

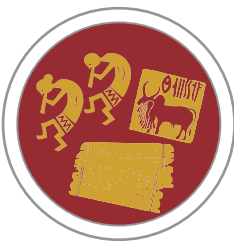
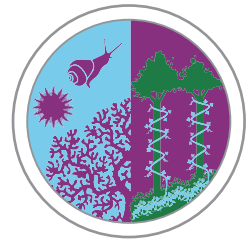


सत्यमेव जयते



Ministry of Environment,
Forests & Climate Change
Government of India

NATIONAL BIODIVERSITY ACTION PLAN (NBAP)



ADDENDUM
2014
TO NBAP
2008



Ministry of Environment,
Forests & Climate Change
Government of India



*NATIONAL
BIODIVERSITY
ACTION
PLAN (NBAP)*

*ADDENDUM 2014
TO NBAP 2008*



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FOREWORD



India is a megadiverse country that harbours 7-8% of all recorded species, including over 45,000 species of plants and 91,000 species of animals, on only 2.4% of the world's land area. Biodiversity forms the cornerstone of ecosystem functions and services that support millions of livelihoods in the country. India has been persevering in its efforts to conserve this vital biodiversity and ecosystems. As a Party to the Convention on Biological Diversity (CBD) that mandates parties to prepare a national biodiversity strategy and action plan for implementing the Convention at the national level, India developed a National Policy and Macrolevel Action Strategy on Biodiversity in 1999. Subsequent to the adoption of the National Environment Policy (NEP) in 2006, a National Biodiversity Action Plan (NBAP) was developed through a comprehensive inter-ministerial process in 2008. India's NBAP is broadly aligned to the global Strategic Plan for Biodiversity 2011-2020 adopted under the aegis of CBD in 2010. Using the Strategic Plan as a framework, India has now developed 12 National Biodiversity Targets through extensive stakeholder consultations and public outreach. I am pleased to note that India is among the select countries that have now developed their own National Biodiversity Targets, which now form an Addendum to the NBAP 2008. This document together with the NBAP 2008 forms the blueprint for biodiversity conservation in the country.

Implementing the NBAP will be a challenging task and calls for active involvement of several other Ministries. Stewardship at the highest level of governance will be a key ingredient to success. People's participation will remain central to its successful implementation with active support at the individual level of citizens throughout the country.

I congratulate all those who were involved in this task which has been undertaken with support from a Global Environment Facility project implemented by the National Biodiversity Authority (NBA). I wish to place on the record my deep appreciation for the overall supervision provided by Dr R. Rajagopalan, Secretary, the guidance and support of Shri Hem Pande, Additional Secretary and Chairman, NBA, and the diligent efforts put in by Dr Sujata Arora, Director, Ministry of Environment, Forests, & Climate Change, in this endeavor. I also appreciate the efforts put in by Dr V.B. Mathur, Director, Wildlife Institute of India (WII) and his project team in preparing this document during India's Presidency of the eleventh Conference of the Parties to the CBD.


(Prakash Javadekar)

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This exercise would have been incomplete if the funds allocated to States and Union Territories for biodiversity conservation was not looked into. We thank the Planning Commission for providing us detailed information regarding the funds allocated for the States and Union Territories for activities related to biodiversity conservation.

We are also grateful to all the State Biodiversity Boards who have participated with great enthusiasm in all the national stakeholder consultations and contributed by providing relevant information and suggestions.

The NBAP team

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Network
AYUSH	Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy
BHS	Biodiversity Heritage Site
BMCs	Biodiversity Management Committees
BNHS	Bombay Natural History Society
BSI	Botanical Survey of India
CAs	Chartered Accountants
CBD	Convention on Biological Diversity
CEE	Centre for Environment Education
CMFRI	Central Marine Fisheries Research Institute
CMLRE	Centre For Marine Living Resources & Ecology
CMS	Centre for Media Studies
CoP	Conference of Parties
CPCB	Central Pollution Control Board
CPREEC	C.P.R. Environmental Education Centre
CSIR	Council for Scientific and Industrial Research
DNA	Deoxyribonucleic Acid
DoS	Department of Space
EIA	Environment Impact Assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
FRA	Forest Right Act
FRCs	Forest Right Committees
FRI	Forest Research Institute
FSI	Forest Survey of India / Fishery Survey of India
GEF	Global Environment Facility
GIM	Green India Mission
GoI	Government of India
GSPC	Global Strategy for Plant Protection
IBAs	Important Bird Areas
ICAR	Indian Council of Agriculture Research
ICFRE	Indian Council of Forest Research and Education
IEG	Institute for Economic Growth
IGIDR	Indira Gandhi Institute for Development Research
IIFM	Indian Institute of Forest Management
IUCN	International Union for Conservation of Nature
JFM	Joint Forest Management

JFMCs	Joint Forest Management Committees
LMOs	Living Modified Organism
MDF	Moderately Dense Forests
MDGs	Millennium Development Goals
MLAs	Member of Legislative Assembly
MoA	Ministry of Agriculture
MoC	Ministry of Coal
MoCF	Ministry of Chemical and Fertilizers
MoCI	Ministry of Commerce and Industry
MoCIT	Ministry of Communications and Information Technology
MoDWS	Ministry of Drinking Water and Sanitation
MoEF/ MoEFCC	Ministry of Environment and Forests/ Ministry of Environment, Forests & Climate Change
MoES	Ministry of Earth Science
MoHFW	Ministry of Health and Family Welfare
MoHRD	Ministry of Human Resources Department
MoNRE	Ministry of New and Renewable Energy
MoP	Ministry of Power
MoPNG	Ministry of Petroleum and Natural Gas
MoPR	Ministry of Panchayati Raj
MoRD	Ministry of Rural Development
MoS	Ministry of Shipping
MoSPI	Ministry of Statistics and Programme Implementation
MoST	Ministry of Science and Technology
MoT	Ministry of Tourism
MoTA	Ministry of Tribal Affairs
MoUD	Ministry of Urban Development
MoWR	Ministry of Water Resources
MoYAS	Ministry of Youth Affairs and Sports
MPs	Member of Parliament
NBA	National Biodiversity Authority
NBAGR	National Bureau of Animal Genetic Resources
NBAII	National Bureau of Agriculturally Important Insects
NBAIM	National Bureau of Agriculturally Important Microorganisms
NBAP	National Biodiversity Action Plan
NBFGR	National Bureau of Fish Genetic Resources
NBPGR	National Bureau of Plant Genetic Resources

NBSAP	National Biodiversity Strategic and Action Plan
NBSS&LUP	National Bureau of Soil Survey and Land Use Planning
NBTs	National Biodiversity Targets
NEP	National Environment Policy
NFDB	National Forest Development Board
NGO	Non-Government Organization
NMPB	National Medicinal Plant Board
NR5	Fifth National Report
NTFPs	Non Timber Forest Produce
OF	Open Forest
PA	Protected Area
PBR	People's Biodiversity Register
PoWPA	Programme of Work on Protected Areas
PRIs	Panchayati Raj Institutions
R&D	Research and Development
RFD	Result Framework Document
SAARC	South Asian Association for Regional Cooperation
SACON	Sálim Ali Centre for Ornithology and Natural History
SBAPs	State Biodiversity Action Plan
SBBs	State Biodiversity Boards
SFDs	State Forest Departments
SP	Strategic Plan for Biodiversity
SPCBs	State Pollution Control Boards
TK	Traditional Knowledge
TKDL	Traditional Knowledge Digital Library
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
UT	Union Territory
VDF	Very Dense Forest
VEDCs	Village Eco-development Committees
WII	Wildlife Institute of India
WWF	World- Wide Fund for Nature
ZSI	Zoological Survey of India
₹	Indian Rupee



LIST OF TABLES

Table 1	National Biodiversity Targets: Indicators and Monitoring Framework
Table 2	Linkages between Actionable Points of NBAP 2008 and National Biodiversity Targets
Table 3	Core, non-core and peripheral funding for biodiversity conservation in 2013–2014
Table 4	Indicative list of Ministries/Departments and National Biodiversity Targets for implementation of the National Biodiversity Action Plan
Table 5	Linkages between India's action points for PoWPA implementation and action points of NBAP 2008
Table 6	Linkages between India's action points for PoWPA implementation and 12 National Biodiversity Targets
Table 7	Linkages between GSPC Targets and NBAP 2008 action points
Table 8	Linkages between GSPC Targets and 12 National Biodiversity Targets.

