmes and policies at regional, national and local levels, especially in pursuit of poverty alleviation?	
a) no	➢
b) not relevant	
c) to a limited extent	
d) to a significant extent (please provide details)	
148. Has your country developed mechanisms to involve the private sector and indigenous and local communities in initiatives on sustainable use, and in mechanisms to ensure that indigenous and local communities benefit from such sustainable use?	
a) no	
b) mechanisms under development	
c) mechanisms in place (please describe)	➢
149. Has your country identified areas for conservation that would benefit through the sustainable use of biological diversity and communicated this information to the Executive Secretary?	
a) no	➢
b) yes	

Decision V/25. Biological diversity and tourism

150. Has your country based its policies, programmes and activities in the field of sustainable tourism on an assessment of the inter-linkages between tourism and biological diversity?	
a) no	
b) to a limited extent	➢
c) to a significant extent	
151. *Has your country submitted case-studies on tourism as an example of the sustainable use of biological diversity to the Executive Secretary*?	
a) no	➢
b) yes	
152. Has your country undertaken activities relevant to biodiversity and tourism in support of the International Year of Ecotourism?	
a) no	➢
b) yes	
153. Has your country undertaken activities relevant to biodiversity and tourism in support of the International Year of Mountains?	
a) no	➢
b) yes	
154. Has your country undertaken activities relevant to biodiversity and tourism in support of the International Coral Reef Initiative?	
a) no	
b) yes	➢

155. Has your country established enabling policies and legal frameworks to complement voluntary efforts for the effective implementation of sustainable tourism?	
a) no	
b) to a limited extent	➢
c) to a significant extent (please describe)	

Further comments on implementation of this Article

Sustainable Use

Sustainable use of biological diversity is emphasised in policy statements of the Government, notably the National Conservation Strategy and the Policy Statement on Environment and Development, the National Forest Policy, and the National Wildlife Action Plan. Several initiatives have been taken to implement various aspects of these policy statements. Sustainable utilisation underscored in these policy statements recognises the interdependence of local communities and people on biological resources, and emphasise the need to draw upon the existing resources keeping long term conservation in view. In accordance with appreciation of the needs and the local situations, pressure from biodiversity rich areas and resources is to be diverted by bringing additional areas under green cover to satisfy local demands, by encouraging environmental friendly substitutes to meet the needs, by promoting energy-efficient devices, by creating awareness and an environment to restrict use and extraction of only desired part of component rather than the entire organism. Remedial actions for restoration of degraded areas have been undertaken through ecorestoration programmes by involving local people. Special attention has been given to coastal zone through Coastal Zone Regulation Rules, 1991 under Environment (Protection) Act.

To adopt economically effective and socially viable incentives for conservation and sustainable use of biological diversity, strategies such as use of items like wood substitutes, alternative energy sources (biogas, wind mills, solar cookers, wave energy, fuel efficient stoves, etc.), establishment of nurseries, tree planting, stall feeding, water harvesting, and pollution abatement measures are being implemented.

In 1994, the Government of India, under the Environment (Protection) Act, issued the Environmental Impact Assessment notification by which Environmental Impact Assessment is mandatory for 29 selected sectors while undertaking developmental projects.

The National Conservation Strategy and Policy Statement on Environment and Sustainable Development, 1992 provides for the basis for the integration and internalisation of environmental considerations in the policies and programmes of different sectors. It also emphasises sustainable lifestyles and the proper management and conservation of resources.

India's Environment Action Programme 1993, identifies conservation and sustainable utilisation of biodiversity in selected ecosystems as the first of seven priorities for future action. The Action Programme strengthens capabilities in the areas of environment assessment, increased environmental awareness and further facilitates the process of association of NGOs in the tasks of sustainable development. The process of strengthening is expected to further reinforce the functional areas of the Ministry of Environment and Forests which have direct bearing on programme for conservation and sustainable generation of NTFPs including medicinal plants initiated by the MoEF, and the tasks of afforestation, tree planting and ecorestoration being undertaken by the NAEB of the MoEF. A high-level Advisory Body called the National Environment Council was set up by the MoEF in 1993 under the chairmanship of the Prime Minister of India for conservation and sustainable management of biodiversity.

Article 11 Incentive measures

156. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	➢	c) Low	

157. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

158. Are programmes in place to identify and ensure the adoption of economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity?	
a) no	
b) early stages of development	➢
c) advanced stages of development	
d) programmes in place	
e) review of implementation available	
159. Do these incentives, and the programmes to identify them and ensure their adoption, cover the full range of sectoral activities?	
a) no	
b) some sectors	➢
c) all major sectors	
d) all sectors	

Decision III/18. Incentive measures

160. Has your country reviewed legislation and economic policies to identify and promote incentives for the conservation and sustainable use of components of biological diversity?	
a) no	
b) reviews in progress	➢
c) some reviews complete	
d) as far as practically possible	
161. Has your country ensured the development of mechanisms or approaches to ensure adequate incorporation of both market and non-market values of biological diversity into plans, policies and programmes and other relevant areas, *inter alia*, national accounting systems and investment strategies?	
a) no	
b) early stages of identifying mechanisms	➢
c) advanced stages of identifying mechanisms	

d) mechanisms in place	
e) review of impact of mechanisms available	
162. Has your country developed training and capacity building programmes to implement incentive measures and promote private-sector initiatives?	
a) no	
b) planned	➢
c) some	➢
d) many	
163. Has your country incorporated biological diversity considerations into impact assessments as a step in the design and implementation of incentive measures?	
a) no	
b) yes	➢
164. Has your country shared experience on incentive measures with other Contracting Parties, including making relevant case-studies available to the Secretariat?	
a) no	
b) yes - previous national report	➢
c) yes – case-studies	➢
d) yes - other means (please give details below)	

Decision IV/10. Measures for implementing the Convention **[part]**

165. Is your country actively designing and implementing incentive measures?	
a) no	
b) early stages of development	➢
c) advanced stages of development	
d) measures in place	
e) review of implementation available	
166. Has your country identified threats to biological diversity and underlying causes of biodiversity loss, including the relevant actors, as a stage in designing incentive measures?	
a) no	
b) partially reviewed	➢
c) thoroughly reviewed	
d) measures designed based on the reviews	
e) review of implementation available	
167. Do the existing incentive measures take account of economic, social, cultural and ethical valuation of biological diversity?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	

168. Has your country developed legal and policy frameworks for the design and implementation of incentive measures?	
a) no	
b) early stages of development	➢
c) advanced stages of development	
d) frameworks in place	
e) review of implementation available	
169. Does your country carry out consultative processes to define clear target-oriented incentive measures to address the underlying causes of biodiversity loss?	
a) no	
b) processes being identified	➢
c) processes identified but not implemented	
d) processes in place	
170. Has your country identified and considered neutralizing perverse incentives?	
a) no	
b) identification programme under way	➢
c) identified but not all neutralized	
d) identified and neutralized	

Decision V/15. Incentive measures

171. Has your country reviewed the incentive measures promoted through the Kyoto Protocol to the UN Framework Convention on Climate Change?	
a) no	➢
b) yes	
172. Has your country explored possible ways and means by which these incentive measures can support the objectives of the Convention on Biological Diversity in your country?	
a) no	➢
b) under consideration	
c) early stages of development	
d) advanced stages of development	
e) further information available	

Further comments on implementation of this Article

Existing Incentive Measures

India has a repertoire of economic incentives which has had a bearing on utilisation of biological resources. Taxes, cesses, royalties, grazing fees, seigniorages, lease rents on forest and non-forest lands and Forest Development Tax are some of the traditional instruments in India levied on bioresources. India has also had the benefit of having dedicated funds for development of natural resources. The "National Afforestation Fund" instituted by the National Wasteland Development Board of the Ministry of rural Development is an example. However, these traditional economic mechanisms are oriented more to 'revenue raising' and biomass augmentation. The potential of redesigning these instruments from a conservation point of view cannot be effected without a careful consideration of the nature of incidence of these instruments on conservation of biological resources. This aspect is now being studied.

Economic incentives which have some bearing for conservation of biodiversity are the Joint Forest Management (JFM) and the Water Cess levied by the Pollution Control Boards on Local Authorities and Industries for consumption of water.

Joint Forest Management

The National Forest Policy (NFP), 1988 envisages people's involvement in the development, protection and management of forests. In this context, the Ministry of Environment and Forests, Government of India, in June 1990, issued guidelines to all state governments to encourage involvement of village communities and voluntary agencies in regeneration of degraded forest lands, known as Joint Forest Management (JFM), for fulfilling their needs.

The guidelines envisaged an institutional arrangements for the local people to jointly (with the government) protect and manage the forest resource in return for a share in the yields from it. In pursuance of these guidelines, a number of Indian States have initiated action under JFM programmes. The guidelines interalia provide for the following benefits:

- The beneficiaries be entitled to a share in usufructs to the extent and subject to the conditions prescribed by the State Government in this behalf. The voluntary agency/NGO should not be entitled to usufructory benefits.
- The beneficiaries be given usufructs like grasses, lops and tops of branches, and minor forest product. If they successfully protect the forests, they may be given a portion of the proceeds from the sale of trees when they mature.
- Alongwith trees for fuel, fodder and timber, the village community may be permitted to plant such fruit trees as would fit in with the overall scheme of afforestation, as well as shrubs, legumes and grasses which would meet local needs, help soil and water conservation, and enrich the degraded soils/land. Even indigenous medicinal plants may be grown according to the requirement and preference of beneficiaries.

Water Cess

Industries in India occur in a wide spectrum of environments. Though in the initial years of the country's industrialisation, industries were located in and around metropolitan cities such as Bombay (Mumbai), Calcutta and Madras (Chennai). The policy of regional diffusion led to spread of industrialisation to other cities, towns and even peri-urban and rural areas, in the post-independence period. Lakes, marshes, river systems, coastal and marine ecosystems including mangroves and coral reefs have been adversely impacted by discharge of domestic sewage, industrial pollutants, toxic effluents etc. India's wetlands span over an area of 4.1 million hectares of which 1.5 million hectares are covered by natural wetlands. Wetlands in India harbour an enormous diversity of floral and faunal species of which 27 plant species and 24 animal species are reported to be in the endangered category. On account of pollution discharge, many wetlands are faced with depletion of Dissolved Oxygen. On account of excessive withdrawal of water from wetlands and discharge of untreated effluents, Wular, Dal, Harike, Chilka, Loktak, Kolleru and the backwaters of Cochin are adversely affected. Mangroves are salt tolerant ecosystems which are found in the alluvial deltas of Ganga, Mehanadi, Godavari, Krishna, Cauvery and in theAndaman and Nicobar Islands over 6,700 sq. km. Mangroves along the Ganga, Mahanadi, Cauvery are threatened by disposal of sewage

and industrial effluents which impact on the biodiversity. Coral reefs in India are rich in biodiversity particularly in fauna especially corals and coral reef fishes. They are also threatened by industrialisation in coastal areas and the resultant impact of pollution. Coming to river systems, the studies by the Central Pollution Control Boards on the water quality of 12 major rivers in India indicate that the problems of pollution are high in respect of Baitarani, Brahmani, Cauvery (certain stretches in Tamilnadu), Ganga (Kanpur, Varanasi and Tarighat), Mahanadi, Sabarmati etc. Among the medium and minor rivers which are critically polluted are the Rivers Patalganga and Rapti.

The Water (Prevention and Control of Pollution) Cess Act was legislated by the Parliament of India in 1977. The objective of the Act was to provide for Levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974. According to this Act cess would be levied on the basis of water consumed by industry or local authority as per rates that the Central Government may from time to time specify. The proceeds of the cess which gets collected by the Pollution Control Boards concerned, is credited to the Consolidated Fund of India, and the Central Government under authorisation by Parliament may pay to the Pollution Control Boards such sums of money from the proceeds as it deems fit and after deducting the expenses on collection etc. Where any person or local authority, liable to pay cess under the Act, installs any plant for treatment of sewage or trade effluent, he/she/Authority is provided with an incentive by way of rebate of 25% of the cess payable.

The general experience of the working of the water cess shows that it has achieved reduction in water consumption in respect of chemical industries. The water cess is a charge levied on consumption of water by industry and local authority. The objective of the cess is to generate/augment resources of the Central and State Pollution Control Boards. Hence, it is not a charge designed primarily for biodiversity conservation. However, the effect of the cess is to reduce consumption of water by industry. This renders treatment costs economical besides preventing over and wasteful use of water resources which are often abstracted from wetlands and river water sources. The gap between assessment of cess and actual collections being substantial, the effect of the cess and actual consumption need not be to be extent desired. This is also compounded by the difficulties of monitoring water consumption by industries and municipal corporations. However the growing trend of effluent treatment systems in the country could also have been contributed by the desire to earn rebates from water cess. To this extent the water cess has contributed to achieving its incidental goal of water and biodiversity habitat conservation.

To encourage people, institutions, communities, men and women to contribute to rehabilitation and conservation of elements of biological diversity, and reward excellence and achievement in these, several incentives an awards have been instituted by the Government. Some of these are described below:

1.Indira Priyadarshini Vrikshamitra (Friend of Trees) Awards

Six of these awards are given every year to recognise pioneering and exceptional contribution of individuals/organisations in the field of afforestation and wastelands development under six categories, viz. individuals, village councils/village level institutions, educational institutions, voluntary agencies including women's groups, youth groups, government agencies (district level and below) and corporate sector. Each award carries a cash amount of Rs. 50,000/-, a medallion, a scroll and a citation.

2.**B.P.Pal National Environment Fellowship Award for Biodiversity**

This Fellowship Award carries a grant of Rs. 132,000 over two years. It is given to individuals for significant research and development contributions in the area of biodiversity.

3.**Desert Ecology Fellowship**

This Fellowship of Rs. 54,000 (one year's grant) is given in recognition of Bishnoi community's contribution to nature conservation and to encourage studies on Desert Ecology.