LIST OF FIGURES

Figure 1	MoEF budget allocation (2013–2014) that contributes towards National Biodiversity Targets
Figure 2	Budget allocations (2013–2014) of 21 Ministries of GoI (excluding MoRD and MoDWS) that contribute towards National Biodiversity Targets
Figure 3	Combined allocation of funds (2013–2014) of MoEF and 23 Ministries/Department of GoI that contribute towards National Biodiversity Targets
Figure 4	Implementation plan for NBAP

LIST OF APPENDICES

Appendix I	The Strategic Plan for Biodiversity 2011–2020
Appendix II	Global Strategy for Plant Conservation (GSPC): Objectives and Targets



TABLE OF CONTENTS

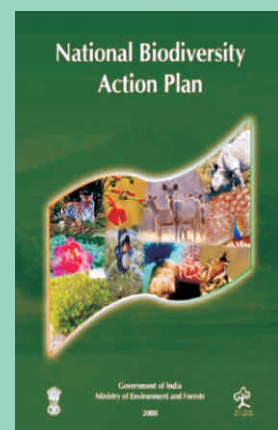
I. Foreword	01
II. Acknowledgements	03
III. List of Abbreviations	04
IV. List of Tables	19
V. List of Figures	20
VI. List of Appendices	33
1.1 Background	56
1.2 Process of Updating National Biodiversity Action Plan 2008	57
1.3 Action Points of India's National Biodiversity Action Plan 2008	58
1.4 Action Points of India's Programme of Work on Protected Areas 2012	60
1.5 National Biodiversity Targets	61
1.6 Linkages between actionable points of National Biodiversity Action Plan 2008 and the 12 National Biodiversity Targets	64
1.7 Funding for biodiversity conservation and allocations contributing towards achievement of National Biodiversity Targets	66
1.7.1 Core and non-core funding for biodiversity conservation: MoEF budget allocation vis-à-vis National Biodiversity Targets	68
1.7.2 Peripheral funding for biodiversity conservation: 23 Ministries vis-à-vis National Biodiversity Targets	
1.7.3 Combined allocations for biodiversity conservation: MoEF and 23 Ministries vis-à-vis National Biodiversity Targets	
1.8 Programme of Work on Protected Areas: Linkages with National Biodiversity Action Plan and National Biodiversity Targets	
1.9 Linkages between National Biodiversity Action Plan, National Biodiversity Targets and Global Strategy for Plant Conservation	
1.10 Implementation of National Biodiversity Action Plan	
References	

BACKGROUND

NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

India, a megadiverse country with only 2.4% of the world's land area, accounts for 7-8% of all recorded species, including over 45,000 species of plants and 91,000 species of animals. India's biodiversity underpins ecosystem functions and services that are of great human value. For millions of Indians, biodiversity supports their very livelihoods and ways of life.

The Convention on Biological Diversity (CBD) mandates each Party to prepare a National Biodiversity Strategy and Action Plan (NBSAP) or an equivalent instrument, and to ensure that this strategy is mainstreamed into relevant sectoral or cross-sectoral plans, programmes and policies. NBSAPs are the principal instruments for implementing the Convention at the national level. Accordingly, the Government of India developed a National Policy and Macrolevel Action Strategy on Biodiversity in 1999 (MoEF 1999) within five years of ratifying the CBD. This document, prepared through an extensive consultative process involving various stakeholders, is a macro-level statement of policies and strategies needed for conservation and sustainable use of biological diversity. Subsequently, the Ministry of Environment and Forests¹ (MoEF) implemented an externally-aided project, the NBSAP, from 2000 to 2004. Following India's adoption of the National Environment Policy (NEP) in 2006, a National Biodiversity Action Plan (NBAP) was prepared by updating the 1999 document (MoEF 1999), and by using the final technical report of the NBSAP project, in order to achieve consonance between the NBAP and the NEP 2006. India's NBAP, formulated through a comprehensive interministerial process, was approved by Government of India (GoI) in 2008 (MoEF 2008, <http://nbaindia.org/uploaded/Biodiversityindia/NBAP.pdf>). The NBAP draws from the principle in the NEP that human beings are at the centre of concerns for sustainable development and they are entitled to a healthy and productive life in harmony with nature. The NBAP 2008 identifies threats and constraints in biodiversity conservation taking into cognizance the existing legislations, implementation mechanisms, strategies, plans and programmes, based on which action points have been designed.



¹ The Ministry of Environment & Forests (MoEF) has been renamed as Ministry of Environment, Forests & Climate Change (MoEFCC) in June, 2014. The terms have been used interchangeably in the document.

Even though the NBAP 2008 was prepared prior to the adoption of the Strategic Plan for Biodiversity (SP) 2011–2020 and its 20 Aichi Biodiversity Targets by the Conference of Parties (CoP) to the CBD in 2010 at Nagoya, Japan (Appendix 1), the NBAP is broadly aligned with the five Strategic Goals and the 20 Aichi Biodiversity Targets of SP. The CoP-10 to the CBD has urged Parties to develop national and regional targets, using SP and its targets as a flexible framework, in accordance with national priorities and capacities. Parties are also required to review, and as appropriate update and revise, their NBSAPs or equivalent instruments with the SP, by integrating their National Biodiversity Targets (NBTs) into their NBSAPs, and report thereon to CoP-12. Since India has prepared her second generation of NBAP in 2008, it was decided that the NBAP need not be completely overhauled or revised, but an exercise be undertaken of updating the NBAP by developing NBTs (Table 1), keeping in view the Aichi Biodiversity Targets as a framework. Accordingly, in pursuance to the decision of CoP-10, India has prepared 12 NBTs using the SP for Biodiversity 2011–2020 as the broad framework. These National Biodiversity Targets prepared through an extensive consultative process with all stakeholders, have also been included in India's Fifth National Report (NR5) to the CBD (MoEF 2014, <http://www.cbd.int/doc/world/in/in-nr-05-en.pdf>).

These 12 NBTs along with indicators and monitoring framework developed for these targets, are presented in this document, which is an Addendum to NBAP 2008. In addition, an exercise has been undertaken to highlight the synergies between NBAP 2008, 12 NBTs, Programme of Work on Protected Areas (PoWPA), and Global Strategy for Plant Conservation (GSPC). With a view to provide ready reference and continuity with NBAP 2008, the action points of India's NBAP 2008 along with action points of India's PoWPA have been reproduced in Sections 1.3 and 1.4, respectively.

PROCESS OF UPDATING NATIONAL BIODIVERSITY ACTION PLAN 2008

1.2

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

Considering the aforementioned need for updating the NBAP, 12 NBTs and associated indicators and monitoring framework (Table 1) that provide a road map for achieving the Aichi Biodiversity Targets have been developed. These NBTs are based on consultations with a range of stakeholders and a review of the programmes and activities being undertaken by Ministries/Departments in the Gol and by State Biodiversity Boards (SBBs). Icons for the NBTs have also been developed with a view to enhance their recall value and outreach (Table 1).

The process of preparing NBTs was initiated through a high level meeting with concerned Ministries/Departments in November 2011. This was followed by a series of inter-ministerial meetings and stakeholders consultations organized in April 2012 and July 2012. Thereafter, under the Global Environmental Facility (GEF) Direct Access project on 'Strengthening the Enabling Environment for Biodiversity Conservation and Management in India', consultations with stakeholders for preparation of NR5 and updating of NBAP were continued. A National Stakeholder Consultation for discussing the contents of NR5 and the proposed NBTs was held on 30 July 2013. Following further discussions, the revised draft was reviewed by a Technical Review Committee set up by MoEF for this purpose. The NBTs were identified based on an extensive review of Result Framework Documents (RFDs) of the 52 Ministries/Departments of the Gol, information available in annual reports/websites of Ministries/Departments and institutions, as well as discussions and written submissions provided by officials, scientists and other stakeholders at the individual level and a range of organizations in the country.

The NBTs were also discussed and communicated through an outreach and communication programme as part of the seventh CMS Vatavaran International Environment and Wildlife Film Festival and Forum, held between 30 January 2014 and 3 February 2014 at New Delhi, supported by the MoEF. Twelve sessions were conducted for each target over the period, wherein panel discussions and public outreach programmes were conducted to create awareness, deliberate upon and communicate to the public about the development of India's NBTs in harmony with the CBD's SP 2011-2020 and Aichi Biodiversity Targets.

While the 12 NBTs have been conceptualized now, the country has a long history of working for conservation of its unique biodiversity with multi-stakeholder participation. The fact that India harbours 7-8% of the world's known biological diversity in about 2.4% of the land area while supporting 18% of the human and 18% of the cattle population, is an eloquent testimony to her conservation ethos and commitment to conserving biodiversity and to realizing the vision of living in harmony with nature.



ACTION POINTS OF NATIONAL BIODIVERSITY ACTION PLAN 2008

1.3

ADDENDUM 2014
TO NBAP 2008

Strengthening and integration of *in situ*, on-farm and *ex situ* conservation

In situ conservation

1. Expand the Protected Area (PA) network of the country including Conservation and Community Reserves, to give fair representation to all biogeographic zones of the country. In doing so, develop norms for delineation of PAs in terms of the objectives and principles of the National Environment Policy, in particular, participation of local communities, concerned public agencies, and other stakeholders, who have direct and tangible stake in protection and conservation of wildlife, to harmonize ecological and physical features with needs of socio-economic development.
2. Establish self-sustaining monitoring system for overseeing the activities and effectiveness of the PA network.
3. Ensure that human activities on the fringe areas of PAs do not degrade the habitat or otherwise significantly disturb wildlife.
4. Mitigate man-animal conflicts.
5. Promote site-specific eco-development programmes in fringe areas of PAs, to restore livelihoods and access to forest produce by local communities, owing to access restrictions in PAs.
6. Promote voluntary relocation of villagers from critical habitats of PAs.
7. Devise effective management and conservation techniques for the forest preservation plots to ensure conservation of representative areas of different forest types.
8. Strengthen research work on PAs, biosphere reserves and fragile ecosystems by involving local research institutions and universities, so as to develop baseline data on biological and managerial parameters, and functional properties of ecosystems.
9. Strengthen the protection of areas of high endemism of genetic resources (biodiversity hotspots), while providing alternative livelihoods and access to resources to local communities who may be affected thereby.
10. Continue to promote inter-sectoral consultations and partnerships in strengthening biodiversity conservation activities.
11. Strengthen capacities and implement measures for captive breeding and release into the wild of identified endangered species.
12. Reintroduction and establishment of viable populations of threatened plant species.
13. Control poaching and illegal trade in wild animals and plant species.



14. Periodically revisit the norms, criteria and needs of data for placing particular species in different schedules of the Wildlife (Protection) Act.
15. Promote ecological and socially sensitive tourism and pilgrimage activities with emphasis on regulated and low impact tourism on a sustainable basis through adoption of best practice norms.
16. Formulate and implement partnerships for enhancement of wildlife habitat in Conservation Reserves and Community Reserves, on the lines of multi-stakeholder partnerships for afforestation, to derive both environmental and eco-tourism benefits.
17. Promote conservation of biodiversity outside the PA network, on private property, on common lands, water bodies and urban areas.
18. Formulate and implement programmes for conservation of endangered species outside PAs.
19. Ensure conservation of ecologically sensitive areas, which are prone to high risk of loss of biodiversity due to natural or anthropogenic factors.
20. Ensure that survey and bioprospecting of native economically important biological resources is undertaken on a priority basis.
21. Integrate conservation and wise use of wetlands and river basins involving all stakeholders, in particular local communities, to ensure maintenance of hydrological regimes and conservation of biodiversity.
22. Consider particular unique wetlands as entities of incomparable values, in developing strategies for their protection and formulate conservation and prudent use strategies for the identified wetlands with participation of local communities and other stakeholders.

On-farm conservation

23. Identify hotspots of agro-biodiversity under different agro-ecozones and cropping systems and promote on-farm conservation.
24. Provide economically feasible and socially acceptable incentives such as value addition and direct market access in the face of replacement by other economically remunerative cultivars.
25. Develop appropriate models for on-farm conservation of livestock herds maintained by different institutions and local communities.
26. Develop mutually supportive linkages between *in situ*, on-farm and *ex situ* conservation programmes.



***Ex situ* conservation**

27. Promote *ex situ* conservation of rare, endangered, endemic and insufficiently known floristic and faunal components of natural habitats, through appropriate institutionalization and human resource capacity building. For example, pay immediate attention to conservation and multiplication of rare, endangered and endemic tree species through institutions such as Institute of Forest Genetics and Tree Breeding.
28. Focus on conservation of genetic diversity (*in situ*, *ex situ*, *in vitro*) of cultivated plants, domesticated animals and their wild relatives to support breeding programmes.
29. Strengthen national *ex situ* conservation system for crop and livestock diversity, including poultry, linking national gene banks, clonal repositories and field collections maintained by different research centres and universities.
30. Develop cost effective and situation specific technologies for medium and long term storage of seed samples collected by different institutions and organizations.
31. Undertake DNA profiling for assessment of genetic diversity in rare, endangered and endemic species to assist in developing their conservation programmes.
32. Develop a unified national database covering all *ex situ* conservation sites.
33. Consolidate, augment and strengthen the network of zoos, aquaria, etc., for *ex situ* conservation.
34. Develop networking of botanic gardens and consider establishing a 'Central Authority for Botanic Gardens' to secure their better management on the lines of Central Zoo Authority.
35. Provide for training of personnel and mobilize financial resources to strengthen captive breeding projects for endangered species of wild animals.
36. Strengthen basic research on reproduction biology of rare, endangered and endemic species to support reintroduction programmes.
37. Encourage cultivation of plants of economic value presently gathered from their natural populations to prevent their decline.
38. Promote inter-sectoral linkages and synergies to develop and realize full economic potential of *ex situ* conserved materials in crop and livestock improvement programmes.

Augmentation of natural resource base and its sustainable utilization: Ensuring inter-and intra-generational equity

39. Secure integration of biodiversity concerns into inter-sectoral policies and programmes to identify elements having adverse impact on biodiversity and design policy guidelines to address such issues. Make valuation of biodiversity an integral part of pre-appraisal of projects and programmes to minimize adverse impacts on biodiversity.
40. Promote decentralized management of biological resources with emphasis on community participation.
41. Promote sustainable use of biodiversity in sectors such as agriculture, animal husbandry, dairy development, fisheries, apiculture, sericulture, forestry and industry.
42. Promote conservation, management and sustainable utilization of bamboos and canes, and establish bambusetum and canetum for maintaining species diversity and elite germplasm lines.
43. Promote best practices based on traditional sustainable uses of biodiversity and devise mechanisms for providing benefits to local communities.
44. Build and regularly update a database on NTFPs, monitor and rationalize use of NTFPs ensuring their sustainable availability to local communities.
45. Promote sustainable use of biological resources by supporting studies on traditional utilization of natural resources in selected areas to identify incentives and disincentives, and promote best practices.
46. Encourage cultivation of medicinal plants and culture of marine organisms exploited for drugs to prevent their unsustainable extraction from the wild.
47. Promote capacity building at grassroot level for participatory decision-making to ensure ecofriendly and sustainable use of natural resources.
48. Develop *sui generis* system for protection of traditional knowledge and related rights including intellectual property rights.
49. Encourage adoption of science-based, and traditional sustainable land use practices, through research and development, extension of knowledge, pilot scale demonstrations, and large scale dissemination including farmer's training, and where necessary, access to institutional finance.
50. Promote reclamation of wasteland and degraded forest land through formulation and adoption of multi-stakeholder partnerships involving the land owning agency, local communities, and investors.
51. Promote sustainable alternatives to shifting cultivation where it is no longer ecologically viable, ensuring that the culture and social fabric of the local people are not disrupted.
52. Encourage agro-forestry, organic farming, environmentally sustainable cropping patterns, and



- adoption of efficient irrigation techniques.
53. Incorporate a special component in afforestation programmes for afforestation on the banks and catchments of rivers and reservoirs to prevent soil erosion and improve green cover.
 54. Integrate wetland conservation, including conservation of village ponds and tanks, into sectoral development plans for poverty alleviation and livelihood improvement, and link efforts for conservation and sustainable use of wetlands with the ongoing rural infrastructure development and employment generation programmes.
 55. Promote traditional techniques and practices for conserving village ponds.
 56. Mainstream the sustainable management of mangroves into the forestry sector regulatory regime so as to ensure the protection of coastal belts and conservation of flora and fauna in those areas.
 57. Disseminate available techniques for regeneration of coral reefs and support activities based on application of such techniques.
 58. Adopt a comprehensive approach to integrated coastal management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulations and programmes.

Regulation of introduction of invasive alien species and their management



59. Develop a unified national system for regulation of all introductions and carrying out rigorous quarantine checks.
60. Strengthen domestic quarantine measures to contain the spread of invasive species to neighbouring areas.
61. Promote intersectoral linkages to check unintended introductions and contain and manage the spread of invasive alien species.
62. Develop a national database on invasive alien species reported in India.
63. Develop appropriate early warning and awareness system in response to new sightings of invasive alien species.
64. Provide priority funding to basic research on managing invasive species.
65. Support capacity building for managing invasive alien species at different levels with priority on local area activities.
66. Promote restorative measures of degraded ecosystems using preferably locally adapted native species for this purpose.



67. Promote regional cooperation in adoption of uniform quarantine measures and containment of invasive exotics.

IV

Assessment of vulnerability and adaptation to climate change, and desertification

68. Identify the key sectors of the country vulnerable to climate change, in particular impacts on water resources, agriculture, health, coastal areas and forests.
69. Promote research to develop methodologies for tracking changes and assessing impacts of climate change on glaciers, river flows and biodiversity.
70. Assess the need for adaptation to future impacts of climate change at national and local levels, and the scope for incorporating the outputs of such assessments in relevant programmes, including watershed management, coastal zone planning and regulation, agricultural technologies and practices, forestry management, and health programmes.
71. Explicitly consider vulnerability of coastal areas and their biodiversity to climate change and sealevel rise in coastal management plans, as well as infrastructure planning and construction norms.
72. Participate in voluntary partnerships with other countries both developed and developing, to address the challenges of sustainable development and climate change, consistent with the provisions of the UNFCCC.
73. Identify the most important gaps in knowledge that limit the national ability to develop and implement climate change adaptation strategies for species, and ecological processes and functions.
74. Enhance the capacity of climate modeling in the country substantially to get clear idea on the impacts of climate change on biodiversity at national and local levels.
75. Develop ecological criteria for identifying the species and ecosystems that are at great risk from climate change and identify their priority habitats.
76. Identify information requirements and priorities, through expert consultative processes, for long term monitoring of climate change impacts on biodiversity.
77. Establish a climate change and biodiversity website for decision makers concerned with national resource management to facilitate information exchange about the actual and potential impacts of climate change and relevant policies, strategies and programmes.
78. In view of the multidisciplinary nature of the subject, undertake an 'All India Coordinated Research Project on Impacts of Climate Change' on various facets of wild and agricultural biodiversity.
79. Integrate biodiversity concerns into measures for energy conservation and adoption of renewable



- energy technologies with a focus on local biomass resources and dissemination of improved fuelwood stoves, and solar cookers.
80. Strengthen efforts for partial substitution of fossil fuels by bio-fuels, through promotion of biofuel plantations, promoting relevant research and development, and streamlining regulatory certification of new technologies.
 81. Strengthen and augment the existing programmes and activities of the Central and State Governments relating to drylands.
 82. Prepare and implement thematic action plans incorporating watershed management strategies, for arresting and reversing desertification and expanding green cover.
 83. Promote reclamation of wastelands by energy plantations for rural energy through multistakeholder partnerships involving the landowning agencies, local communities, and investors.

Integration of biodiversity concerns in economic and social development



84. Develop strong research base on impact assessment and conduct rigorous impact assessment of development projects, with a focus on biodiversity and habitats.
85. Integrate biodiversity concerns across development sectors (such as industry, infrastructure, power, mining, etc.) and promote use of clean technologies.
86. Accord priority to the potential impacts of development projects on biodiversity resources and natural heritage while undertaking EIA. In particular, ancient sacred groves and biodiversity hotspots should be treated as possessing incomparable values.
87. Take steps to adopt and institutionalize techniques for environmental assessment of sectoral policies and programmes to address any potential adverse impacts, and enhance potential favourable impacts.
88. Develop and integrate pre-project plans for reallocation and rehabilitation of local people likely to be displaced by development projects keeping in view their socio-cultural and livelihood needs.
89. Ensure that in all cases of diversion of forest land, the essential minimum needed land for the project or activity is permitted. Restrict the diversion of dense natural forests, particularly areas of high endemism of genetic resources, to non-forest purposes, only to site-specific cases of vital national interest.
90. Give priority to impact assessment of development projects on wetlands; in particular, ensuring that environmental services of wetlands are explicitly factored into cost-benefit analysis.