4.**Rajiv Gandhi Wildlife Conservation Award**

Two awards per year are provided to a)individuals and b) institutions. The individual award carries a fellowship of Rs. 100,000 and a medal and the institutional award provides a fellowship of Rs. 100,000 and a trophy.

5.**Dr. Salim Ali Fellowship for Avian Biology and Kailash Shankla Award for Mammal Study**

These awards are alternatively offered and each award carried a monthly fellowship of Rs. 7,000/-.

6.**Indira Gandhi Paryavaran Puraskar**

This award is bestowed to individuals and organisations in recognition to their outstanding contribution in the field of environment protection and creating environmental awareness. Each award carries Rs. 1,00,000 in cash and a silver trophy.

Article 12 Research and training

173. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

174. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

175. Has your country established programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components (12a)?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) programmes in place	➢

176. Has your country provided support to other Parties for education and training in measures for the identification, conservation and sustainable use of biological diversity and its components (12a)?	
a) no	
b) yes	➢

177. Does your country promote and encourage research which contributes to the conservation and sustainable use of biological diversity (12b)?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢

178. Does your country promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources (12c)?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢

If a developed country Party -	
179. Does your country's implementation of the above activities take into account the special needs of developing countries?	
a) no	
b) yes, where relevant	

Further comments on implementation of this Article

Research and Training – Funding schemes of Ministry of Environment & Forests

The objective of promotion of research in multi-disciplinary aspects of environmental protection, conservation and development is to advance the scientific understanding and to generate information required to develop strategies, technologies and methodologies for better environmental management. It also aims at attempting solutions to practice all problems of resource management, conservation of natural resources and eco-regeneration of degraded areas. In order to achieve above objectives, research grants are provided in the identified thrust areas to various institutions/universities and non-governmental organisations all over the country.

Under the scheme of Research and Development, research projects are supported through the three programmes viz. Environment Research Programme, Ecosystems Research Scheme, and Action Oriented Research Programme for Eastern and Western Ghats.

Environment Research Programme specifically deals with brown agenda i.e. problems related to pollution, chemical, biochemical and engineering investigations, technology development for waste minimization, waste recycling, resource recovery, effluent treatment and other environmental studies related to pollution control, development of instruments for pollution measuring and control, development of eco-friendly and cleaner technologies etc.

Ecosystem Research Scheme is an inter-disciplinary programme of research which emphasises ecological approach for studying all the relationship between man and environment. The objective of the programme is to develop a basis within the field of natural and social sciences for rational use and conservation of resources for general improvement of the relationship between man and its environment. The programme seeks to provide a scientific basis to solve the practical problems of resources management and biodiversity conservation. The programme also seeks to provide scientific knowledge and trained personnel needed to manage the natural resources in a rational and sustainable manner. Ecosystem studies becomes even more important as the Earth's environmental systems are increasingly being affected at all levels. Ecological understanding and research in this area offer tangible hope for addressing extremely complex and potentially devastating assaults on local, regional and global ecosystems. Under the scheme emphasis is laid on multi-disciplinary aspects of environmental conservation with emphasis on ecosystem approach consistent with the identified thrust areas and orientation. Under this scheme, emphasis is laid on study of the ecology of important rare, endangered animal species like South Indian primates, monitor lizards, germplasm collection, propagation and improvement of forest plants of thar desert, studies on sea level rise, methane measurements in the country, studies on insect plant inter-relationships in forestry ecosystems, vertebrate diversity on the Great Nicobar Biosphere Reserve, man-wildlife interactions in protected areas, rare endemic avifauna of Andaman and Nicobar Islands, non-human primate of India, human nature interactions in and around National Parks and Ethnobiology etc.

The Eastern and Western Ghats Research Programme addresses itself to location specific problems of resource management in the Eastern and Western Ghats regions of the country. Under this programme, studies relating to Biodiversity, land use, impact of developmental activities etc. are taken up. In this scheme, the projects are supported on soil and water management, impact of mining and environment, conservation of biodiversity, impact of human activities and industrialization on local river ecosystems, sacred groves, effect of plantation crops and the

soil erosion, rehabilitation of degraded areas, grasslands, tropical montane flora of Eastern and Western Ghats with reference to its north temperate affinities, ecosystem analysis of forests, environmental impact of monoculture plantation, study on the flora and vegetation of Kolli hills, ecology of avifauna resources of Eastern Ghats, development and management of eco-hamlets in the Eastern Ghats, edible mushrooms of Western Ghats, impact of tourism, waste recycling (raw coir pith), reproductive biology of endemic plams, augmenting natural and artificial regeneration of sandal in south Kannada, bauxite mining, impact of effluent discharge from aquaculture ponds on environment and so on.

Research and Training – Institutional Support

In India, research and training in taxonomy and systematics were offered by many institutions starting early this century. The Indian Council of Forestry Research and Education (ICFRE) an autonomous organisation of MoEF organises and manages research, education and extension in the field of forestry. The Indira Gandhi National Forest Academy (IGNFA) was established in May 1987 by upgrading the Indian Forest College, INGFA functions directly under MoEF. The Academy imparts in-service professional training to the Indian Forest Service Officers. The Directorate of Forest Education is responsible for controlling, coordinating and managing all the regular training courses of State Forest Service and Forest Range Officers in the country. Indian Institute of Forest Management (IIFM) an autonomous organisation under MoEF was established in 1982. The objective is to provide training in management and related subjects for officers of the Indian Forest Service, Forest Departments, Forest Corporations and Forest related industries. The Wildlife Institute of India was established in 1982 as an autonomous organisation under MoEF. Besides carrying out research on various aspects of wildlife, the institute is also responsible for orienting and training in-service personnel at various levels of conservation and management of wildlife resources.

Since 1983 MoEF has financially aided a number of institutions throughout the country as 'Centres of Excellence' in the field of research and training in ecology and environment. Examples of such centres are Centre for Ecological Sciences (Indian Institute of Science) Bangalore, Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore and Tropical Botanic Garden & Research Institute (TBGRI). These Centres of Excellence are conducting research on various biodiversity related aspects specifically focussing on forest, grassland and wetland ecosystems. In addition these Centres of Excellence are also undertaking advanced research in plant, animal interactions behavioural ecology of some large mammals, conservation and management aspects of natural resources, ex-situ and in-situ conservation of medicinal plants.

Academic Staff colleges in universities have initiated in-service training programmes for science teachers on biodiversity. Annual programmes are being organised throughout the country to sensitise and train policy makers starting at the level of villages to that of states in conservation of biodiversity. Training programmes on biodiversity are also being organised for the personnel of the Armed Services, Indian Forest Service (IFS) and Indian Administrative Service (IAS).

The major sources of funding in the Government of India for Science and Technology such as Council for Scientific and Industrial Research (CSIR), University Grants Commission (UGC), Department of Science & Technology (DST), Ministry of Environment and Forests (MoEF), Department of Space (DoS), Department of Ocean development (DoD) and Department of Biotechnology (DBT), have earmarked funds specially for supporting biodiversity research throughout the country.

Article 13 Public education and awareness

180. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

181. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

182. Does your country promote and encourage understanding of the importance of, and the measures required for, the conservation of biodiversity (13a) through media?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
183. Does your country promote and encourage understanding of the importance of, and the measures required for, the conservation of biodiversity (13a) through the inclusion of this topic in education programmes?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
184. Does your country cooperate with other States and international organizations in developing relevant educational and public awareness programmes (13b)?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	

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185. Are public education and awareness needs covered in the national strategy and action plan?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢

186. Has your country allocated appropriate resources for the strategic use of education and communication instruments at each phase of policy formulation, implementation and evaluation?	
a) limited resources	➢
b) significant but not adequate resources	
c) adequate resources	
187. Does your country support initiatives by major groups that foster stakeholder participation and that integrate biological diversity conservation matters in their practice and education programmes?	
a) no	
b) yes	➢
188. Has your country integrated biodiversity concerns into education strategies?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) yes	➢
189. Has your country made available any case-studies on public education and awareness and public participation, or otherwise sought to share experiences?	
a) no	➢
b) yes	
190. Has your country illustrated and translated the provisions of the Convention into any local languages to promote public education and awareness raising of relevant sectors?	
a) not relevant	
b) still to be done	
c) under development	
d) yes	➢
191. Is your country supporting local, national, sub-regional and regional education and awareness programmes?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
If a developing country Party or Party with economy in transition - 192. When requesting assistance through the GEF, has your country proposed projects that promote measures for implementing Article 13 of the Convention?	
a) no	➢
b) yes	

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193. Does your country support capacity-building for education and communication in biological diversity as part of the national biodiversity strategy and action plans?	
a) no	
b) limited support	➢
c) yes (please give details)	

Further comments on implementation of this Article

Conservation and sustainable use of biodiversity is one of the thrust areas for public education and awareness. Ministry of Environment & Forests interacts actively with the University Grants Commission (UGC), National Council of Educational Research and Training (NCERT) and the Ministry of Human Resources Development (MHRD) for introducing and expanding environmental concepts and issues in the curricula of schools and colleges. In the area of formal education, the National Policy on Education, 1986 stresses on creating consciousness about the environment including biological diversity. NCERT has been assigned the responsibility of developing a prototype syllabi and instructional material in ten core curricular areas of which protection of environment is one. MHRD has launched the Environment Orientation to School Education scheme, wherein special cells are created in the state departments of education for environmental education. Support is also extended through this cell to NGOs to facilitate the development of locale-specific programmes and materials.

In order to generate awareness regarding the need to conserve and sustainably utilise biological resources, the communication media such as TV, Radio and Press are being utilised extensively. The education system, both formal and non-formal, is also mobilised to this end.

Some of the initiatives taken by MoEF in promoting Environment Education and Awareness (EE&A) through non-formal media and methods are:

-The National Environmental Awareness Campaign.

-Establishment of Centres of Excellence in Environmental Education

-Establishment of National and Regional Museums of Natural Histoty.

-Setting up of eco-clubs in schools.

-Production and dissemination of films, audio-visual and popular publications on environment.

-Supporting organisation of seminars, symposia and conferences on environmental issues.

-Institution of awards and fellowships.

-Establishment of ENVIS Centres.

"Mass Awareness" has been identified as one of the thrust areas in the Ministry not only to intensify the efforts already being made in this direction, but also to launch new initiatives. Biodiversity Conservation is one of the themes identified for the campaign. Besides using the print and the electronic media, performing arts like folk songs, street theatre etc. participation of general public through quiz/debate competitions etc. would also be ensured in this campaign.

The Supreme Court of India has ruled that each day, seven minutes of broadcast time on the national television network should be devoted to environment related programmes. MoEF has set up an Environmental Information System (ENVIS) to collect and disseminate information to researchers and the public through a network of 21 centres in the country. Twelve of these centres can be accessed through e-mail. ENVIS functions as a National Focal Point and a Regional Service Centre for the South Asian Sub Region Countries for INFOTERRA network, a global information network of the UNEP. ENVIS has also been designated as the National Focal Point of Sustainable Development Network Programme of UNDP. ENVIS serves as the Clearing House Mechanism for CBD in India. It maintains a close liaison with the other national information systems like National Information System on Science

and Technology (NISSAT) and Biotechnology Information System (BTIS).

The Paryavaran Vahini scheme was launched by the Ministry during 1992-93 to enhance environmental awareness and encourage active participation of people. It encourages people to report illegal acts pertaining to forests, wildlife, pollution and environmental degradation. One Paryavaran Vahini is constituted for every identified district.

The Botanical Survey of India conducts short term courses on field survey, herbarium methodology and flora writing at its Southern circle office in Coimbatore. The Survey also provides resource persons for training teachers and other members of Eco-clubs and participants in ecodevelopment programme.

The Zoological Survey of India conducts training programme in the areas of (i)Environmental Education and Wildlife Conservation; (ii)Ornithology; (iii)Parataxonomy; (iv) Identification of Insects and Mites; (v) Community Biodiversity – all contributing to the conservation of biodiversity and largely catering to the needs of NGOs. It has also biannual programme for training on EIA specially for ecological impacts. ZSI actively collaborators with WWF-India and CEE in teachers' training programme and provides resource persons for training programmes organised by NGOs. ZSI has also signed a MoU with SACEP to assist seven South Asian countries in assessing faunal diversity in each country.

The Centre for Environment Education, Ahmedabad and CPR Environment Education Centre, Chennai, the Centres of Excellence supported by the Ministry, organise activities aimed at creating environmental awareness among all sections of the society, especially the students and the teachers. These centres are also fully involved in the activities of the UGC, MHRD and NCERT related to formal environmental education.

The Centre for Environment Education (CEE), one of the Centres of Excellence of the Ministry of Environment & Forests, develops education and communication programmes and materials on conservation and sustainable use of biodiversity. It organises field programmes for communities living in and around National Parks and Sanctuaries. Under the Darwin Initiative, CEE developed an information and training package on biodiversity conservation.

The National Museum of Natural History (NMNH), a subordinate office of the Ministry functions with its main objective of promoting non-formal environmental education and conservation awareness among the people through various in-house and outreach activities. It has various exhibit galleries, a Bio-science Computer Room, a Discovery Room and an Activity Room for promoting environmental awareness among different target groups.

The Museum organises various temporary exhibitions as part of its education and extension services. In addition, NMNH also undertakes special in-house and outreach activities, orientation programmes for the benefit of school children, college students, teachers and general public.

The CPR Environment Education Centre, Chennai specifically undertakes biodiversity conservation education programmes for southern states of India. The target groups include: school and college students, teachers, villagers, women and forest officials. The Centre has established a network of NGOs in the States covering the Nilgiri Biosphere Reserve. The Centre has undertaken ecological restoration of sacred groves through creating awareness.