91. Promote integrated approaches to management of river basins considering upstream and downstream inflows and withdrawals by season, pollution loads and natural regeneration capacities, in particular, for maintenance of in-stream ecological values.
92. Consider and mitigate the impacts on river and estuarine flora and fauna, and the resulting change in the resource base for livelihoods, of multipurpose river valley projects, power plants and industries.
93. Adopt best practice norms for infrastructure construction to avoid or minimize damage to sensitive ecosystems and despoiling of landscapes.
94. Support practices of rain water harvesting and revival of traditional methods for enhancing groundwater recharge.
95. Give due consideration to the quality and productivity of lands which are proposed to be converted for development activities, as part of the environmental clearance process.
96. Ensure provision for environmental restoration during commissioning and after decommissioning of industries. For example, in all approvals of mining plans, institutionalize a system of postmonitoring of projects to ensure safe disposal of tailings and ecosystem rehabilitation following the principles of ecological succession.
97. Promote, through incentives, removal of barriers and regulation, the beneficial utilization of wastes such as fly ash, bottom ash, red mud, and slag, minimizing thereby their adverse impacts on terrestrial and aquatic ecosystems.
98. Promote sustainable tourism through adoption of best practice norms for tourism facilities and conservation of natural resources while encouraging multistakeholder partnerships favouring local communities.
99. Develop and implement viable models of public-private partnerships for setting up and operating secure landfills, incinerators, and other appropriate techniques for the treatment and disposal of toxic and hazardous wastes, both industrial and biomedical, on payment by users, taking the concerns of local communities into account. The concerned local communities and State Governments must have clear entitlements to specified benefits from hosting such sites, if access is given to non-local users. Develop and implement strategies for clean-up of toxic and hazardous waste dump legacies, in particular in industrial areas, and abandoned mines, and reclamation of such lands for future, sustainable use.
100. Survey and develop a national inventory of toxic and hazardous waste dumps, and an online monitoring system for movement of hazardous wastes. Strengthen capacity of institutions responsible for monitoring and enforcement in respect of toxic and hazardous wastes.
101. Strengthen the legal arrangements and response measures for addressing emergencies arising out of transportation, handling and disposal of hazardous wastes as part of the chemical accidents regime.
102. Promote organic farming of traditional crop varieties through research in and dissemination of techniques for reclamation of land with prior exposure to agricultural chemicals, facilitating



ADDENDUM 2014
TO NBAP 2008

marketing of organic produce in India and abroad, including by development of transparent, voluntary and science-based labeling schemes.

103. Develop and enforce regulations and guidelines for management of e-waste as part of the hazardous waste regime.
104. Promote, through incentives, removal of barriers, and regulations, the beneficial utilization of generally non-hazardous waste streams such as fly ash, bottom ash, red mud, and slag, including in cement and brick-making, and building railway and highway embankments.

Pollution impacts

105. Minimise and eliminate activities leading to loss of biodiversity due to point and non-point sources of pollution and promote development of clean technologies.
106. Strengthen the monitoring and enforcement of emission standards for both point and non-point sources.
107. Develop location-specific work plans focusing on biodiversity conservation while managing pollution problems.
108. Treat and manage industrial effluents so as to minimize adverse impacts on terrestrial and aquatic biological resources.
109. Promote biodegradable and recyclable substitutes for non-biodegradable materials, and develop and implement strategies for their recycle, reuse, and final environmentally benign disposal, including through promotion of relevant technologies, and use of incentive based instruments.
110. Avoid excessive use of fertilizers, pesticides and insecticides while encouraging integrated pest management practices, and use of organic manures and biofertilisers.
111. Promote organic farming of locally adapted and traditional crop varieties through appropriate incentives, and direct access to markets duly supported by credible certification systems.
112. Develop a strategy for strengthening regulation, and addressing impacts, of ship-breaking activities on human health, coastal and near marine bioresources.
113. Accord priority to potential impacts on designated natural heritage sites in view of their incomparable values that merit stricter standards than in otherwise comparable situations.
114. Promote R&D on impacts of air, water and soil pollution on biodiversity and use of biological methods for pollution amelioration.

VI



VII

Development and integration of biodiversity databases

115. Develop an integrated national biodiversity information system with distributive linkages for easy storage, retrieval and dissemination including through augmentation of extant efforts of spatial mapping of natural resources and development of interactive databases at national level.
116. Intensify survey, identification and inventorization activities, involving local institutions and giving priority to hitherto unexplored areas.
117. Conduct regular surveys to monitor changes in populations of target species (wild and domesticated), using remote sensing and other updated tools and techniques.
118. Update list of endangered species of flora and fauna on priority, based on internationally accepted criteria.
119. Extend listing of keystone, umbrella and endemic species for conserving them on priority basis, and develop models/packages for their conservation.
120. Update database on sacred groves and sacred ponds documenting bio-resources and associated knowledge conserved at these sites.
121. Promote DNA fingerprinting, other molecular analytical techniques and studies on genetic diversity of critically endangered species to develop appropriate conservation strategies.
122. Expand area specific surveys of land races, traditional cultivars of crops, wild relatives of crop plants and breeds of domesticated animals inter alia through application of appropriate statistical techniques.
123. Use modern taxonomic methods for documentation/identification of species.
124. Strengthen and build capacity for taxonomy and biosystematics, particularly for groups of plants, animals and microorganisms which are as yet inadequately understood.

VIII

Strengthening implementation of policy, legislative and administrative measures for biodiversity conservation and management

125. Accelerate effective actions at the central, state and local levels to implement provisions under the Biological Diversity Act.
126. Review enabling policies to prevent transfer of prime agricultural land to non-agricultural purposes, and promote sustainability of agricultural lands.



127. Formulate suggestive policies for strengthening and supporting conservation and management of grasslands, pastoral lands, sacred groves and other areas significant for biodiversity conservation.
128. Support preparation of PBRs with technical help by the scientific institutions.
129. Strengthen systems for documentation, application and protection of biodiversity associated traditional knowledge, providing adequate protection to these knowledge systems while encouraging benefits to communities.
130. Revive and revitalize sustainable traditional practices and other folk uses of components of biodiversity and associated benefits to local communities with a view to promoting and strengthening traditional knowledge and practices.
131. Create public education and awareness about the need to conserve, protect and gainfully use traditional knowledge systems.
132. Identify emerging areas for new legislation, based on better scientific understanding, economic and social development, and development of multilateral environmental regimes, in line with the NEP.
133. Review the body of existing legislations relevant to biodiversity conservation to develop synergies among relevant statutes and regulations, eliminate obsolescence, and amalgamate provisions with similar objectives, in line with the NEP. Further, encourage and facilitate review of legislations at the level of state and local governments with a view to ensuring their consistency with this policy.
134. Review the regulatory processes for LMOs so that all relevant scientific knowledge is taken into account, and ecological, health, and economic concerns are adequately addressed.
135. Periodically review and update the national biosafety guidelines to ensure that these are based on current scientific knowledge.
136. Ensure conservation of biodiversity and human health while dealing with LMOs in transboundary movement in a manner consistent with the multilateral biosafety protocol.
137. Develop appropriate liability and redress mechanisms to internalize environment costs and address economic concerns in case of any damage to biodiversity.
138. Harmonise provisions concerning disclosure of source of biological material and associated knowledge used in the inventions under the Patents Act, Protection of Plant Varieties and Farmers' Rights Act, and Biological Diversity Act, to ensure sharing of benefits by the communities holding traditional knowledge, from such use.
139. Develop supportive regulatory regime for protection of identified wetlands and biosphere reserves.
140. Develop appropriate system and modalities for operationalizing provisions for prior informed consent and benefit sharing under the Biological Diversity Act, working towards greater congruence between these provisions and trade related aspects of intellectual property rights.



IX

Building of national capacities for biodiversity conservation and appropriate use of new technologies

141. Develop consortium of lead institutions engaged in conservation providing linkages and networking across public and private sectors.
142. Outsource research and promote joint ventures on key conservation issues.
143. Promote application of biotechnology tools for conserving endangered species.
144. Encourage DNA profiling for assessment of genetic diversity in endangered species to assist conservation.
145. Develop DNA-probe based technology for tracking of LMOs.
146. Develop specific pilot gene banks for LMOs approved for undertaking research and commercial use.
147. Develop capacity for risk assessment, management and communication on LMOs.
148. Support pilot studies on use of biotechnology tools for conservation where appropriate.
149. Develop specific complimentary capacity building measures based on national needs and priorities for the formulation and implementation of national rules and procedures on liability and redress to strengthen the establishment of baseline information and monitoring of changes.
150. Develop protocols for monitoring products based on genetic use restriction technologies.
151. Strengthen participatory appraisal techniques and encourage formation of local institutional structures for planning and management of natural resources for ensuring participation of women.
152. Preserve and strengthen traditional, religious, ritualistic, ethical and cultural methods of conservation.
153. Promote livelihood diversification opportunities for making value added bioresource based products and building upon traditional as well as emerging environmental technologies customized at local/field level.
154. Strengthen manpower, infrastructure and other pertinent capacities including upgradation of skills of officials of the MoEF to enable it to address new and emerging requirements in the field of biodiversity conservation and management.
155. Strengthen capabilities of BSI and ZSI and promote their technical cooperation with SBBs and BMCs.
156. Augment human resource development and personnel management in forestry and wildlife sector.
157. Strengthen multidisciplinary R&D efforts on key areas pertaining to conservation and management of biological diversity.
158. Strengthen and support departments of biology, botany, zoology, sociology, anthropology and other



- relevant disciplines in central, state and deemed universities/ colleges, with a view to raising the standard of research and producing faculty who could guide the process of environmental education in schools.
159. Promote both formal and non-formal means for environment education and biodiversity conservation.
 160. Design and implement awareness programmes, particularly for rural women, and also benefit from their wisdom. Women's organizations such as women's councils and mahila mandals could be used for this purpose.
 161. Incorporate modules on conservation and sustainable utilization of biodiversity in foundational and professional training courses for the officers of various services.
 162. Promote and/or strengthen education, training, awareness and extension programmes on biodiversity issues for various stakeholders including all levels of students, professionals (such as engineers, doctors, lawyers, CAs, etc.), elected representatives (such as representatives of PRIs, MLAs, MPs, Mayors, etc.), judiciary, NGOs, public and private sectors (e.g. corporate representatives, industrial associations etc.), defence and para military forces, customs, police, media, cultural, spiritual and religious institutions/ individuals.
 163. Enhance public education and awareness for biodiversity conservation through audio, visual and print media.
 164. Promote activities relating to animal welfare.