Besides the training and research facilities offered by MoEF through its Centres of Excellence to students, teachers and NGOs, there have been a number of initiatives by the government and organisations such as the WWF-India for promoting public education and awareness. Government initiatives have been many in this regard. One such of significance is that which made 'interpretation centres' in PAs and zoos mandatory. Most PAs in India currently have interpretation centres and printed literature (in local languages also) for education and awareness. CZA set up under MoEF provides support in developing appropriate skills in zoo education and interpretation facilities.

NGOs in India have played a vital role in raising awareness about the issues related to environment and development, and in mobilising people to take action. To this end, a variety of techniques and media are being employed. Many NGOs use traditional and folk media to communicate messages for peoples' action.

The Centre for Science and Environment (CSE), New Delhi has brought out four widely circulated volumes on the state of India's environment, in addition to a number of other publications. Ekalavya, Bhopal develops innovative school programmes and teaching material. Kalpavriksh organises awareness programmes and carries out campaigns on specific issues. Another major effort to educate farmers and rural communities about CBD is that of the Indian Institute of Management, Ahmedabad, through its network 'Honey Bee'.

Article 14 Impact assessment and minimizing adverse impacts

194. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

195. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

196. Is legislation in place requiring an environmental impact assessment of proposed projects likely to have adverse effects on biological diversity (14 (1a))?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) legislation in place	➢
e) review of implementation available	
197. Do such environmental impact assessment procedures allow for public participation (14(1a))?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
198. Does your country have mechanisms in place to ensure that the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account (14(1b))?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) fully compliant with current scientific knowledge	➢

199. Is your country involved in bilateral, regional and/or multilateral discussion on activities likely to significantly affect biological diversity outside your country's jurisdiction (14(1c))?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
200. Is your country implementing bilateral, regional and/or multilateral agreements on activities likely to significantly affect biological diversity outside your country's jurisdiction (14(1c))?	
a) no	
b) no, assessment of options in progress	
c) some completed, others in progress	
b) yes	➢
201. Has your country mechanisms in place to notify other States of cases of imminent or grave danger or damage to biological diversity originating in your country and potentially affecting those States (14(1d))?	
a) no	➢
b) early stages of development	
c) advanced stages of development	
d) mechanisms in place	
e) no need identified	
202. Has your country mechanisms in place to prevent or minimize danger or damage originating in your State to biological diversity in other States or in areas beyond the limits of national jurisdiction (14(1d))?	
a) no	➢
b) early stages of development	
c) advanced stages of development	
d) fully compliant with current scientific knowledge	
e) no need identified	
203. Has your country national mechanisms in place for emergency response to activities or events which present a grave and imminent danger to biological diversity (14(1e))?	
a) no	➢
b) early stages of development	
c) advanced stages of development	
d) mechanisms in place	
204. Has your country encouraged international cooperation to establish joint contingency plans for emergency responses to activities or events which present a grave and imminent danger to biological diversity (14(1e))?	
a) no	➢
b) yes	
c) no need identified	

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205. Has your country exchanged with other Contracting Parties information and experience relating to environmental impact assessment and resulting mitigating measures and incentive schemes?	
a) no	
b) information provided to the Secretariat	➢
c) information provided to other Parties	
d) information provided on the national CHM	
206. Has your country exchanged with other Contracting Parties information on measures and agreements on liability and redress applicable to damage to biological diversity?	
a) no	
b) information provided to the Secretariat	➢
c) information provided to other Parties	
d) information provided on the national CHM	

Decision V/18. Impact assessment, liability and redress

207. Has your country integrated environmental impact assessment into programmes on thematic areas and on alien species and tourism?	
a) no	
b) partly integrated	➢
c) fully integrated	
208. When carrying out environmental impact assessments does your country address loss of biological diversity and the interrelated socio-economic, cultural and human-health aspects relevant to biological diversity?	
a) no	
b) partly	➢
c) fully	
209. When developing new legislative and regulatory frameworks, does your country have in place mechanisms to ensure the consideration of biological diversity concerns from the early stages of the drafting process?	
a) no	
b) in some circumstances	➢
c) in all circumstances	
210. Does your country ensure the involvement of all interested and affected stakeholders in a participatory approach to all stages of the assessment process?	
a) no	
b) yes - in certain circumstances	
c) yes - in all cases	➢

211. Has your country organised expert meetings, workshops and seminars, and/or training, educational and public awareness programmes and exchange programmes in order to promote the development of local expertise in methodologies, techniques and procedures for impact assessment?	
a) no	
b) some programmes in place	
c) many programmes in place	➢
d) integrated approach to building expertise	
212. *Has your country carried out pilot environmental impact assessment projects, in order to promote the development of local expertise in methodologies, techniques and procedures*?	
a) no	
b) yes	➢
213. Does your country use strategic environmental assessments to assess not only the impact of individual projects, but also their cumulative and global effects, and ensure the results are applied in the decision making and planning processes?	
a) no	
b) to a limited extent	➢
c) to a significant extent	
214. Does your country require the inclusion of development of alternatives, mitigation measures and consideration of the elaboration of compensation measures in environmental impact assessment?	
a) no	
b) to a limited extent	
c) to a significant extent	➢
215. Is national information available on the practices, systems, mechanisms and experiences in the area of strategic environmental assessment and impact assessment?	
a) no	
b) yes (please append or summarise)	➢

Further comments on implementation of this Article

Impact assessment and minimising adverse impacts

Environmental Impact Assessment (EIA) is a management tool to improve decision-making and to ensure that development options are environmentally and socially sound and sustainable.

In 1991, the Ministry of Environment & Forests (MoEF) issued a notification under the Environment (Protection) Act, 1986, for the protection of the coastal areas, declaring coastal stretches as 'Coastal Regulation Zones' (CRZs) and regulating activities in the CRZs. Following the notification, all coastal States and Union Territories have prepared their respective Coastal Zone Management Plans (CZMP). The Government of India has set up National Coastal Zone Management Authority. The Government of India has also set up a Standing Committee of the Island Development Authority under the chairmanship of the Deputy Chairman, Planning Commission to review the progress of implementation and impact of programme development in the Indian islands.

In 1994, the Government of India through MoEF formally notified the Environmental Impact Assessment (EIA) under the Environment (Protection) Act 1986 and included under this 29 sectors which need to go through the procedure of EIA before implementing their developmental projects. However, much before this, MoEF had made EIA mandatory for public sector projects that were likely to impact the environment.

The MoEF has issued a notification designating biologically rich and ecologically fragile areas as eco-sensitive zones. Under this notification, Dahanu, Doon Valley, Mahabaleshwar, and Panchgani have been notified.

The Department of Ocean Development (DOD) designated as the nodal department to oversee the implementation of Chapter 17 of Agenda 21 has committed itself to introduce the concept as part of a larger programme on Environment Capacity Building (ECB). MoEF is the co-ordinating agency. Under the Integrated Coastal and Marine Area Management (ICMAM) component, activities that have been planned for execution over five years include drawing up model ICMAM plans, formulation of Geographical Information System (GIS) for critical habitats such as mangroves and turtle breeding grounds and determination of the level of pollution in the coastal areas.

Tribunal benches, to legally combat environmental damages, have been proposed in major cities such as New Delhi, Mumbai, Kolkata and Chennai under the National Environmental Tribunal Act, 1995. The National Environment Appellate Authority Act, 1997 provides for the establishment of a National Environment Appellate Authority to hear appeals with respect to environmental clearance of development projects.

Minimising adverse impacts of intensive agriculture, animal husbandry and aquaculture on biodiversity has been a major concern in the country. Increasing efforts are being taken by both government, state agricultural universities and NGOs to develop programmes of integrated farming all through the country and especially in fragile ecosystems as that in the Himalayas and rainfed agriculture.

Article 15 Access to genetic resources

216. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

217. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments

218. Has your country endeavoured to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties (15(2))?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
219. Is there any mutual understanding or agreement in place between different interest groups and the State on access to genetic resources (15(4))?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
220. Has your country an open participation planning process, or any other process in place, to ensure that access to resources is subject to prior informed consent (15(5))?	
a) no	
b) early stages of development	
c) advanced stages of development	➢
d) processes in place	
221. Has your country taken measures to ensure that any scientific research based on genetic resources provided by other Contracting Parties is developed and carried out with the full participation of such Contracting Parties (15(6))?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	➢
d) comprehensive measures in place	

222. Has your country taken measures to ensure the fair and equitable sharing of the results of research and development and the benefits arising from the commercial and other use of genetic resources with any Contracting Party providing such resources (15(7))?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
If so, are these measures	
a) Legislation	
b) Statutory policy or subsidiary legislation	
c) Policy and administrative measures	➢

Decision II/11 and Decision III/15. Access to genetic resources

223. Has your country provided the secretariat with information on relevant legislation, administrative and policy measures, participatory processes and research programmes?	
a) no	
b) yes, within the previous national report	➢
c) yes, through case-studies	
d) yes, through other means (please give details below)	➢
224. Has your country implemented capacity-building programmes to promote successful development and implementation of legislative, administrative and policy measures and guidelines on access, including scientific, technical, business, legal and management skills and capacities?	
a) no	
b) some programmes covering some needs	➢
c) many programmes covering some needs	
d) programmes cover all perceived needs	
e) no perceived need	
225. Has your country analysed experiences of legislative, administrative and policy measures and guidelines on access, including regional efforts and initiatives, for use in further development and implementation of measures and guidelines?	
a) no	
b) analysis in progress	➢
c) analysis completed	
226. Is your country collaborating with all relevant stakeholders to explore, develop and implement guidelines and practices that ensure mutual benefits to providers and users of access measures?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢

227. Has your country identified national authorities responsible for granting access to genetic resources?	
a) no	
b) yes	➢
228. Is your country taking an active role in negotiations associated with the adaptation of the International Undertaking on Plant Genetic Resources for Food and Agriculture?	
a) no	
b) yes	➢

Decision V/26. Access to genetic resources

229. Has your country designated a national focal point and one or more competent national authorities to be responsible for access and benefit-sharing arrangements or to provide information on such arrangements?	
a) no	
b) yes	➢
c) yes, and Executive Secretary notified	
230. Do your country's national biodiversity strategy, and legislative, administrative or policy measures on access and benefit-sharing, contribute to conservation and sustainable use objectives?	
a) no	
b) to a limited extent	
c) to a significant extent	➢
Parties that are recipients of genetic resources 231. Has your country adopted administrative or policy measures that are supportive of efforts made by provider countries to ensure that access to their genetic resources is subject to Articles 15, 16 and 19 of the Convention?	
a) no	
b) other arrangements made	
c) yes	
232. Does your country co-operate with other Parties in order to find practical and equitable solutions supportive of efforts made by provider countries to ensure that access to their genetic resources is subject to Articles 15, 16 and 19 of the Convention, recognizing the complexity of the issue, with particular consideration of the multiplicity of prior informed consent considerations?	
a) no	
b) yes (please provide details)	➢

233. In developing its legislation on access, has your country taken into account and allowed for the development of a multilateral system to facilitate access and benefit-sharing in the context of the International Undertaking on Plant Genetic Resources?	
a) no	
b) legislation under development	➢
c) yes	
234. Is your country co-ordinating its positions in both the Convention on Biological Diversity and the International Undertaking on Plant Genetic Resources?	
a) no	
b) taking steps to do so	
c) yes	➢
235. Has your country provided information to the Executive Secretary on user institutions, the market for genetic resources, non-monetary benefits, new and emerging mechanisms for benefit sharing, incentive measures, clarification of definitions, *sui generis* systems and “intermediaries”?	
a) no	
b) some information provided	➢
c) substantial information provided	
236. Has your country submitted information on specific issues related to the role of intellectual property rights in the implementation of access and benefit-sharing arrangements to the Executive Secretary?	
a) no	
b) yes	➢
237. Has your country provided capacity-building and technology development and transfer for the maintenance and utilization of ex situ collections?	
a) no	➢
b) yes to a limited extent	
c) yes to a significant extent	

Further comments on implementation of this Article

India is one of the 12 megabiodiversity countries of the world. With only 2.4% of the land area, India already accounts for 7-8% of the recorded species of the world. India is equally rich in traditional and indigenous knowledge. India has a long history of conservation and sustainable use of natural resources. Strategies and plans for the conservation and sustainable use of biological diversity are rooted in the rich spiritual and cultural traditions of our country. The Convention on Biological Diversity offers opportunities to India to realise benefits from its rich biological resources and associated traditional knowledge.

India has been attempting to operationalise access and benefit sharing provisions as enshrined in the Convention. India has already enunciated its National Policy and Action Strategy on Biodiversity. India is in the process of enacting a legislation on biodiversity. The Biological Diversity Bill 2000 has been introduced in the Parliament in May 2000. In addition, some other initiatives have also been taken in the country towards this end. In the following paragraphs, goals and principles of National policy pertaining to access and benefit sharing, relevant provisions in the Biodiversity Bill, and other initiatives are described. India has been sharing information on these initiatives in various CBD fora, such as CoPs, ABS Panel, ISOC meetings etc.

National Policy and Macrolevel Action Strategy on Biodiversity

As mentioned above, India is a rich biodiversity country. Over 46,000 species of plants and 81,000 species of animals have been recorded. India is also one of the 8 primary centres of origin of cultivated plants and is rich in agricultural biodiversity. India is equally rich in traditional and indigenous knowledge, both coded and informal. For conservation and sustainable use of biodiversity, India enunciated a National Policy and Macrolevel Action Strategy on Biodiversity. One of the goals of the National Policy addresses sharing of benefits arising from the use of biological resources. It reads as follows:

"Ensure benefits to India as country of origin of biological resources and to local communities and people as conservers of biodiversity, creators and holders of indigenous knowledge systems, innovations and practices."

The relevant principles governing this goal are:

(i) "India has sovereign rights over its own biological resources. Access and utilisation of the biological diversity occurring in India would be in accordance with the administrative and legislative measures of the State, including with the prior approval of the Central Government or the State Governments as the case may be.

(ii) Local communities and people have over the years developed lifestyles, innovations and practices conducive to conservation and sustainable use of biodiversity. They have developed a body of knowledge regarding the use of these resources for food, medicines, pesticides etc. Considering the dependence of the lifestyles of communities and local people on biological diversity, practices of utilisation conducive to conservation would be encouraged. Such practices, innovations and knowledge would be protected and propagated for wider use subject to ensuring benefits to these communities/people for utilising such knowledge and practices. Any commercial use of such knowledge, innovations and practices would be permissible only after ensuring a due share of the community in the benefits realised from such knowledge, innovations and practices."

Biological Diversity Bill 2000

India has been in the process of formulating a legislation on biodiversity since 1994, when India became a Party to the Convention. Extensive, transparent and participative consultations were held with eminent experts, NGOs, different departments of Central Government and State Governments. The biological diversity legislation introduced in the Parliament is an outcome of extensive and intensive consultation process involving all stakeholders.

Salient features of the biodiversity legislation are as follows:

<u>Scope</u>

- The legislation primarily addresses the issue concerning access to genetic resources and associated knowledge by individuals, institutions or companies, and equitable sharing of benefit arising out of the use of these resources and knowledge to the country and the people.

Implementation mechanism

- The legislation provides for setting up of a three tiered structure at national, state and local levels.

National Biodiversity Authority

- The National Biodiversity Authority will deal with matters relating to requests for access by foreign individuals, institutions or companies, and all matters relating to transfer of results of research to any foreigner; imposition of terms and conditions to secure equitable sharing of benefits and approval for seeking any form of Intellectual Property Rights (IPRs) in or outside India for an invention based on research or information pertaining to a biological resource obtained from India.

State Biodiversity Boards

- State Biodiversity Boards will deal with matters relating to access by Indians for commercial purposes and restrict any activity which violates the objectives of conservation, sustainable use and equitable sharing of benefits.

Biodiversity Management Committees

- Biodiversity Management Committees will be set up by institutions of self-government in their respective areas for conservation, sustainable use, documentation of biodiversity and chronicling of knowledge relating to biodiversity. Biodiversity Management Committees shall be consulted by the National Biodiversity Authority and State Biodiversity Boards on matters related to use of biological resources and associated knowledge within their jurisdiction.

Access and benefit sharing provision

- All foreign nationals/organisations require prior approval of NBA for obtaining biological resources and/or associated knowledge for any use. Indian individuals/entities require approval of NBA for transferring results of research with respect to any biological resource to foreign nationals/organisations. Indian citizens and organisations are required to give prior intimation to the concerned SBB about obtaining any biological resource for commercial use.

- The SBB may prohibit or restrict the activity if it violates the objectives of conservation, sustainable use and benefit sharing.

- However, local people and communities of the area will have free access to use biological resources within the country. While granting approvals for access, NBA will impose terms and conditions so as to secure equitable sharing of benefits. These benefits interalia include:

- grant of joint ownership of intellectual property rights to the National Biodiversity Authority, or where benefit claimers are identified, to such benefit claimers;
- transfer of technology;
- location of production, units in such areas;
- association of Indian scientists, benefit claimers and the local people with research and development in biological resources and bio-survey and bio-utilization;
- setting up of venture capital fund;
- payment of monetary compensation and other non-monetary benefits to the benefit claimers as the National Biodiversity Authority may deem fit.

- The legislation provides for setting up of biodiversity funds at central, state and local levels.

- Benefits will be given directly to individuals or group of individuals only in cases where biological resources or knowledge are accessed directly from them.

- In all other cases, monetary benefits will be deposited in the Biodiversity Fund which in turn is used for the conservation and development of biological resources and socio-economic development of areas from where resources have been accessed.

- Before applying for any form of IPRs in or outside India for an invention based on research or information on a biological resource obtained from India, prior approval of NBA will be required.

- The NBA while granting the approval may impose benefit sharing fee or royalty or both, and impose conditions including the sharing of financial benefits arising out of the commercial utilisation of such rights.

Protection of traditional knowledge associated with biological resources

- Issues relating to protecting, recognizing and rewarding of traditional knowledge (TK) associated with biological resources are very complex. The modalities for protecting TK are still emerging and evolving. The nature of entitlements and share in benefits is also a grey area.

- For protecting the TK, an enabling provision has been made for protecting the TK in the Biodiversity Bill 2000.

- This includes measures such as registration of such knowledge, and development of a sui generis system.

Other initiatives

(i) Terms and conditions for access

Until the Convention on Biological Diversity came into force in December 1993, the biological resources were accessed by people as a common human heritage. The CBD reaffirms and recognises the sovereign rights of nations over their biological resources and makes access to biological resources subject to the laws and regulations of the country in which these resources occur.

A circular was issued in January 1998, wherein we have advised universities, research institutions and other organisations to institute a system of signing agreements before transferring any biological material or knowledge to any other person or institution. It has been further advised that this agreement may include terms such as:

- genetic material shall be used only for the purpose specified;
- the material, germplasm, products or research relating to or based on the material shall not be transferred to any third party for any purpose;
- the genetic material, products or the research derived from or based on it shall not be commercialised without entering into a fresh agreement;
- the recipient applicant shall not claim any IPRs, directly or indirectly on accessed biological resource or/and research information, and on products based on the research/bio-prospecting etc.;
- Indian scientists shall be associated in the collection and other activities; and
- Relevant technologies pertaining to the biological resource accessed shall be transferred to India.

This circular has no legal validity. It has facilitated in creating awareness about access and benefit sharing and has encouraged entering into contractual agreements.

(ii) The Kani experience

Kani is a tribal community inhabiting the Southern Western Ghat region of Kerala State in India. In 1987, a team of scientists from the Tropical Botanic Garden and Research Institute (TBGRI) undertook an ethnobotanical field study in the tribal inhabited Western Ghat region of Kerala. During this expedition, they came across an interesting ethnomedical information on a wild plant locally called as "Arogyapacha" by the Kani tribe. The scientists noticed that the Kani tribals accompanying the team frequently ate some fruits which kept them energetic and agile. When asked about the source of the fruit, the Kani men were initially reluctant to reveal the information. The team convinced the Kani men that information would not be misused and that, they would conduct scientific investigation. If any marketable drugs/products got developed, the benefits accrued would be shared with the tribe. The Kani tribe then showed the plant, which was identified as *Trichophus zeylanicus.*

Pharmacological investigations of the fruit confirmed its anti-fatigue properties. Detailed chemical and pharmacological investigations showed that the leaves contained various glycolipids and some other non-steroidal compounds with anti -stress and anti-hepatoxic properties.

The scientists from TBGRI developed a polyherbal formulation using Ayurvedic pharmaceutical methods which was named "Jeevni". After satisfactory clinical evaluation this herbal drug was released for commercial production.

Many pharmaceutical firms approached TBGRI for getting the licence for the production of "Jeevni". After negotiations with various interested parties, the manufacturing licence of "Jeevni" was transferred to the Aryavaidya Pharmacy Coimbatore Ltd. for a licence fee of Rs. 1million (approximately 21,000 US $) for a period of 7 years . The TBGRI in consultation with the tribal community has worked out an arrangement for benefit sharing. According to this arrangement, the TBGRI has agreed to share 50% of the licence fee and royalty with the tribal community. In November 1997 nine members of Kani tribe registered a trust with the assistance of TBGRI. The objectives of the trust deed include :

- welfare and development activities for the Kanis of Kerala;
- preparation of biodiversity register to document the Kanis' knowledge base; and
- evolving and supporting methods to promote the sustainable use and conservation of biological resources.

Further details on the Kani experience are given in the Thematic Report on Access and Benefit sharing submitted to the CBD Secretariat **.**

Article 16 Access to and transfer of technology

238. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	➢	c) Low	

239. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

240. Has your country taken measures to provide or facilitate access for and transfer to other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment (16(1))?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
241. Is your country aware of any initiatives under which relevant technology is transferred to your country on concessional or preferential terms (16(2))?	
a) no	➢
b) yes (please give brief details below)	
242. Has your country taken measures so that Contracting Parties which provide genetic resources are provided access to and transfer of technology which make use of those resources, on mutually agreed terms (16(3))?	
a) not relevant	
b) relevant, but no measures	
c) some measures in place	➢
d) potential measures under review	
e) comprehensive measures in place	
If so, are these measures	
a) Legislation	➢
b) Statutory policy or subsidiary legislation	
c) Policy and administrative arrangements	
243. Has your country taken measures so that the private sector facilitates access to joint development and transfer of relevant technology for the benefit of government institutions and the private sector of developing countries (16(4))?	
a) no measures	➢
b) some measures in place	
c) potential measures under review	

d) comprehensive measures in place	
If so, are these measures	
a) Legislation?	
b) Statutory policy and subsidiary legislation?	
c) Policy and administrative arrangements?	
244. Does your country have a national system for intellectual property right protection (16(5))?	
a) no	
b) yes	➢
245. If yes, does it cover biological resources (for example, plant species) in any way?	
a) no	➢
b) yes – limited extent	
c) yes – significant extent	

Decision III/17. Intellectual property rights

246. Has your country conducted and provided to the secretariat case-studies of the impacts of intellectual property rights on the achievement of the Conventions objectives?	
a) no	➢
b) some	
c) many	

Further comments on implementation of this Article

Recognising that access to and transfer of technology among Contracting Parties are essential elements for achieving the objectives of the Convention (namely conservation of biodiversity, sustainable use of its components, and equitable sharing of benefits arising from their use), Article 16 provides for transfer of technologies which are relevant to the conservation and sustainable use, or make use of genetic resources, and do not cause significant damage to the environment. The Convention also provides for transfer of these technologies to developing countries on fair and most favourable terms, including on concessional and preferential terms, where mutually agreed. An explicit reference to IPRs is in Articles 16.2 and 16.5. While 16.2 speaks of 'adequate and effective protection of IPRs in case of transfer of technology subject to patents and other IPRs, Article 16.5 clearly articulates that patents and other IPRs should be supportive of and do not run counter to the objectives of CBD.

A wide range of technologies are relevant for the attainment of CBD's objectives. Generally speaking, the technologies required for in situ and ex-situ conservation (such as tissue culture, DNA finger printing, cryogenic preservation etc.) are by and large available off the shelf. However, it is not so in the case of biotechnologies, which can contribute to for example sustainable agricultural development. In this context, it is relevant to note that while in the past agricultural research was dominated by the public sector, now with the advent of biotechnologies, a few private MNCs dominate the research and commercial activities. Most of such commercially useful biotechnologies including Environmentally Sound Technologies (ESTs) are protected by patents. In this background, the question we need to address is can CBD facilitate transfer of such technologies to developing countries?

If we consider the experience of Montreal Protocol, especially in the context of transferring of technologies for production of non ODS, the scenario may not appear very promising. Nevertheless, because CBD articulates that patents and other IPRs should not run counter to the objectives of the CBD, it implies that ESTs need to be transferred to developing countries on fair and most favourable terms as provided for in Article 16. This could happen when the owners of the ESTs license these technologies to the users. How exactly this can be done and how the provisions of technology transfer can be actually operationalised and implemented needs to be worked out. It also needs to be seen as to how MEAs such as CBD can be made more effective instruments for the transfer of ESTs to developing countries.

In this connection, some of the suggestions that have been putforth include:

(i) The financial mechanism of CBD may be used to compensate the owners of ESTs for transferring the protected technologies.

(ii) Creation of special technology development fund for each MEA, for financing the purchase of IPRs to enable developing countries to have access to such protected technologies. This fund can also be used for increasing support to local technology development activities in developing countries, i.e. towards their capacity building.

As regards the relationship between access to genetic resources and transfer of technology, Article 16 of the CBD also envisages that developing countries which provide genetic resources are given access to and transfer of technology, which makes use of these resources, including technology which is protected by IPRs.

CBD envisages that access to genetic resources is based upon mutually agreed upon terms and is subject to PIC under the national legislation. Logically therefore transfer of technology which makes use of such genetic resources should invariably be one of the conditions for granting access. This can be taken care of under the national legislations on access being developed by countries. In this connection, it may be mentioned that Section 21(2)(b) of Biological Diversity Bill 2000 stipulated that transfer of technology is one of the elements of benefit sharing in the approvals given by the National Biodiversity Authority.