Valuation of goods and services provided by biodiversity, and use of economic instruments in decision making processes



165. Develop a system of natural resource accounting reflecting the ecological as well as economic values of biodiversity, with special attention to techniques of green accounting in national accounts and estimation of positive and negative externalities for use of various types of natural resources in the production processes as well as in household and government consumption.
166. Develop suitable valuation models for adoption at national, state and local levels.
167. Support projects and pilot studies aimed at validating methods of valuation of bioresources.
168. Identify key factors and indicators to assess effectiveness of valuation methods and models, taking into consideration the UN guidelines on monitoring and evaluation of socio-economic projects.
169. Assess the utility of traditional and innovative fiscal instruments for promoting conservation and sustainable utilization of biodiversity.



- 170. Develop systems for partial ploughing back of the revenues generated in protected areas, zoological parks, botanical gardens, aquaria, etc., for improving their management.
- 171. Mobilize additional resources based on project formulation for biodiversity conservation.

XI

International cooperation

- 172. Further consolidate and strengthen global cooperation, especially with UN agencies and other international bodies on issues related to biodiversity.
- 173. Promote regional cooperation for effective implementation of suitable strategies for conservation of biodiversity, especially with neighbouring countries through flora such as SAARC, ASEAN and ESCAP.
- 174. Develop projects for accessing funds for conservation and sustainable use of biodiversity from external sources, earmarked for conservation through bilateral, regional and other multilateral channels.
- 175. Promote technology transfer and scientific cooperation towards conservation of biological resources, their sustainable use and equitable sharing of benefits arising out of their use, taking also into account extant regulations including those relating to taxation.



ADDENDUM 2014
TO NBAP 2008



ACTION POINTS OF PROGRAMME OF WORK ON PROTECTED AREAS 2012

1.4

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

In order to implement CBD's PoWPA, India prepared an Action Plan in 2012 (MoEF 2012 a) which comprises the following key steps to be pursued under each action:

Action 1

Development of Site Specific Management Plans

- Inventory and Assessment
- Capacity Building
- Equipments
- Preparation of Site Specific Management Plan

Action 2

Integration of PAs (Securing Identified Corridors and Connectivity Areas)

- Public awareness and support
- Demonstration of mainstreaming corridors and connectivity for 50 sites
- Action Plan for corridors and connectivity areas of identified sites

Action 3

Diversifying the Governance Types

- Participatory Wildlife Monitoring for strengthening management

Action 4

Protected Area Valuation Assessment

- Targeted studies on PA valuation assessment in select PAs

Action 5

Climate Change Resilience and Adaptation Assessment

- Targeted studies on Climate Change Resilience and Adaptation Assessment in select PAs

NATIONAL BIODIVERSITY TARGETS



1.5



ADDENDUM 2014
TO NBAP 2008

The 12 NBTs along with the indicators and monitoring framework are given in Table 1, with a view to facilitate monitoring of trends and recording progress in their implementation through a consultative process. The agencies that have been identified on the basis of their mandate, domain expertise and geographical coverage for monitoring the progress in achieving the NBTs are also depicted in Table 1. While the frequency of monitoring of the 12 NBTs ranges from three to five years, data may be recorded yearly or more frequently by different agencies. Once the data are first reported for three years, these will be reviewed for any mid-course correction that may be required, and any changes will be incorporated appropriately.






Table 1. National Biodiversity Targets: Indicators and Monitoring Framework



National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>By 2020, a significant proportion of the country's population, especially the youth, is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.</p>		Trends in incorporating awareness and attitudes towards environmental conservation through communication and mainstream education	<ul style="list-style-type: none"> Number of students opting for higher-level elective subject and specialization in environmental education (EE) 	ISC/ICSE and CBSE boards	2 years
			<ul style="list-style-type: none"> Numbers of schools enrolled in the National Environment Awareness Campaign, National Green Corps-Eco Clubs Programme, Paryavaran Mitra (Friends of the Environment) Programme, Global Learning and Observations, Gyan Vigyan Vidyalaya, birdwatching clubs, DNA clubs (DBT's Natural Resource Awareness Clubs), etc. 	MoEF, Youth for Coastal Marine Conservation, South Asia Youth Environment Network (SAYEN), Ministry of Human Resource Development (MoHRD)-Department of Education Centre for Environment Education (CEE), C.P.R. Environmental Education Centre (CPREEC), Centre for Media Studies (CMS), Department of Biotechnology (DBT)	2 years
			<ul style="list-style-type: none"> Trends in coverage of environment-related programmes and projects with enhanced involvement of youth 	Ministry of Sports and Youth Affairs (MoSYA)	2 years
			<ul style="list-style-type: none"> Trends in visits to protected areas (PAs), natural history museums and exhibitions and zoological/botanical gardens 	State forest departments (Wildlife Wing), Central Zoo Authority (CZA), CEE	2 years
		Trends in promoting awareness at local levels	<ul style="list-style-type: none"> Trends in number of Biodiversity Management Committees (BMCs) constituted/operationalized Trends in number of people's biodiversity registers (PBRs) prepared 	National Biodiversity Authority (NBA)/State Biodiversity Boards (SBBs)	2 years
			<ul style="list-style-type: none"> Trends in number of Joint Forest Management Committees (JFMCs) constituted/operationalized Trends in number of civil society organizations/NGOs, Panchayati Raj Institutions, Community Forest Rights (CFR) committees (under Forest Right Act (FRA), 2006) engaged in creating environmental awareness 	State forest departments, MoEF CEE MoPR Ministry of Tribal Affairs (MoTA)	2 years

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>By 2020, values of biodiversity are integrated in national and state planning processes, development programmes and poverty alleviation strategies.</p>		<p>Trends in incorporating natural resource/biodiversity/ecosystem service values in national and state planning processes and development programmes</p>	<ul style="list-style-type: none"> • Trends in biodiversity and ecosystem services valuation studies • Trends in number and coverage of studies –TEEB, NPV relating to biodiversity • Trends in number and effectiveness of measures developed in the Mahatma Gandhi National Rural Employment Guarantee Act programme (MGNREGA) and Integrated Watershed Management Programme (IWMP) for protection and enhancement of ecosystem services and biodiversity • Trends in biodiversity-inclusive climate change adaptation and mitigation measures formulated/implemented • Trends in area covered by catchment area treatment under irrigation projects 	<p>Institute of Economic Growth (IEG), Indira Gandhi Institute for Development Research (IGDR), Indian Institute of Forest Management (IIFM), MoEF</p> <p>Ministry of Rural Development (MoRD), MoTA, state forest departments</p> <p>State climate change cells</p>	<p>3 years</p>
		<p>Trends in integration of biodiversity and ecosystem service values into sectoral and development policies and programmes</p>	<ul style="list-style-type: none"> • Trends in studies on economic and non-economic valuation of selected ecosystem services • Trends in reflection of biodiversity and ecosystem services in policy decisions, planning and reporting processes 	<p>IIFM, IGDR, IEG, MoEF, NBA</p>	<p>3 years</p>
		<p>Trends in policies considering biodiversity and ecosystem services in environmental impact assessment and strategic environmental assessment</p>	<ul style="list-style-type: none"> • Trends in number of studies on biodiversity-inclusive environment impact assessment, cumulative environment impact assessment (CEIA) and strategic environment assessment (SEA) 	<p>MoEF, Planning Commission</p>	<p>3 years</p>
			<ul style="list-style-type: none"> • Trends in identification, assessment, establishment and strengthening of incentives that reward positive contributions to biodiversity and ecosystem services 	<p>Ministry of Corporate Affairs (MoCA)</p>	<p>3 years</p>







NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)