Article 17 Exchange of information

247. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	➢	c) Low	

248. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

249. Has your country taken measures to facilitate the exchange of information from publicly available sources (17(1))?	
a) no measures	
b) restricted by lack of resources	
c) some measures in place	➢
d) potential measures under review	
e) comprehensive measures in place	
If a developed country Party - 250. Do these measures take into account the special needs of developing countries (17(1))?	
a) no	
b) yes – limited extent	
c) yes – significant extent	
251. If so, do these measures include all the categories of information listed in Article 17(2), including technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on?	
a) no	
b) yes – limited extent	
c) yes – significant extent	

Article 18 Technical and scientific cooperation

252. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

253. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

254. Has your country taken measures to promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity (18(1))?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	
255. Do the measures taken to promote cooperation with other Contracting Parties in the implementation of the Convention pay special attention to the development and strengthening of national capabilities by means of human resources development and institution building (18(2))?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
256. Has your country encouraged and developed methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention (18(4))?	
a) no	➢
b) early stages of development	
c) advanced stages of development	
d) methods in place	

257. Does such cooperation include the training of personnel and exchange of experts (18(4))?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
258. Has your country promoted the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention (18(5))?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	

Decision II/3, Decision III/4 and Decision IV/2. Clearing House Mechanism

259. Is your country cooperating in the development and operation of the Clearing House Mechanism?	
a) no	
b) yes	➢
260. Is your country helping to develop national capabilities through exchanging and disseminating information on experiences and lessons learned in implementing the Convention?	
a) no	➢
b) yes - limited extent	
c) yes – significant extent	
261. Has your country designated a national focal point for the Clearing-House Mechanism?	
a) no	
b) yes	➢
262. Is your country providing resources for the development and implementation of the Clearing-House Mechanism?	
a) no	
b) yes, at the national level	➢
c) yes, at national and international levels	
263. Is your country facilitating and participating in workshops and other expert meetings to further the development of the CHM at international levels?	
a) no	➢
b) participation only	
c) supporting some meetings and participating	

264. Is your CHM operational	
a) no	
b) under development	➢
c) yes (please give details below)	
265. Is your CHM linked to the Internet	
a) no	
b) yes	➢
266. Has your country established a multi-sectoral and multi-disciplinary CHM steering committee or working group at the national level?	
a) no	➢
b) yes	

Decision V/14. Scientific and technical co-operation and the clearinghouse mechanisms (Article 18)

267. Has your country reviewed the priorities identified in Annex I to the decision, and sought to implement them?	
a) not reviewed	➢
b) reviewed but not implemented	
c) reviewed and implemented as appropriate	

Article 19 Handling of biotechnology and distribution of its benefits

268. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

269. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

270. Has your country taken measures to provide for the effective participation in biotechnological research activities by those Contracting Parties which provide the genetic resources for such research (19(1))?	
a) no measures	➢
b) some measures in place	
c) potential measures under review	
d) comprehensive measures in place	
If so, are these measures:	

a) Legislation	
b) Statutory policy and subsidiary legislation	
c) Policy and administrative measures	
271. Has your country taken all practicable measures to promote and advance priority access on a fair and equitable basis by Contracting Parties to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties (19(2))?	
a) no measures	
b) some measures in place	➢
c) potential measures under review	
d) comprehensive measures in place	

Decision IV/3. Issues related to biosafety and Decision V/1. Work Plan of the Intergovernmental Committee for the Cartagena Protocol on Biosafety

272. Is your country a Contracting Party to the Cartagena Protocol on Biosafety?	
a) not a signatory	
b) signed, ratification in progress	➢
c) instrument of ratification deposited	

Further comments on implementation of this Article

Laws that regulate Genetically Modified Organisms (GMOs) in India

In order to contain possible hazards to environment from the release of Genetically Modified Organisms, the Ministry of Environment and Forests (MoEF) under the Environment (Protection) Act (EPA) 1986, has notified in December 1989, the 'Rules for the manufacture, use, import, export and storage of hazardous Micro-organisms/Genetically Engineered Organisms or Cells. These Rules are being implemented through a three tiered mechanism:

-Institutional Biosafety Committees (IBSCs) at the institutional level.
-Review Committee on Genetic Manipulation (RCGM)
-Genetic Engineering Approval Committee (GEAC)

The **Review Committee on Genetic Manipulation (RCGM**) is functioning in the Department of Biotechnology. Its functions are:

-To review the reports in all approved ongoing projects involving high risk category and controlled field experiments research in four areas namely human and animal health care, agriculture, industry and environmental management.

-To visit site of experimental facilities periodically where projects with biohazard potential are being pursued and also at a time prior to the commencement of the activity to ensure that adequate safety measures are taken as per the guidelines.

-To issue clearance for import/export of etiologic agents and vectors, germplasms, organelle, etc. needed for experimental work/training and research.

The **Genetic Engineering Approval Committee (GEAC**) is functioning under the Ministry of Environment and Forests to examine and issue the clearance from the view point of environmental safety on a case by case basis for :

- activities involving large scale use of hazardous micro-organisms and recombinants in research and industrial production from environmental angle.
- Proposals relating to the release of genetically engineered organisms and products into the environment including experimental field trials.
- Production, sale, import or use of substances and products including food stuffs and additives including processing aids containing or consisting genetically engineered organisms or cells or micro-organisms.
- Import, export, transport, manufacture, process, use or sale of any hazardous micro-organisms or genetically engineered organisms/substances or cells.
-Scale up or pilot operations for facilities using genetically engineered organisms/micro-organisms mentioned in the schedule.

In addition, the Rules also provide for constitution of committees like State Biotechnology Co-ordination Committee (SBCC) which is expected to monitor research as well as commercial applications of GMOs in the states and District Level Committee (DLC) which monitors research and applications in GMOs including accidental releases at the district level.

It is to be pointed out that both MoEF and DBT seek advise of experts in the field of genetic engineering and molecular biology who are represented in GEAC and RCGM. Besides, agency representatives like experts from ICAR, CSIR, ICMR, Drug Controller of India, Department of Atomic Energy, Ministry of Science and Technology, Ministry of Industry and Central Pollution Control Board are members of GEAC. All the proposals received by GEAC are scrupulously referred to a panel of experts and their views are considered before taking a final decision. All proposals are considered on a case-by case basis and on merit**.**

In order to evaluate proposals, DBT has issued following guidelines:

- Recombinant DNA Safety Guidelines, 1990
- Recombinant DNA Safety Guidelines and Regulations, 1990
- Revised Guidelines for Safety in Biotechnology, 1994
- Revised Guidelines for Research in Transgenic Plants, 1998
- Guidelines for generating pre-clinical and clinical data for rDNA vaccines, diagnostics and other Biologicals, 1999.

A Monitoring and Evaluation Committee has been set up at DBT to monitor and evaluate results of transgenic cotton presently being conducted at various locations in India. In respect of manufacturing activities, Regional Offices of MoEF monitor various conditions attached with approval letters. As per information provided by DBT, it has taken penal action in respect of violation of approval conditions during experimental trials of brinjals (IARI Delhi), Paddy (Bose Institute, Calcutta), Potato (Potato Research Institute, Simla) and Aspergillus (Bhagalpur University). Apart from transgenic cotton, DBT is also closely monitoring experiments with other transgenic crops like mustard, cabbage, cauliflower, tomato and tobacco in the country.

Once GEAC has approved the release of any GMO on the basis of environmental safety assessment under the Indian EPA, taking also into consideration risks to human and animal health, the commercial aspects of such GMOs are governed by the other Laws, Rules and Procedures of the concerned administrative ministries. Agricultural products are to be handled by the Ministry of Agriculture, food products by Health Ministry under the PFA etc.

Article 20 Financial resources

273. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	➢	b) Medium		c) Low	

274. To what extent are the resources available adequate for meeting the obligations and recommendations made?							
a) Good		b) Adequate		c) Limiting	*	d) Severely limiting	

Further comments on relative priority and on availability of resources
No comments.

275. Has your country provided financial support and incentives in respect of those national activities which are intended to achieve the objectives of the Convention (20(1))?	
a) no	➢
b) yes – incentives only	
c) yes – financial support only	
d) yes – financial support and incentives	
If a developed country Party - 276. Has your country provided new and additional financial resources to enable developing country Parties to meet the agreed incremental costs to them of implementing measures which fulfil the obligations of the Convention, as agreed between you and the interim financial mechanism (20(2))?	
a) no	
b) yes	
If a developing country Party or Party with economy in transition – 277. Has your country received new and additional financial resources to enable you to meet the agreed full incremental costs of implementing measures which fulfil the obligations of the Convention (20(2))?	
a) no	➢
b) yes	
If a developed country Party - 278. Has your country provided financial resources related to implementation of the Convention through bilateral, regional and other multilateral channels (20(3))? ***If a developing country Party or Party with economy in transition -*** 279. Has your country used financial resources related to implementation of the Convention from bilateral, regional and other multilateral channels (20(3))?	
a) no	
b) yes	➢

Decision III/6. Additional financial resources

280. Is your country working to ensure that all funding institutions (including bilateral assistance agencies) are striving to make their activities more supportive of the Convention?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
281. Is your country cooperating in any efforts to develop standardized information on financial support for the objectives of the Convention?	
a) no	
b) yes	➢

Decision V/11. Additional financial resources

282. Has your country established a process to monitor financial support to biodiversity?	
a) no	
b) procedures being established	➢
c) yes (please provide details)	
283. Are details available of your country's financial support to national biodiversity activities?	
a) no	
b) not in a standardized format	➢
c) yes (please provide details)	
284. Are details available of your country's financial support to biodiversity activities in other countries?	
a) not applicable	➢
b) no	
c) not in a standardized format	
d) yes (please provide details)	
Developed country Parties - 285. Does your country promote support for the implementation of the objectives of the Convention in the funding policy of its bilateral funding institutions and those of regional and multilateral funding institutions?	
a) no	
b) yes	
Developing country Parties - 286. Does your country discuss ways and means to support implementation of the objectives of the Convention in its dialogue with funding institutions?	
a) no	
b) yes	➢
287. Has your country compiled information on the additional financial support provided by the private sector?	

a) no	➢
b) yes (please provide details)	
288. Has your country considered tax exemptions in national taxation systems for biodiversity-related donations?	
a) no	➢
b) not appropriate to national conditions	
c) exemptions under development	
d) exemptions in place	

Article 21 Financial mechanism

289. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	➢	c) Low	
290. To what extent are the resources available adequate for meeting the obligations and recommendations made?					
a) Good		b) Adequate		c) Limiting	
d) Severely limiting					
Further comments on relative priority and on availability of resources					
No comments.					

291. Has your country worked to strengthen existing financial institutions to provide financial resources for the conservation and sustainable use of biological diversity?	
a) no	
b) yes	➢

Decision III/7. Guidelines for the review of the effectiveness of the financial mechanism

292. Has your country provided information on experiences gained through activities funded by the financial mechanism?	
a) no activities	
b) no, although there are activities	➢
c) yes, within the previous national report	
d) yes, through case-studies	
e) yes, through other means (please give details below)	

Article 23 Conference of the Parties

293. How many people from your country participated in each of the meetings of the Conference of the Parties?	
a) COP 1 (Nassau)	4
b) COP 2 (Jakarta)	4
c) COP 3 (Buenos Aires)	5
d) COP 4 (Bratislava)	4
e) COP 5 (Nairobi)	3

Decision I/6, Decision II/10, Decision III/24 and Decision IV/17. Finance and budget

294. Has your country paid all of its contributions to the Trust Fund?	
a) no	
b) yes	➢

Decision IV/16 (part) Preparation for meetings of the Conference of the Parties

295. Has your country participated in regional meetings focused on discussing implementation of the Convention before any meetings of the Conference of the Parties?	
a) no	
b) yes (please specify which)	➢
If a developed country Party – 296. Has your country funded regional and sub-regional meetings to prepare for the COP, and facilitated the participation of developing countries in such meetings?	
a) no	
b) yes (please provide details below)	

Decision V/22. Budget for the programme of work for the biennium 2001-2002

297. Did your country pay its contribution to the core budget (BY Trust Fund) for 2001 by 1st January 2001?	
a) yes in advance	
b) yes on time	
c) no but subsequently paid	➢
d) not yet paid	

298. Has your country made additional voluntary contributions to the trust funds of the Convention?	
a) yes in the 1999-2000 biennium	
b) yes for the 2001-2002 biennium	
c) expect to do so for the 2001-2002 biennium	
d) no	➢

Further comments on implementation of this Article

India actively participated in the Asian Regional Meeting prior to CoP-2, CoP-3 and CoP-4.

Article 24 Secretariat

299. Has your country provided direct support to the Secretariat in terms of seconded staff, financial contribution for Secretariat activities, etc?	
a) no	➢
b) yes	

Article 25 Subsidiary body on scientific, technical and technological advice

300. How many people from your country participated in each of the meetings of SBSTTA?	
a) SBSTTA I (Paris)	1
b) SBSTTA II (Montreal)	2
c) SBSTTA III (Montreal)	2
d) SBSTTA IV (Montreal)	2
e) SBSTTA V (Montreal)	1

Article 26 Reports

301. What is the status of your first national report?	
a) Not submitted	
b) Summary report submitted	
c) Interim/draft report submitted	
d) Final report submitted	➢
If b), c) or d), was your report submitted:	
by the original deadline of 1.1.98 (Decision III/9)?	
by the extended deadline of 31.12.98 (Decision IV/14)?	➢
Later (please specify date)	

Decision IV/14 National reports

302. Did all relevant stakeholders participate in the preparation of this national report, or in the compilation of information used in the report?	
a) no	
b) yes	➢
303. Has your country taken steps to ensure that its first and/or second national report(s) is/are available for use by relevant stakeholders?	
a) no	
b) yes	➢
If yes, was this by:	

a) informal distribution?	➢
b) publishing the report?	➢
c) making the report available on request?	➢
d) posting the report on the Internet?	