National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>Strategies for reducing rate of degradation, fragmentation and loss of all natural habitats are finalized and actions put in place by 2020 for environmental amelioration and human well-being.</p>	 	Trends in forest cover	<ul style="list-style-type: none"> Change in proportion of forest cover in different forest categories (VDF, MDF, OF and Scrub) 	Forest Survey of India (FSI)	3 years
		Trends in aquatic ecosystems	<ul style="list-style-type: none"> Changes in area under riverine ecosystems and wetlands (terrestrial and coastal) Number of wetlands under integrated management plans 	Department of Space (DoS), Wetlands International-South Asia, SACON	3 years
		Trends in mangrove cover and coastal area management	<ul style="list-style-type: none"> Change in mangrove cover over the years Trends in area covered under integrated coastal area management 	FSI; Integrated Coastal and Marine Area Management (ICMAM), Ministry of Earth Sciences; Integrated Coastal Zone Management (ICZM) Project Unit of Society of Integrated Coastal Management (SICOM); National Centre for Sustainable Coastal Management (NCSCM), MoEF; DoS	2 years
		Trends in river water quality	<ul style="list-style-type: none"> Changes in water quality (by interception, diversion and treatment of domestic sewage and preventing agricultural runoff, toxic wastes, industrial effluents, chemical wastes and unburnt bodies from entering water bodies) 	National Ganga Authority, National River Conservation Directorate (NRCD) (Ganga Action Plan, Yamuna Action Plan and other action plans for polluted water bodies), SPCBs, CPCB	2 years
		Trends in afforestation and restoration	<ul style="list-style-type: none"> Monitoring canopy cover, grasslands and traditional grazing lands Monitoring carbon stock Assisted natural regeneration Rehabilitation of mined out areas 	Green India Mission, NRSC, DoS, ICFRE, forest departments, FSI Central Mine Planning and Design Institute (CMPDI)	3 years
		Combating desertification	<ul style="list-style-type: none"> Trends in land degradation Status and trends in area under desert, levels of water in wells/groundwater table 	National Bureau of Soil Survey and Land Use Planning (NBSS&LUP), Department of Agriculture & Cooperation, Disaster Management Support Programme, DoS, Department of Land Resources, Ministry of Rural Development, Ministry of Water Resources	2 years

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
		Species restoration after forest and water body restoration	<ul style="list-style-type: none"> • Status of selected indicator species 	Green India Mission, state forest departments	3 years
		Trends in maintenance of fertility in agricultural lands using natural methods and means	<ul style="list-style-type: none"> • Soil health records • Organic carbon and humus buildup • Trends in keeping the health of near-pristine soils, being awarded titles under FRA in forest areas 	Ministry of Agriculture, state forest departments	3 years
			<ul style="list-style-type: none"> • Number and coverage of management plans developed for prioritized invasive species and integration with PA management plans and wetland management plans • Change in area affected by invasive species 	Forest departments, DoS, Wetlands International-South Asia, SACON, ICFRE (Forest Invasive Species Cell), WII, CMLRE, National Institute of Oceanography (NIO), Annamalai University Faculty of Marine Sciences, CABI South Asia	
 <p>4</p> <p>By 2020, invasive alien species and pathways are identified and strategies to manage them developed so that populations of prioritized invasive alien species are managed</p>	 <p>9</p>	Trends in invasive alien species management	<ul style="list-style-type: none"> • Number and coverage of management plans developed for prioritized invasive species and integration with PA management plans and wetland management plans • Change in area affected by invasive species 	Forest departments, DoS, Wetlands International-South Asia, SACON, ICFRE (Forest Invasive Species Cell), WII, CMLRE, National Institute of Oceanography (NIO), Annamalai University Faculty of Marine Sciences, CABI South Asia	3 years



NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)



National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>By 2020, measures are adopted for sustainable management of agriculture, forestry and fisheries.</p>	  	Trends in sustainable agriculture	<ul style="list-style-type: none"> • Trends in area under organic farming, integrated pest management • Trends in organic farming certification • Trends in the production/usage of agrochemical fertilizers • Trends in the use of bio-fertilizers/biofuels, organic manure and vermicompost • Trends in soil quality and land use • Trends in energy consumption (by types/source) in farms • Trends in groundwater table • Trends in increased acreage under organic production on farms of agricultural research institutions and universities • Trends in enhanced use of landraces • Trends in proliferation of local crops and varieties that are more adapted to the environment, requiring less external inputs and therefore more integrated in the ecosystem, at the same time enhance prospects of greater household food security. • Trends in analysis of agricultural policies and programmes that adversely affect ecosystem services such as pollination 	Department of Agriculture, ICAR Department of Fertilizers, APEDA NBSS&LUP ICAR ICAR Ministry of Agriculture, Ministry of Rural Development, Ministry of Consumer Affairs, Food and Public Distribution, district administration Ministry of Agriculture	3 years
		Monitoring agricultural extension	<ul style="list-style-type: none"> • Trends in awareness levels of farmers • Trends in awareness levels of extension service staff, scientists and agricultural research system with relation to agro-biodiversity and associated knowledge 	Department of Agriculture ICAR	3 years

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
		Trends in sustainable forestry	<ul style="list-style-type: none"> Trends in area of degraded forests Trends in area of restored forests. Trends in proportion of products derived from sustainable sources 	Green India Mission, IIFM FSI, ICFRE, FRI	3 years
		Trends in stock sizes of target and bycatch fish species (freshwater and marine)	<ul style="list-style-type: none"> Trends in catch per unit effort (cpue) 	Fishery Survey of India, Central Marine Fisheries Research Institute (CMFRI), National Fisheries Development Board (NFDB), CMLRE (for deeper water marine fishes), NBFGR	3 years
		Trends in intensity of destructive fishing practices	<ul style="list-style-type: none"> Trends in sale of large-scale or destructive fishing gear (e.g. purse-seine, bottom trawlers) Trends in area covered by trawlers Trends in frequency of trawling 	Department of Animal Husbandry, Dairying & Fisheries NFDB, Central Institute of Fisheries Technology (CIFT), Fishery Survey of India	3 years
		Trends in sustainable fishing practices Trends in number of fishing boats/fishing capacity	<ul style="list-style-type: none"> Trends in certification of fish produce Trends in number of licences issued to fishing boats in coastal states Trends in fishing effort capacity 	Marine Products Export Development Authority NFDB, Department of Fisheries of each coastal state	Annual 3 years
 <p>Ecologically representative areas under terrestrial and inland water, and also coastal and marine zones, especially those of particular</p>	  	Trends in PA coverage under four legal categories (National Park, Wildlife Sanctuary, Community Reserve and Conservation Reserve)	<ul style="list-style-type: none"> Change in number/area/percentage of PAs over time 	Wildlife Institute of India (WII)	3 years
		Trends in other area-based conservation measures	<ul style="list-style-type: none"> Area/number of initiatives 	Indigenous Peoples' and Community Conserved Territories and Areas (ICCA) consortium, UNDP India, WWF	3 years
		Trends in coverage under Biodiversity Heritage Sites (BHS) under the Biological Diversity Act 2002	<ul style="list-style-type: none"> Change in number/area/percentage of BHSs over time 	National Biodiversity Authority, SBBS	3 years





NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
importance for species, biodiversity and ecosystem services, are conserved effectively and equitably, based on protected area designation and management and other area-based conservation measures and are integrated into the wider landscapes and seascapes, covering over 20% of the geographic area of the country, by 2020.		Trends in wetlands brought under integrated management	<ul style="list-style-type: none"> Changes in area and ecological status of wetlands through implementation of integrated management plans Changes in abundance and diversity of waterbird species in wetlands over time Trends in coverage of sites of international importance for migratory species under CMS convention 	SACON, Wetlands International-South Asia, DoS Wetlands International-South Asia, BNHS, SACON Wetlands International-South Asia, BNHS, SACON	3 years
		Trends in Important Bird Areas (IBAs)	<ul style="list-style-type: none"> Change in number/area of Important Bird Areas (IBAs) over time 	Bombay Natural History Society (BNHS)	3 years
		Status and population trends of 16 IDWH terrestrial species and 7 marine species	<ul style="list-style-type: none"> Population trends of selected species (16 terrestrial and 7 marine species) 	For terrestrial species: Zoological Survey of India (ZSI), WII, SACON, BNHS, NCF, WTI, WWF, IISc For marine species: CMLRE, ZSI, Fishery Survey of India, National Centre for Antarctic & Oceanic Research (NCAOR), CMFRI	5 years
		Trends in forest cover in four designated categories	<ul style="list-style-type: none"> Change in proportion of forest cover in different forest categories (VDF, MDF, OF, Scrub) 	FSI	2 years
		Trends in status of Indian plant and animal species included in IUCN Red Data Book	<ul style="list-style-type: none"> Conservation status of species, subspecies and varieties and even selected subpopulations at a national scale in order to highlight taxa threatened with extinction and therefore promote their conservation 	IUCN-India, ZSI, BSI, WII	4 years
		Trends in air and water quality and in noise pollution	<ul style="list-style-type: none"> Status and trends of ambient air quality; monitoring water quality for physico-chemical and bacteriological parameters, trace metals, pesticides at selected sites; trends in noise levels 	CPCB, SPCBs	Yearly
		Status of ecosystem services of selected ecosystems	<ul style="list-style-type: none"> Status of ecological services of selected ecosystems including agricultural landscapes 	IIFM, IEG	5 years



National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
		Trends in areas of exceptional agricultural biodiversity and their threat status	<ul style="list-style-type: none"> Assessing the conservation status of landraces and varieties to highlight threatened status and therefore promote conservation 	Ministry of Agriculture, State Biodiversity Boards	5 years
 <p>By 2020, genetic diversity of cultivated plants, farm livestock, and their wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.</p>		Animal genetic diversity	<ul style="list-style-type: none"> Trends in number of indigenous/domesticated breeds (<i>in situ</i>) Trends in populations of domestic breeds (<i>in situ</i>) Effectiveness of initiatives/measures taken to conserve indigenous animal varieties Trends in germplasm accessions in <i>ex situ</i> collections 	National Bureau of Animal Genetic Resources (NBAGR) Department of Agriculture Agriculture universities	3 years
		Plant genetic diversity	<ul style="list-style-type: none"> Trends in numbers of indigenous varieties (<i>in situ</i>) Trends in area under cultivation, production/yield (<i>in situ</i>) Effectiveness of initiatives/measures taken to conserve indigenous crop varieties and their wild relatives Trends in germplasm accessions in <i>ex situ</i> collections 	National Bureau of Plant Genetic Resources (NBPGR) Department of Agriculture Agriculture universities National Bureau of Forest Genetic Resources	3 years



NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)







National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>By 2020, ecosystem services, especially those relating to water, human health, livelihoods and well-being, are enumerated and measures to safeguard them are identified, taking into account the needs of women and local communities, particularly the poor and vulnerable sections.</p>		Human development index-standard of living in India	<ul style="list-style-type: none"> Trends in number of people with access to primary/secondary education/health services/safe drinking water/electricity/road connectivity Trends in number of women with access to primary/secondary education/health services/safe drinking water/electricity/road connectivity 	MoHRD Ministry of Health and Family Welfare	2 years
		Level of toxic contaminants in wetlands/rivers/aquatic fauna	<ul style="list-style-type: none"> Trends in pollution status of wetlands of international (Ramsar sites) and national (identified by state governments) importance Level of toxic contaminants in rivers that provide freshwater for human use Levels of toxic contaminants in aquatic/terrestrial fauna 	Central Pollution Control Board (CPCB) Indian Institute of Toxicology Research	2 years
		Extent of restored forest cover in India	<ul style="list-style-type: none"> Trends in area of forests under restoration Trends in area under plantations in rural/urban areas Trends in very dense forest/moderately dense forest in protected areas 	FSI, REDD+ Green India Mission JFM programme ICFRE/FRI	2 years
		Extent of groundwater pollution and groundwater levels	<ul style="list-style-type: none"> Trends in groundwater levels Trends in proportion of groundwater available for use 	Central Ground Water Board	2 years
		Trends in use of chemicals and fertilizers in agriculture/organic products	<ul style="list-style-type: none"> Agricultural area under chemicals/fertilizers/pesticides use Agricultural area under organic farming in agro-ecosystems Level of nitrogen/phosphorus/essential nutrients in soil 	Department of Agriculture Indian Agriculture Research Institute NBSS&LUP	2 years






National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/ report
		Trends in wetlands significant for delivering freshwater being brought under integrated management	<ul style="list-style-type: none"> Area of wetlands such as lakes and ponds under integrated management 	SACON, Wetlands International-South Asia, BNHS, DoS	3 years
		Trends in proportion of people using improved water services	<ul style="list-style-type: none"> Trends in number of people with access to potable water Trends in number of households with tap water connections 	Ministry of Drinking Water and Sanitation	2 years
		Trends in availability of urban greenspaces	<ul style="list-style-type: none"> Area under greenspaces in urban centres (as a proxy to conservation of urban biodiversity) 	Ministry of Urban Development, School of Planning and Architecture (SPA)	3 years
 <p>By 2015, Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization as per the Nagoya Protocol are operational, consistent with national legislations.</p>		Trends in access to genetic resources and equitable sharing of benefits	<ul style="list-style-type: none"> Trends in number of proposals for intellectual property rights Trends in number of cases seeking third party transfer for accession of biological resources and associated traditional knowledge Trends in number of cases for seeking prior approval of NBA for transferring the results of research to foreign nations, companies, NRIs for commercial purposes Trends in number of cases seeking approval to bio-resources and associated traditional knowledge for commercial utilization 	NBA, SBBs Departments of Agriculture, Animal Husbandry and Fisheries, ICAR, Controller General of Patents, Designs & Trademarks	3 years



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
 <p>By 2020, an effective, participatory and updated national biodiversity action plan is made operational at different levels of governance</p>	  	Progress in implementing National Biodiversity Action Plan (NBAP)	<ul style="list-style-type: none"> Trends in preparation of State Biodiversity Action Plans (SBAPs) Trends in implementing the activities envisaged under SBAPs 	SBBs and state planning boards, NBA, MoEF, Departments of Forests, Agriculture, Animal Husbandry and Fisheries	3 years
 <p>By 2020, national initiatives using communities' traditional knowledge relating to biodiversity are strengthened, with the view to protecting this knowledge in accordance with national legislations and international obligations.</p>		Trends in documentation/data abstraction and management	<ul style="list-style-type: none"> Number of traditional herbal formulations documented from codified systems of Indian medicine Number of transcriptions Number of folk uses of medicinal plants documented from PBRs prepared by BMCs 	TKDL- AYUSH- CSIR Unit NBA	3 years 3 years
		Trends in access agreements related to traditional knowledge (TK)	<ul style="list-style-type: none"> Number of potential 'bio-piracy'/wrong patent cases prevented Number of patents and ABS based on TK derived from folk knowledge 	TKDL-AYUSH- CSIR unit Controller General of Patents, Designs & Trademarks, NBA	3 years 3 years
		Trends in grassroots innovations and traditional practices	<ul style="list-style-type: none"> Number of innovations and traditional practices documented 	National Innovation Foundation (NIF), NBA	3 years
		Trends in capacity building related to TK and PBRs	<ul style="list-style-type: none"> Training/capacity building at local and community levels Numbers of BMCs and PRI institutions trained 	NBA, SBBs and Foundation for Revitalisation of Local Health Traditions (FRLHT), BSI, state forest academies and training centres, ICFRE	3 years

National Biodiversity Target	Corresponding Aichi Biodiversity Target	Composite Indicator	Description of Indicator	Responsible agencies (Indicative list)	Frequency of monitoring/report
		Trends in conservation and sustainable use of medicinal plants used by India's medical heritage	<ul style="list-style-type: none"> • Number of medicinal plant conservation areas (MPCAs) established in the country • Trends in collection of plants providing raw drugs used in Indian systems of medicine 	MoEF, National Medicinal Plant Board (NMPB), FRLHT NMPB	3 years
		Trends in documentation and awareness of the conservation traditions in TK	<ul style="list-style-type: none"> • Documentation and awareness meetings/capacity building workshops/seminars/conferences for various target groups (NGOs, CBOs, Mahila Mandals, academicians) • Trends in number of PBRs prepared 	CPREEC MoHRD NBA	3 years
 <p>By 2020, opportunities to increase the availability of financial, human and technical resources to facilitate effective implementation of the Strategic Plan for Biodiversity 2011-2020 and the national targets are identified and the Strategy for Resource Mobilization is adopted.</p>	 	Trends in availability of financial, human and technical resources for achieving 20 Aichi Biodiversity Targets and 12 National Biodiversity Targets	<ul style="list-style-type: none"> • Trends in financial resources made available for implementing Aichi and National Biodiversity Targets • Trends in human resources made available for implementing Aichi and National Biodiversity Targets • Trends in technical resources made available for implementing Aichi and National Biodiversity Targets 	Planning Commission, MOEF NBA SBBS State forest departments, MoHRD DoS, MoST, Indian Meteorological Department (IMD)/MoES	3 years

LINKAGES BETWEEN ACTIONABLE POINTS OF NBAP 2008 AND THE 12 NATIONAL BIODIVERSITY TARGETS

1.6

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

The actionable points under India's NBAP 2008 bear close harmonization with the 12 NBTs developed in 2014, as can be seen in Table 2. The 12 NBTs capture the essence of NBAP 2008 and its actions points that call for strengthening of *in situ*, on farm, and *ex situ* conservation; augmentation of natural resource base and its sustainable utilization; regulation of introduction of invasive species and their management; vulnerability assessment regarding climate change and desertification; integration of biodiversity concerns in socio-economic development; impacts of pollution; development of biodiversity databases; strengthening implementation of policy, legislative and administrative measures for biodiversity conservation and management, national capacity building and appropriate use of new technologies; biodiversity valuation and use of economic instruments in decision-making; and global cooperation on issues related to biodiversity. The four-colour scheme in Table 2 depicts whether the linkage between actionable points of NBAP 2008 and the 12 NBTs is direct, indirect, is at a tertiary level, or has a peripheral connect.



ADDENDUM 2014
TO NBAP 2008

Table 2. Linkages between Actionable Points of NBAP 2008 and National Biodiversity Targets

	The linkage is primary/ direct
	The linkage is secondary/ indirect
	The linkage is at a tertiary level
	There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

Strengthening and integration of *in situ*, on-farm and *ex situ* conservation

***In Situ* Conservation**

1	Expand the Protected Area (PA) network of the country including Conservation and Community Reserves, to give fair representation to all biogeographic zones of the country. In doing so, develop norms for delineation of PAs in terms of the objectives and principles of the National Environment Policy, in particular, participation of local communities, concerned public agencies, and other stakeholders, who have direct and tangible stake in protection and conservation of wildlife, to harmonize ecological and physical features with needs of socio-economic development											
2	Establish self-sustaining monitoring system for overseeing the activities and effectiveness of the PA network											
3	Ensure that human activities on the fringe areas of PAs do not degrade the habitat or otherwise significantly disturb wildlife											
4	Mitigate man-animal conflicts											
5	Promote site-specific eco-development programmes in fringe areas of PAs, to restore livelihoods and access to forest produce by local communities, owing to access restrictions in PAs											
6	Promote voluntary relocation of villagers from critical habitats of PAs											