Decision V/19. National reporting

304. Has your country prepared voluntary detailed thematic reports on one or more of the items for in-depth consideration at an ordinary meeting of the parties, following the guidelines provided?	
a) no	
b) yes – forest ecosystems	
c) yes – alien species	
d) yes – benefit sharing	➢

Decision V/6. Ecosystem approach

305. Is your country applying the ecosystem approach, taking into account the principles and guidance contained in the annex to decision V/6?	
a) no	
b) under consideration	
c) some aspects are being applied	➢
d) substantially implemented	
306. Is your country developing practical expressions of the ecosystem approach for national policies and legislation and for implementation activities, with adaptation to local, national, and regional conditions, in particular in the context of activities developed within the thematic areas of the Convention?	
a) no	
b) under consideration	
c) some aspects are being applied	➢
d) substantially implemented	
307. Is your country identifying case studies and implementing pilot projects that demonstrate the ecosystem approach, and using workshops and other mechanisms to enhance awareness and share experience?	
a) no	
b) case-studies identified	➢
c) pilot projects underway	➢
d) workshops planned/held	
e) information available through CHM	
308. Is your country strengthening capacities for implementation of the ecosystem approach, and providing technical and financial support for capacity-building to implement the ecosystem approach?	
a) no	
b) yes within the country	➢

c) yes including support to other Parties	
309. Has your country promoted regional co-operation in applying the ecosystem approach across national borders?	
a) no	➢
b) informal co-operation	
c) formal co-operation (please give details)	

Inland water ecosystems

Decision IV/4. Status and trends of the biological diversity of inland water ecosystems and options for conservation and sustainable use

310. Has your country included information on biological diversity in wetlands when providing information and reports to the CSD, and considered including inland water biological diversity issues at meetings to further the recommendations of the CSD?	
a) no	
b) yes	➢
311. Has your country included inland water biological diversity considerations in its work with organizations, institutions and conventions affecting or working with inland water?	
a) no	
b) yes	➢
If a developing country Party or Party with economy in transition – 312. When requesting support for projects relating to inland water ecosystems from the GEF, has your country given priority to identifying important areas for conservation, preparing and implementing integrated watershed, catchment and river basin management plans, and investigating processes contributing to biodiversity loss?	
a) no	
b) yes	➢
313. Has your country reviewed the programme of work specified in annex 1 to the decision, and identified priorities for national action in implementing the programme?	
a) no	
b) under review	➢
c) yes	

Decision V/2. Progress report on the implementation of the programme of work on the biological diversity of inland water ecosystems (implementation of decision IV/4)

314. Is your country supporting and/or participating in the River Basin Initiative?	
a) no	➢
b) yes	
315. Is your country gathering information on the status of inland water biological diversity?	
a) no	
b) assessments ongoing	➢
c) assessments completed	
316. Is this information available to other Parties?	
a) no	
b) yes - national report	➢
c) yes – through the CHM	
d) yes – other means	➢

317. Has your country developed national and/or sectoral plans for the conservation and sustainable use of inland water ecosystems?	
a) no	
b) yes – national plans only	➢
c) yes – national plans and major sectors	
d) yes – national plans and all sectors	
318. Has your country implemented capacity-building measures for developing and implementing these plans?	
a) no	
b) yes	➢

Decision III/21. Relationship of the Convention with the CSD and biodiversity-related conventions

319. Is the conservation and sustainable use of wetlands, and of migratory species and their habitats, fully incorporated into your national strategies, plans and programmes for conserving biological diversity?	
a) no	
b) yes	➢

Further comments on implementation of these decisions and the associated programme of work

For conservation and management of wetlands of the country, India is implementing a comprehensive programme since 1987. The activities under this programme interalia include : preparation and implementation of management action plans for 20 identified wetlands of the country, emphasising participation of people living around these areas.

Catchment area is an integral component of the wetland ecosystem. The anthropogenic activities in catchment areas such as deforestation, overgrazing and developmental activities are causative factors for the accelerated soil erosion and consequent siltation of wetlands. In view of these factors, several activities for catchment area development, including afforestation, vegetative contour bunding, construction of water harvesting structures, gully control, check dams, stream bank erosion control, etc., have been undertaken in several wetlands such as Chilika, Loktak, Harike, Kanjli, Wular and Bhoj.

The State Governments have taken elaborate measures to check the growth of weeds such as water hyacinth, Ipomea sp. Paspalam. While biological control measures have been successful to check the growth of water hyacinth in Loktak Lake, similar efforts are being made on an experimental basis in a controlled manner in some other wetlands such as Harike, Kanjli etc. Manual method for deweeding is being adopted on an extensive basis in Harike, Kanjli, Bhoj and Chilika Lakes. There has been, however, recurrence of water hyacinth in some wetlands despite clearance due to its exponential growth. A comprehensive integrated long- term approach is being evolved to combat the weed menace.

One of the important components of management action plans is conservation of endangered and threatened species. Several programmes have been initiated by the Ministry of Environment and Forests for the conservation of wildlife under in-situ conditions and supplemented through ex-situ conservation measures in identified cases. Some of the endangered species particularly Rhinoceros and Sangai - the brow antlered deer have been reintroduced in the wetlands. Certain portions of Chilika, Kabar and Loktak wetlands have been declared as sanctuaries especially for the protection and conservation of wildlife.

Construction of mounds and ponds has also been undertaken in some wetlands for developing them as suitable waterfowl habitats.

Guidelines for sustainable development and management of brackish water aquaculture have been drawn up. Some State Governments like Tamil Nadu and Andhra Pradesh have also developed their own aquaculture guidelines and regulatory measures in the coastal zone areas. The State Government of Orissa has formed a Task Force to look into the various aspects of prawn farming along the coastline.

A National Lakes Conservation Plan for 10 lakes has been formulated to address the problem of urban lakes subjected to severe stress due to pollution from industrial and domestic sources, siltation and encroachment.

People's participation is an important component of all the wetlands identified for conservation and management. Participatory processes are being developed with participation of local communities for the co- management of wetlands, including Ramsar sites. Recently, a community based project on Loktak Lake has been initiated by Loktak Development Authority and Wetlands International - South Asia to develop and implement participatory management processes involving local communities and NGOs. Wise use of the resources of the East Calcutta wetlands is being practiced by the local community. Similar approaches are being considered for other wetlands including Chilika, Keoladeo National Park and Harike Wetland. An effective role has been played by several NGOs in the country to save the wetlands and help in the conservation of the threatened species. A reference may be made in this case about conservation of Sukhna Lake in Chandigarh. The Environmental Society of Chandigarh, the local people and school children have been participating in the conservation of this lake through an environmental movement called "Shramdan".

Awareness building is one of the important components of the management action plans. Several activities have been undertaken by the State Governments of Punjab, Orissa, Jammu & Kashmir, Madhya Pradesh, Himanchal Pradesh, Manipur and Kerala to build awareness among various target groups including school children, youth and major stakeholder groups through audiovisuals, posters, nature camps, films etc.

India has designated six Ramsar Sites viz. Keoladeo National Park, Chilika Lake, Loktak Lake, Wular Lake, Sambhar Lake and Harike Lake.

These wetlands broadly represent Himalayan freshwater wetlands, coastal lagoons, floodplain systems and arid zone wetlands. Management action plans have been formulated for all wetlands excluding Sambhar Lake, which is under preparation. The management action plans broadly include protection, catchment area treatment, pollution control, weed control, wildlife conservation, sustainable fisheries development, generating awareness and people's participation. The Ministry of Environment and Forests provides technical and financial support for implementation of activities under these management action plans.

Action has been initiated to designate 25 more wetlands as Ramsar sites

Ministry of Environment and Forests has prepared a directory on Wetlands of. India in 1990 based on questionnaire survey, which includes information on location, geographical coordinates, area and ecological category of wetlands over 100 ha in different states and union territories. As per the Directory of Wetlands in India, there are 2,167 natural wetlands and 65,253 manmade wetlands occupying an area of 4.1 million hectares. According to the latest survey carried out in 1995 the total mangrove area in the country is 4,533 sq km. About 80% of mangrove forests occur in Sundarbans and Andaman and Nicobar Islands. The rest being distributed in the coastal States of Orissa, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Gujarat and Goa.

A preliminary analysis of the project report on Wetlands of India indicates the total area of wetlands in the country as 7.6 million ha, out of which 3.6 million ha are inland and the rest coastal. Several projects have been sanctioned

by the Ministry for inventorisation of wetland resources at the state and district levels.

Ministry of Environment and Forests has identified economic valuation of wetlands as a priority area under wetland programme. Economic valuation of Keoladeo National Park has been carried out by Indira Gandhi Institute for Development and Research under UNDP sponsored project on Capacity 21. Similarly, a project on Economic Valuation on Harike Lake has recently been initiated by Wetlands International – South Asia under Small Grant Fund of Ramsar Convention. Several other projects on economic valuation, including Chilika Lake, have been formulated by different agencies in India.

India is also implementing a GEF project on conservation and sustainable use of globally significant threatened wetlands of India.

Marine and coastal biological diversity

Decision II/10 and Decision IV/5. Conservation and sustainable use of marine and coastal biological diversity

320. Does your national strategy and action plan promote the conservation and sustainable use of marine and coastal biological diversity?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
321. Has your country established and/or strengthened institutional, administrative and legislative arrangements for the development of integrated management of marine and coastal ecosystems?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) arrangements in place	➢
322. Has your country provided the Executive Secretary with advice and information on future options concerning the conservation and sustainable use of marine and coastal biological diversity?	
a) no	➢
b) yes	
323. Has your country undertaken and/or exchanged information on demonstration projects as practical examples of integrated marine and coastal area management?	
a) no	➢
b) yes – previous national report	
c) yes - case-studies	
d) yes - other means (please give details below)	
324. Has your country programmes in place to enhance and improve knowledge on the genetic structure of local populations of marine species subjected to stock enhancement and/or sea-ranching activities?	
a) no	
b) programmes are being developed	➢
c) programmes are being implemented for some species	
d) programmes are being implemented for many species	
e) not a perceived problem	
325. Has your country reviewed the programme of work specified in an annex to the decision, and identified priorities for national action in implementing the programme?	
a) no	
b) under review	➢
c) yes	

Decision V/3. Progress report on the implementation of the programme of work on marine and coastal biological diversity (implementation of decision IV/5)

326. Is your country contributing to the implementation of the work plan on coral bleaching?	
a) no	
b) yes	➢
c) not relevant	
327. Is your country implementing other measures in response to coral bleaching?	
a) no	
b) yes (please provide details below)	➢
c) not relevant	
328. Has your country submitted case-studies on the coral bleaching phenomenon to the Executive Secretary?	
a) no	
b) yes	➢
c) not relevant	

Further comments on implementation of these decisions and the associated programme of work

The coastline of India including those of Andaman and Nicobar Islands and Lakshadweep islands extend over 7500 km. The marine ecosystem in India covers 2.1 million sq. km. area. The marine biodiversity specially from the deep sea region remains little explored. However, the available data on marine faunal biodiversity reveals that it represents more than 15% of the total fauna of the country. It is also noteworthy that 13 groups of animals are purely marine. An illustrative list of coastal and marine biodiversity in India is given below.

Illustrative List of Coastal and Marine Biodiversity in India

Name of the group	No. of species		Percentage of marine species
	Total	Marine	
1.Algae	1500	624	41.60
2.Protista (Sarcomastigophora & Ciliophora)	2577	750	29.10
3.Porifera	519	486	96.30
4.Cnidaria	817	790	96.70
5.Ctenophora	100	12	12
6.Platyhelminthes	4920	350	7.11
7.Gastroticha	88	88	100
8.Kinorhyncha	99	99	100
9.Annelida	840	440	52.40
10.Mollusca	5050	3370	66.70

11.Bryozoa	194	170	87.62
12.Enteropracta	60	10	16.66
13.Phoranida	11	3	27.23
14.Brachiopoda	300	3	1.00
15.Arthropoda: a.Crustacea b.Pycnogodia c.Merostomata	 2994 16 2	 2430 16 2	 81.20 100 100
16.Targigrada	10	10	100
17.Chaetognatha	30	30	100
18.Echinodermta	765	765	100
19.Hemichordata	12	12	100
20.Chordata: a.Protochordata b.Pisces c.Amphibia (in Estuaries & Mangroves) d.Reptilia e.Aves f.Mammalia	 116 2546 204 446 1228 372	 116 1800 3 26 145 29	 100 70.70 1.50 0.20 11.80 7.80

Mangroves

Mangroves are salt-tolerant ecosystems in tropical and subtropical regions. These ecosystems are largely characterised by assemblage of unrelated tree genera that share the common ability to grow in saline tidal zones. Mangroves stabilize the shoreline and act as bulwark against the devastating impact of hurricanes and cyclones as well as encroachment by the sea and check soil erosion.

India harbours some of the best mangrove swamps in the world, located in the alluvial deltas of Ganga, Mahanadi, Godavari, Krishna and Cauvery rivers, and on the Andaman and Nicobar group of islands. The total area covered by mangroves in India is estimated at about 6700 sq. km. amounting to about 7% of the world's mangroves.

Taking into consideration ecological and economic significance of mangroves and threats faced by them due to various anthropogenic activities, the country launched a scheme on Conservation and Management of Mangroves in 1986. A National Committee on Mangroves provides guidance for effective implementation of the management programmes, which are currently operational in 15 areas in the coastal States of the country. State level Steering Committees have been constituted for formulation of specific Management Action Plans for each area. Nodal universities/academic institutions are being actively associated in research activities in different mangrove areas under the overall supervision of a Research Sub-Committee which functions in Ministry of Environment and Forests.

The Ministry is undertaking a National Action Plan for protection, conservation, regeneration and afforestation of mangroves in coastal areas as a thrust area activity. A strategy has been formulated, based on suggestions received from coastal States/Union Territories for undertaking a clearly focussed, time bound Management Action

Programme. Some of the key components of this programme are as follows:

- Identification of State-wise existing and potential areas for afforestation and regeneration of mangroves
- Development and implementation of Micro Plans.
- Ensure community participation and sustainable utilisation of mangrove resources through Joint Forest Management efforts.
- Establishment of Database network and website on mangroves for information sharing.
- Publication of literature on conservation of mangroves in local languages.

During 1999-2000, the Ministry has launched an All India Coordinated Project for conservation and management of Coastal and Marine Biodiversity, following the Jakarta mandate on coastal and marine biodiversity. The preparatory process for initiating this project included a number of activities. A status paper on Coastal and Marine Biodiversity was prepared by an expert group in November 1995, followed by a workshop on Assessment of Coastal and Marine Biodiversity held in National Institute of Oceanography (NIO), Goa in December 1996 for identification of gap areas. Thereafter a Task Force was constituted to plan, implement and review multi-institutional, multi-disciplinary surveys and exploration of Coastal and Marine Biodiversity in February 1997. A Core Group designed standard formats, devised uniform methodology and identified institutions for collection, collation, retrieval and dissemination of information and creation of data bases on Coastal and Marine Biodiversity. Two Focal Points were established at NIO, Goa and Centre for Advanced Studies (CAS) in Marine Biology, Annamalai University for data base and networking. An interministerial Steering Committee oversees the implementation of the project. The objectives of the project are:

- Assessment of current status of coastal and marine biodiversity at species/taxa level by rapid appraisal method.
- Current status of biodiversity and conservation of Marine Protected Areas and Hot Spots.
- Identification of priorities for survey/exploration and distribution of flora and fauna of inter-tidal ecosystems and Biodiversity of EEZ.
- Strategies and Action Plans for establishment of Database Centres and Biodiversity Network on the identified priorities of Coastal and Marine Biodiversity.
- Capacity building and training programmes on taxonomy in the identified gap area of Coastal and Marine Biodiversity.

The activities being undertaken under the project include:

- Survey and inventorisation of Coastal and Marine Biodiversity on the East and West Coasts of India.
- Establishment of database and documentation centres for the identified priority areas at identified institutions on the East and West Coasts specializing in their respective areas of work and networking of these centres.
- Training and capacity building in taxonomy of Coastal and Marine Organisms with specific reference to identified gap areas.

Coral reefs

Coral reefs are diverse and vulnerable ecosystems characterized by a complex inter-dependents of plants and animals. They are massive limestone structure built up through the constructional cementing process and depositional activities of the animals of the class Anthozoa as well as other calcium carbonate secreting animals. Coral reefs are centres of high biological productivity, sites of carbon-dioxide sink and sources of huge deposits of calcium corbonate. They provide many natural raw materials of pharmacological importance including the life

saving drugs.

In the Indian sub-continent, the reefs are distributed along the East and West coast at restricted places. Fringing reefs are found in the Gulf of Mannar and Palk Bay as well as Andaman & Nicobar Islands. Platforms reefs are seen along the Gulf of Kutch and Atoll Reefs are found in the Lakshadweep Archipelago.

Increasing human population and anthropogenic pressures have severely affected coral distribution and biodiversity. Natural calamities cause considerable damage to the coral reefs structures through direct and indirect means. Global warming leads to adverse impact on the survival of the Coral Reefs. The bleaching phenomenon of 1998 in the Indian Ocean is reported to have caused considerable damage to the coral reefs in the Indian Coast.

India is implementing a programme for conservation and management of coral reefs in the country through implementation of management action plans supported by research programmes. The following coral reef areas in the country have been identified for intensive conservation and management:

- Andaman & Nicobar Islands
- Gulf of Mannar
- Gulf of Kutchch
- Lakshadweep Islands

Ministry has also launched Indian Coral Reef Monitoring Network (ICRMN) so as to cover activities related to monitoring of health of coral reefs, training and capacity building, establishment of data base network and promote research on the identified thrust areas so as to integrate the same with the management of this fragile ecosystems. Ministry has also launched a web site of Indian Coral Reef Monitoring Network and Focal Points on the East and West Coast have been identified for collection, collation and retrieval of information related to coral reefs in the country.

India is implementing two GEF supported projects on coral reefs of Andaman and Nicobar, and Gulf of Mannar.

India is represented on Global Coral Reef Monitoring Network (GCRMN). In the first phase of GCRMN South Asia, monitoring action plans on coral reefs in Andaman and Nicobar, Lakshadweep and Gulf of Mannar have been prepared. India is also participating in the Planning and Coordination Committee of International Coral Reef Initiative (ICRI).

Agricultural biological diversity

Decision III/11 and Decision IV/6. Conservation and sustainable use of agricultural biological diversity

329. Has your country identified and assessed relevant ongoing activities and existing instruments at the national level?	
a) no	
b) early stages of review and assessment	
c) advanced stages of review and assessment	
d) assessment completed	➢
330. Has your country identified issues and priorities that need to be addressed at the national level?	
a) no	
b) in progress	
c) yes	➢
331. Is your country using any methods and indicators to monitor the impacts of agricultural development projects, including the intensification and extensification of production systems, on biological diversity?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) mechanisms in place	➢
332. Is your country taking steps to share experiences addressing the conservation and sustainable use of agricultural biological diversity?	
a) no	
b) yes – case-studies	➢
c) yes – other mechanisms (please specify)	➢
333. Has your country conducted case-studies on the issues identified by SBSTTA: i) pollinators, ii) soil biota, and iii) integrated landscape management and farming systems?	
a) no	➢
b) yes – pollinators	
c) yes – soil biota	
d) yes – integrated landscape management and farming systems	
334. Is your country establishing or enhancing mechanisms for increasing public awareness and understanding of the importance of the sustainable use of agrobiodiversity components?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) mechanisms in place	➢

335. Does your country have national strategies, programmes and plans which ensure the development and successful implementation of policies and actions that lead to sustainable use of agrobiodiversity components?	
a) no	
b) early stages of development	
c) advanced stages of development	
d) mechanisms in place	➢
336. Is your country promoting the transformation of unsustainable agricultural practices into sustainable production practices adapted to local biotic and abiotic conditions?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
337. Is your country promoting the use of farming practices that not only increase productivity, but also arrest degradation as well as reclaim, rehabilitate, restore and enhance biological diversity?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
338. Is your country promoting mobilization of farming communities for the development, maintenance and use of their knowledge and practices in the conservation and sustainable use of biological diversity?	
a) no	
b) yes - limited extent	➢
c) yes - significant extent	
339. Is your country helping to implement the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources?	
a) no	
b) yes	➢
340. Is your country collaborating with other Contracting Parties to identify and promote sustainable agricultural practices and integrated landscape management?	
a) no	
b) yes	➢

Decision V/5. Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programme

341. Has your country reviewed the programme of work annexed to the decision and identified how you can collaborate in its implementation?	
a) no	
b) yes	➢

342. Is your country promoting regional and thematic co-operation within this framework of the programme of work on agricultural biological diversity?	
a) no	
b) some co-operation	➢
c) widespread co-operation	
d) full co-operation in all areas	
343. Has your country provided financial support for implementation of the programme of work on agricultural biological diversity?	
a) no	
b) limited additional funds	➢
c) significant additional funds	
If a developed country Party –	
344. Has your country provided financial support for implementation of the programme of work on agricultural biological diversity, in particular for capacity building and case-studies, in developing countries and countries with economies in transition?	
a) no	
b) yes within existing cooperation programme(s)	
b) yes, including limited additional funds	
c) yes, with significant additional funds	
345. Has your country supported actions to raise public awareness in support of sustainable farming and food production systems that maintain agricultural biological diversity?	
a) no	
b) yes, to a limited extent	
c) yes, to a significant extent	➢
346. Is your country co-ordinating its position in both the Convention on Biological Diversity and the International Undertaking on Plant Genetic Resources?	
a) no	
b) taking steps to do so	
c) yes	➢
347. Is your country a Contracting Party to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade?	
a) not a signatory	
b) signed – ratification in process	➢
c) instrument of ratification deposited	
348. Is your country supporting the application of the Executive Secretary for observer status in the Committee on Agriculture of the World Trade Organisation?	
a) no	
b) yes	➢

349. Is your country collaborating with other Parties on the conservation and sustainable use of pollinators?	
a) no	➢
b) yes	
350. Is your country compiling case-studies and implementing pilot projects relevant to the conservation and sustainable use of pollinators?	
a) no	
b) yes (please provide details)	➢
351. Has information on scientific assessments relevant to genetic use restriction technologies been supplied to other Contracting Parties through media such as the Clearing-House Mechanism?	
a) not applicable	
b) no	➢
c) yes - national report	
d) yes – through the CHM	
e) yes – other means (please give details below)	
352. Has your country considered how to address generic concerns regarding such technologies as genetic use restriction technologies under international and national approaches to the safe and sustainable use of germplasm?	
a) no	
b) yes – under consideration	
c) yes – measures under development	➢
353. Has your country carried out scientific assessments on inter alia ecological, social and economic effects of genetic use restriction technologies?	
a) no	
b) some assessments	➢
c) major programme of assessments	
354. Has your country disseminated the results of scientific assessments on inter alia ecological, social and economic effects of genetic use restriction technologies?	
a) no	➢
b) yes – through the CHM	
c) yes – other means (please give details below)	
355. Has your country identified the ways and means to address the potential impacts of genetic use restriction technologies on the in situ and ex situ conservation and sustainable use, including food security, of agricultural biological diversity?	
a) no	
b) some measures identified	➢
c) potential measures under review	
d) comprehensive review completed	

356. Has your country assessed whether there is a need for effective regulations at the national level with respect to genetic use restriction technologies to ensure the safety of human health, the environment, food security and the conservation and sustainable use of biological diversity?	
a) no	
b) yes – regulation needed	➢
c) yes – regulation not needed (please give more details)	
357. Has your country developed and applied such regulations taking into account, inter alia, the specific nature of variety-specific and trait-specific genetic use restriction technologies?	
a) no	
b) yes – developed but not yet applied	
c) yes – developed and applied	➢
358. Has information about these regulations been made available to other Contracting Parties?	
a) no	
b) yes – through the CHM	
c) yes – other means (please give details below)	➢

Further comments on implementation of these decisions and the associated programme of work

The country is bestowed with immense agro-biodiversity and a rich diversity in landraces/traditional cultivars/farmers' varieties in several agri-horticultural crops. A huge number of crop plants (384) are reported to be cultivated in India. This includes 168 species earlier reported under the Hindustani centre, one of the eight Vavilovian centres of origin and diversity.Further, an enormous richness (326 species) is reported in wild relatives of crop plants as well. A total of 49 indigenous major and minor crops have been reported in the 'History of Agriculture in India', which included 5 cereals and minor millets, 4 pulses, 1 oilseed crop, 9 vegetables, 5 tuber crops, 11 fruits, 5 spices, 1 sugar yielding plant and 7 fibre crops.

Much of the country's agrobiodiversity is in the custody of farming communities/tribals who followed age-old farming systems, including shifting cultivation, made conscious/unconscious selections and inherited and perpetuated their seed/propagules over generations. Concentration of genetic diversity comprising native species and landraces occurs more in Western Ghats, northeastern Himalayas, southern plateau, central India and northwestern Himalayas.

The crops in which rich diversity occurs in India include rice, wheat, barley, pigeonpea, chickpea, minor-millets, mungbean, uradbean, horsegram, mothbean, ricebean, clusterbean, sesame, forage grasses, okra, eggplant, cucumber, melons, citrus, banana and plantains, jackfruit, mango, tamarind, jamun , jute, cotton, ginger, turmeric, pepper, cinnamon and cardamom. Among tuberous crops, rich variability exists in sweet potato, taros and yams. Native resources are also available in *Coleus* species, sword bean, velvet bean and several plantation crops including arecanut and coconut. Diversity also occurs in several minor fruits, such as berries and nuts; and several species of *Rubus, Ribes, Juglans, Pyrus* and *Prunus*. In medicinal plants, India's vast genetic resource base is well known the world over.

Richness in biodiversity among various livestock and poultry species is quite astounding. There are 27 breeds of cattle, 8 breeds of buffalo, over 42 breeds of sheep, 20 breeds of goats, 7 breeds of camel, 8 breeds of horses, and

few types of pigs. Considerable biodiversity is also known to exist in yak, mithun and other avian species. India harbours a large population of animal genetic resources with 197.7 million cattle, 77.0 million buffalo, 45.7 million sheep, 110.2 million goat, 2.0 million equines, 1.0 million camel, 10.6 million pig, 0.13 million mithun (Taurus) and 0.04 million yak.

Of about 20,000 species comprising the fish genetic resources of the world, nearly 11 per cent (or 2118 fish species) have been reported in India, including the finfishes from the biodiversity rich Western and Eastern Ghats.

The Indian Council of Agricultural Research (ICAR) and the Department of Agricultural Research and Education (DARE), cater to the needs of all genetic resources related activities in India as the umbrella organisation and the respective activities on plant, animal, fish, agriculturally important microbes, mushroom and insect genetic resources are covered by the respective National Bureaux/National Research Centres/institutions under the ICAR.

The activities covered on plant genetic resources include, planning, conducting, promoting, coordinating collection, introduction, exchange, evaluation, documentation, conservation and sustainable management of diverse germplasm of crop plants and their wild relatives and also ensuring their continous availability for use by breeders and other researchers in India and abroad.

More recently, some NGOs have also been actively engaged in the development of Community Gene Bank, including by the establishment of medium term storage facility to support this activity in selected pockets. NBPGR has provided training to their genebank manager, other stakeholders, and also to farming communities. Other NGOs have also been provided active support from the NBPGR/ICAR for their PGRFA awareness campaign for the farming communities.

The National Bureau of Animal Genetic Resources, under the ICAR set up, endeavours to undertake suitable programmes for survey, conservation, characterisation and evaluation of different types of animal genetic resources. Active support and cooperation of various agencies such as universities, central and state animal husbandry departments, NGOs has been also provided/contemplated. The national activities on animal genetic resources include the following mandate points:

i)to conduct systematic surveys to characterize, ealuate and catalogue farm livestock and poultry genetic resources and to establish their National Data Base,

ii)to design methodologies for ex-situ conservation and in situ management and optimal utilization of farm animal genetic resources,

iii)to undertake studies on genetic characterization using modern biological techniques such as molecular cytogenetics, immunology DNA finger printing, RFLP analysis, etc.; and

iv)to conduct training programmes related to evaluation, characterization and utilisation of animal genetic resources.

The National Bureau of Fish Genetic Resources (NBPGR) oversees the activities in this area in the country. It has identified the following as the main priority areas for future thrust:

i)cataloguing of fish genetic resources and setting up of a data bank;

ii)genetic characterisation of endangered germplasm and commercially important fish species;

iii)development of gene banking technology;

iv)ex situ conservation of prioritised endangered species; and

v)captive breeding for genetic management.

Development of methodologies for in situ conservation and coordination, development of methodologies to evaluate merits of candidates of exotics species targeted for introduction and screening of native species for export, and development of methodologies for reproductive containment of genetically altered organisms are also being included in the major activities carried out/contemplated in the country.

ICAR has completed a National Seed Project (NSP) which ran over a period of two decades. This megaproject addressed issues related to agricultural research and extension in a coordinated mode. The main objective were to develop breeder/foundation seed production capabilities. Another mega-project, the National Agricultural Technology Project (NATP), which aims to cater to the needs of interalia PGR activities in the country in a mission-mode is now under implementation. This mega activity is planned with a view to narrow the gaps in germplasm collecting, conservation and to characterise/evaluate and document the collections in order to promote their sustainable utilisation. Areas receiving/needing further specific attention include a single window exchange, a National Registration Authority for Material Transfer Agreements(s).

India has already submitted its report on Implementation of Agrobiodiversity Work Programme during the 4th meeting of the CoP.

The Indian agricultural research system, comprising national institutes, agricultural universities, research organisations and others, is already pursuing the ecosystem approach for crop improvement and genetic resources conservation in the 21 identified agro-climatic zones across the country. India welcomes the on-going work towards refining the guidelines and developing operational systems for this purpose.

The Indian Council for Agricultural Research (ICAR) established in 1929 is the second largest agricultural R&D organisation in the world. Over the years, the ICAR has contributed significantly to many vital technological breakthroughs for achieving food and nutritional security for the growing human population, also focussing on marginal farmers, and at the same time maintaining ecological balance and conservation of natural resources. In tune with our emerging heeds, India is re-orienting its efforts to meet the future challenges of increased food production, while ensuring conservation and sustainable utilisation. These efforts are need based and demand driven and there has been a paradigm shift from commodity and product based approach to systems and programme based approach following the eco-regional planning.

India has also come out with a National Policy paper and Action Plan on Agrobiodiversity. The main components of the National Plan of Action are:

(i) conservation and development,
(ii) utilisation of plant genetic resources, and
(iii) strengthening of institutional capacity.

The identified activities are inter-linked and may overlap at times to seek collective gains.In each subcomponent, action points have been identified. These action points address the issues of on-farm conservation of plant genetic resources, in-situ conservation of wild relatives of crop plants, ex-situ collections, utilisation of plant genetic resources, sustainable agriculture and extension, training and public awareness.

Forest biological diversity

Decision II/9 and Decision IV/7. Forest biological diversity

359. Has your country included expertise on forest biodiversity in its delegations to the Intergovernmental Panel on Forests?	
a) no	
b) yes	➢
c) not relevant	
360. Has your country reviewed the programme of work annexed to the decision and identified how you can collaborate in its implementation?	
a) no	
b) under review	➢
c) yes	
361. Has your country integrated forest biological diversity considerations in its participation and collaboration with organizations, institutions and conventions affecting or working with forest biological diversity?	
a) no	
b) yes – limited extent	
c) yes – significant extent	➢
362. Does your country give high priority to allocation of resources to activities that advance the objectives of the Convention in respect of forest biological diversity?	
a) no	
b) yes	➢
For developing country Parties and Parties with economies in transition - 363. When requesting assistance through the GEF, Is your country proposing projects which promote the implementation of the programme of work?	
a) no	
b) yes	➢

Decision V/4. Progress report on the implementation of the programme of work for forest biological diversity

364. Do the actions that your country is taking to address the conservation and sustainable use of forest biological diversity conform with the ecosystem approach?	
a) no	
b) yes	➢
365. Do the actions that your country is taking to address the conservation and sustainable use of forest biological diversity take into consideration the outcome of the fourth session of the Intergovernmental Forum on Forests?	
a) no	
b) yes	➢

366. Will your country contribute to the future work of the UN Forum on Forests?	
a) no	
b) yes	➢
367. Has your country provided relevant information on the implementation of this work programme?	
a) no	
b) yes – submission of case-studies	
c) yes – thematic national report submitted	
d) yes – other means (please give details below)	➢
368. Has your country integrated national forest programmes into its national biodiversity strategies and action plans applying the ecosystem approach and sustainable forest management?	
a) no	
b) yes – limited extent	➢
c) yes – significant extent	
369. Has your country undertaken measures to ensure participation by the forest sector, private sector, indigenous and local communities and non-governmental organisations in the implementation of the programme of work?	
a) no	
b) yes – some stakeholders	
c) yes – all stakeholders	➢
370. Has your country taken measures to strengthen national capacities including local capacities, to enhance the effectiveness and functions of forest protected area networks, as well as national and local capacities for implementation of sustainable forest management, including restoration?	
a) no	
b) some programmes covering some needs	
c) many programmes covering some needs	➢
d) programmes cover all perceived needs	
e) no perceived need	
371. Has your country taken measures to implement the proposals for action of the Intergovernmental Forum on Forests and the Intergovernmental Panel on Forests on valuation of forest goods and services?	
a) no	
b) under consideration	➢
c) measures taken	

Biological diversity of dry and sub-humid lands

Decision V/23. Consideration of options for conservation and sustainable use of biological diversity in dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems

372. Has your country reviewed the programme of work annexed to the decision and identified how you will implement it?	
a) no	
b) under review	➢
c) yes	
373. Is your country supporting scientifically, technically and financially, at the national and regional levels, the activities identified in the programme of work?	
a) no	
b) to a limited extent	➢
c) to a significant extent	
374. Is your country fostering cooperation for the regional or subregional implementation of the programme among countries sharing similar biomes?	
a) no	
b) to a limited extent	➢
c) to a significant extent	

Further comments on implementation of these Decisions and the associated programme of work

India is endowed with diverse forest types ranging from the Tropical wet evergreen forests in North-East to the Tropical thorn forests in the Central and Western India. The forests of the country can be divided into 16 major groups comprising 21 types. The distribution of these groups, and the percentage of total forest area covered by each are given below:

Forest Types-distribution and percentage

Forest type	Distribution	% of forest area
Tropical forests		
1.Tropical wet evergreen	North East & South, Andaman & Nicobar Island	5.8
2.Tropical semi evergreen	South & East	2.5
3.Tropical moist deciduous	Central & East	30.3
4.Tropical littoral & swamp	Along the coast	0.9
5.Tropial dry deciduous	West & Central	38.2
6.Tropical thorn	West & Central	6.7
7.Tropical dry evergreen	Central & South	0.1
Subtropical forests		

8.Subtropical broad leaved hill forests	South	0.4
9.Subtropical pine		
10.Subtropical dry evergreen	Sub-Himalayan tract	5.0
	North East & South	0.2
Temperate forests		
11.Montane wet temperate	Himalaya & Nilgiris (in Western Ghats)	2.0
	Temperate areas of Himalayas	
12.Himalayan moist temperate	Dry temperate areas of Himalaya	3.4
13.Himalayan dry temperate		0.2
Sub-alpine and alpine forests		
14.Sub-alpine	Himalaya}	
15.Moist alpine shrub	Himalaya}	4.3
16.Dry alpine shrub	Himalaya}	

The forest cover of the country is placed at 637.293 sq. km. according to the Forest Survey of India assessment (1999). This presents 19.39% of India's total geographical area which is marginally higher than 1997 assessment that was indicated in the India's first National Report to the CBD.

Forests provide several essential services to mankind. Forests are the source of a number of food items, fuelwood, fodder and timber. Other economic uses include providing raw material for forest based industries. Some of the minor forest produce include gums, resins, honey, etc. Forests perform important ecological functions such as maintaining delicate ecological balance, conserving soil, controlling floods, drought and pollution. Forests provide habitats for innumerable plants, animals and microorganisms. Forests are a source of recreation and religious inspiration.

Forests face threats on account of diversion of forest land for agriculture, industry, human settlements, other developmental projects. Construction of roads and canals, quarrying, shifting cultivation and encroachments are other threats. Degradation of forests results from illicit felling, excess removal of forest products, fodder fuelwood, forest floor litter, overgrazing and forest fires.

Forest (Conservation)Act was enacted in 1980 to regulate indiscriminate diversion of forest lands for non-forestry purposes. As a result, average annual rate of diversion has come down from around 1.43 million ha. to less than 25,000 ha. striking a delicate balance between conservation and developmental needs of the country.

The National Forest Policy of 1952 was revised in 1988. The new Policy laid stress on management of forests for ensuring ecological security and meeting the essential national and local needs. The important features of the new Policy are:

- The NFP, 1988 emphasises that forest serve the vital need of environmental stability, amelioration of physical and climate conditions, soil, water and biodiversity conservation for general well-being of the country.
- The Policy recognises forest as a renewable national asset and stresses the need for bringing 33% of the land area of the country under forest/tree cover.

- The Policy provides for systematic and scientific management of forests under working plans on a sustainable basis.
- The Policy stressed the need for expanding tree cover over community and private lands through social forestry and agro-forestry for meeting the growing demand for forest produce and improving rural, socio-economic and environmental conditions.
- The new Policy stressed that the first charge of forest produce would be for meeting domestic needs of rural and tribal people for fuel, fodder and small timber within the carrying capacities of forests.
- The new Forest Policy has also recognised that as far as possible the forest based industries should raise their own resources preferably by establishing direct linkage with individual farmers by providing inputs like credit and technical advice.

The National Forest Policy, 1988 envisages people's involvement in the development and protection of degraded forests as a permanent resources base to fulfil the requirements of fuelwood, fodder and small timber to local communities as well as to develop the forests for improving the environment.

In order to implement the policy prescription, the Ministry issued guidelines to involve the village communities in the development and protection of degraded forests on the basis of their taking a share of the usufruct from such areas. The concept of Joint Forest Management was accordingly initiated by developing appropriate mechanisms.

So far 26 States have issued resolution for JFM. At present, 14 million ha of forest lands in the country are being managed and protected by 62,000 Village Forest Protection Committees. After reviewing the programme with all stakeholders, further guidelines were issued to the States for strengthening the programme. These guidelines interalia include providing legal backup to the JFM Committees, extension of JFM in good forest areas with sharper focus on activities concentrated on Non-Timber Forest Product (NTFP) management, increase participation of women, establishing conflict resolution mechanism, integration of micro plan with the working plan, contribution for regeneration of resources and monitoring and evaluation.

The Ministry of Environment & Forests have formulated National Forestry Action Programme (NFAP), a comprehensive strategic long term plan for the next twenty years to address the issues underlying the major problems of the forestry sectors in line with the National Forest Policy, 1988. The objective of the NFAP is to bring one third of the area of the country under tree/forest cover and to arrest de-forestation for achieving sustainable development of forests. The main components of the programme are:

- Protect existing forest resources
- Improve forest productivity
- Reduce total demand
- Strengthen policy and institutional framework
- Expand forest area

The National Afforestation and Eco-development Board (NAEB) was constituted in the Ministry of Environment & Forests in August 1992. The mandate of the NAEB is promoting afforestation, tree planting, ecological restoration and eco-development activities in the country with special attention to degraded forest areas and lands adjoining forest areas, national parks, sanctuaries and other protected areas, as well as the ecologically fragile areas like the Western Himalayas, Aravallis, Western Ghats, etc.

NAEB has evolved specific schemes to promote afforestation and management strategies, which help the States in

developing specific afforestation and eco-development packages for augmenting biomass production through a participatory planning process of Joint Forest Management.

In order to develop interconnectivity between rural development, forest conservation and employment generation in the forest fringed villages an umbrella scheme is being implemented on a pilot basis through a decentralised set up. This programme is being implemented by Forest Development Agencies (FDAs) consisting of village forest committees, forest officials and other officials of agriculture, animal husbandry, soil conservation, tribal welfare, public health, education etc. The FDAs will institutionalise monitoring activities and have greater flexibility in project formulation, identification of funding sources, thereby meeting local requirements effectively.

Decision V/20. Operations of the Convention

375. Does your country take into consideration gender balance, involvement of indigenous people and members of local communities, and the range of relevant disciplines and expertise, when nominating experts for inclusion in the roster?	
a) no	
b) yes	➢
376. Has you country actively participated in subregional and regional activities in order to prepare for Convention meetings and enhance implementation of the Convention?	
a) no	
b) to a limited extent	➢
c) to a significant extent	
377. Has your country undertaken a review of national programmes and needs related to the implementation of the Convention and, if appropriate, informed the Executive Secretary?	
a) no	
b) under way	
c) yes	➢

Please use this box to identify what specific activities your country has carried out as a DIRECT RESULT of becoming a Contracting Party to the Convention, referring back to previous questions as appropriate:

1.Development of legislation on biodiversity.

2.Preparation of National Policy and Macrolevel Action Strategy on Biodiversity.

3.Execution of a GEF/UNDP project for developing detailed microlevel action plans on biodiversity.

4.Launching and implementation of an All India Coordinated Project for Capacity Building on Taxonomy.

5.Launching and implementation of an All India Coordinated Project on Coastal and Marine Biodivesity.

6.Execution of the following UNDP/GEF projects:

- Gulf of Mannar Biosphere Reserve
- Coral Reefs of Andaman and Nicobar Islands
- Dryland biodiversity
- Best practices for access and benefit sharing

7.First National Report

The wording of these questions is based on the Articles of the Convention and the decisions of the Conference of the Parties. Please provide information on any difficulties that you have encountered in interpreting the wording of these questions

No difficulties encountered.

If your country has completed its national biodiversity strategy and action plan (NBSAP), please give the following information:

NBSAP under preparation.

Date of completion:	
If the NBSAP has been adopted by the Government	
By which authority?	
On what date?	
If the NBSAP has been published please give	
Title:	
Name and address of publisher:	
ISBN:	
Price (if applicable):	
Other information on ordering:	
If the NBSAP has not been published	
Please give full details of how copies can be obtained:	
If the NBSAP has been posted on a national website	

Please give full URL:			
If the NBSAP has been lodged with an Implementing Agency of the GEF			
Please indicate which agency:			
Has a copy of the NBSAP been lodged with the Convention Secretariat?			
Yes		No	

Please provide similar details if you have completed a Biodiversity Country Study or another report or action plan relevant to the objectives of this Convention

Adopting an extensive consultative process, India has prepared a National Policy and Macrolevel Action Strategy on Biodiversity. This document lists out existing measures for biodiversity conservation, identifies gap areas, and delineates the further actions needed for ensuring conservation and sustainable use of biodiversity. This document was published in 1999, and a copy was submitted to CBD Secretariat. Based upon this framework document, preparation of detailed NBSAP is underway through funding from GEF/UNDP.