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
7 Devise effective management and conservation techniques for the forest preservation plots to ensure conservation of representative areas of different forest type	Secondary	No linkage	No linkage	No linkage	Primary	Primary	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage
8 Strengthen research work on PAs, biosphere reserves and fragile ecosystems by involving local research institutions and universities, so as to develop baseline data on biological and managerial parameters, and functional properties of ecosystems	Secondary	No linkage	No linkage	No linkage	No linkage	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
9 Strengthen the protection of areas of high endemism of genetic resources (biodiversity hotspots), while providing alternative livelihoods and access to resources to local communities who may be affected thereby	Secondary	Primary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary	Primary	Secondary	Tertiary	Tertiary
10 Continue to promote inter-sectoral consultations and partnerships in strengthening biodiversity conservation activities	Secondary	Primary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Tertiary	Tertiary
11 Strengthen capacities and implement measures for captive breeding and release into the wild of identified endangered species	Secondary	Tertiary	Tertiary	Tertiary	Tertiary	Primary	Primary	No linkage	No linkage	Secondary	No linkage	Primary
12 Reintroduction and establishment of viable populations of threatened plant species	Secondary	No linkage	Secondary	No linkage	No linkage	Primary	Primary	No linkage	No linkage	Secondary	No linkage	Secondary
13 Control poaching and illegal trade in wild animals and plant species	Secondary	Secondary	Tertiary	Tertiary	Tertiary	Primary	Secondary	No linkage	Secondary	Secondary	Secondary	Secondary
14 Periodically revisit the norms, criteria and needs of data for placing particular species in different schedules of the Wildlife (Protection) Act	Secondary	No linkage	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage	No linkage	Secondary	No linkage	Secondary
15 Promote ecological and socially sensitive tourism and pilgrimage activities with emphasis on regulated and low impact tourism on a sustainable basis through adoption of best practice norms	Primary	Secondary	No linkage	No linkage	Secondary	Primary	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage
16 Formulate and implement partnerships for enhancement of wildlife habitat in	Secondary	Tertiary	Primary	No linkage	No linkage	Primary	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage



ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
Conservation Reserves and Community Reserves, on the lines of multi-stakeholder partnerships for afforestation, to derive both environmental and eco-tourism benefits												
17 Promote conservation of biodiversity outside the PA network, on private property, on common lands, water bodies and urban areas												
18 Formulate and implement programmes for conservation of endangered species outside PAs												
19 Ensure conservation of ecologically sensitive areas, which are prone to high risk of loss of biodiversity due to natural or anthropogenic factors												
20 Ensure that survey and bioprospecting of native economically important biological resources is undertaken on a priority basis												
21 Integrate conservation and wise use of wetlands and river basins involving all stakeholders, in particular local communities, to ensure maintenance of hydrological regimes and conservation of biodiversity												
22 Consider particular unique wetlands as entities of incomparable values, in developing strategies for their protection and formulate conservation and prudent use strategies for the identified wetlands with participation of local communities and other stakeholders												

On-farm conservation

23 Identify hotspots of agro-biodiversity under different agro-ecozones and cropping systems and promote on-farm conservation												
24 Provide economically feasible and socially acceptable incentives such as value addition and direct market access in the face of												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
replacement by other economically remunerative cultivars												
25 Develop appropriate models for on-farm conservation of livestock herds maintained by different institutions and local communities												
26 Develop mutually supportive linkages between <i>in situ</i> , on-farm and <i>ex situ</i> conservation programmes												

Ex situ conservation

27 Promote <i>ex situ</i> conservation of rare, endangered, endemic and insufficiently known floristic and faunal components of natural habitats, through appropriate institutionalization and human resource capacity building. For example, pay immediate attention to conservation and multiplication of rare, endangered and endemic tree species through institutions such as Institute of Forest Genetics and Tree Breeding												
28 Focus on conservation of genetic diversity (<i>in situ</i> , <i>ex situ</i> , <i>in vitro</i>) of cultivated plants, domesticated animals and their wild relatives to support breeding programmes												
29 Strengthen national <i>ex situ</i> conservation system for crop and livestock diversity, including poultry, linking national gene banks, clonal repositories and field collections maintained by different research centres and universities												
30 Develop cost effective and situation specific technologies for medium and long term storage of seed samples collected by different institutions and organizations												
31 Undertake DNA profiling for assessment of genetic diversity in rare, endangered and												



ADDENDUM 2014
TO NBAP 2008

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
endemic species to assist in developing their conservation programmes												
32 Develop a unified national database covering all <i>ex situ</i> conservation sites												
33 Consolidate, augment and strengthen the network of zoos, aquaria, etc., for <i>ex situ</i> conservation												
34 Develop networking of botanic gardens and consider establishing a 'Central Authority for Botanic Gardens' to secure their better management on the lines of Central Zoo Authority												
35 Provide for training of personnel and mobilize financial resources to strengthen captive breeding projects for endangered species of wild animals												
36 Strengthen basic research on reproduction biology of rare, endangered and endemic species to support reintroduction programmes												
37 Encourage cultivation of plants of economic value presently gathered from their natural populations to prevent their decline												
38 Promote inter-sectoral linkages and synergies to develop and realize full economic potential of <i>ex situ</i> conserved materials in crop and livestock improvement programmes												

Augmentation of natural resource base and its sustainable utilization: Ensuring inter and intra-generational equity

39 Secure integration of biodiversity concerns into inter-sectoral policies and programmes to identify elements having adverse impact on biodiversity and design policy guidelines to address such issues. Make valuation of biodiversity an integral part of pre-appraisal of projects and programmes to minimize adverse impacts on biodiversity												
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NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

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- The linkage is at a tertiary level
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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
40 Promote decentralized management of biological resources with emphasis on community participation	Secondary	Tertiary	Tertiary	Tertiary	Primary	Primary	Primary	Secondary	Primary	Secondary	Primary	Secondary
41 Promote sustainable use of biodiversity in sectors such as agriculture, animal husbandry, dairy development, fisheries, apiculture, sericulture, forestry and industry	Secondary	Primary	Tertiary	Tertiary	Primary	Secondary	Tertiary	Secondary	Primary	Secondary	Secondary	Secondary
42 Promote conservation, management and sustainable utilization of bamboos and canes, and establish bambusetum and canetum for maintaining species diversity and elite germplasm lines	Secondary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Secondary	Primary	Primary
43 Promote best practices based on traditional sustainable uses of biodiversity and devise mechanisms for providing benefits to local communities	Secondary	Primary	Primary	Primary	Secondary	Primary	Secondary	Primary	Primary	Secondary	Primary	Secondary
44 Build and regularly update a database on NTFPs, monitor and rationalize use of NTFPs ensuring their sustainable availability to local communities	Secondary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary	Tertiary	Secondary	Secondary	Secondary	Secondary
45 Promote sustainable use of biological resources by supporting studies on traditional utilization of natural resources in selected areas to identify incentives and disincentives, and promote best practices	Secondary	Secondary	Tertiary	Tertiary	Primary	Primary	Tertiary	Tertiary	Tertiary	Secondary	Primary	Primary
46 Encourage cultivation of medicinal plants and culture of marine organisms exploited for drugs to prevent their unsustainable extraction from the wild	Secondary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary	Primary	Primary	Secondary	Primary	Secondary
47 Promote capacity building at grassroots level for participatory decision-making to ensure eco-friendly and sustainable use of natural resources	Secondary	Secondary	Tertiary	Tertiary	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Primary	Primary
48 Develop <i>sui generis</i> system for protection of traditional knowledge and related rights including intellectual property rights	Secondary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Primary	Secondary	Primary	Secondary
49 Encourage adoption of science-based, and traditional sustainable land use practices,	Secondary	Secondary	Tertiary	Tertiary	Primary	Tertiary	Primary	Primary	Primary	Secondary	Primary	Primary



ADDENDUM 2014
TO NBAP 2008

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
through research and development, extension of knowledge, pilot scale demonstrations, and large scale dissemination including farmer's training, and where necessary, access to institutional finance												
50 Promote reclamation of wasteland and degraded forest land through formulation and adoption of multi-stakeholder partnerships involving the land owning agency, local communities, and investors												
51 Promote sustainable alternatives to shifting cultivation where it is no longer ecologically viable, ensuring that the culture and social fabric of the local people are not disrupted												
52 Encourage agro-forestry, organic farming, environmentally sustainable cropping patterns, and adoption of efficient irrigation techniques												
53 Incorporate a special component in afforestation programmes for afforestation on the banks and catchments of rivers and reservoirs to prevent soil erosion and improve green cover												
54 Integrate wetland conservation, including conservation of village ponds and tanks, into sectoral development plans for poverty alleviation and livelihood improvement, and link efforts for conservation and sustainable use of wetlands with the ongoing rural infrastructure development and employment generation programmes												
55 Promote traditional techniques and practices for conserving village ponds												
56 Mainstream the sustainable management of mangroves into the forestry sector regulatory regime so as to ensure the protection of coastal belts and conservation of flora and fauna in those areas												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
57 Disseminate available techniques for regeneration of coral reefs and support activities based on application of such techniques	Secondary	No linkage	Primary	Secondary	Secondary	Primary	Secondary	No linkage	No linkage	Secondary	No linkage	Primary
58 Adopt a comprehensive approach to integrated coastal management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulations and programmes	Secondary	Primary	Primary	Tertiary	Primary	Primary	No linkage	Secondary	Secondary	Secondary	Secondary	No linkage

Regulation of introduction of invasive alien species and their management

59 Develop a unified national system for regulation of all introductions and carrying out rigorous quarantine checks	Secondary	Primary	Tertiary	Primary	Tertiary	Tertiary	No linkage	Tertiary	No linkage	Secondary	No linkage	Secondary
60 Strengthen domestic quarantine measures to contain the spread of invasive species to neighbouring areas	Secondary	Primary	Tertiary	Primary	Tertiary	Tertiary	No linkage	No linkage	No linkage	Secondary	No linkage	Secondary
61 Promote intersectoral linkages to check unintended introductions and contain and manage the spread of invasive alien species	Secondary	Primary	Tertiary	Primary	Tertiary	Tertiary	No linkage	No linkage	No linkage	Secondary	Tertiary	Tertiary
62 Develop a national database on invasive alien species reported in India	Secondary	Tertiary	Tertiary	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Secondary	Secondary	Tertiary	Secondary
63 Develop appropriate early warning and awareness system in response to new sightings of invasive alien species	Secondary	Secondary	Tertiary	Primary	Tertiary	Tertiary	No linkage	Tertiary	Secondary	Secondary	Tertiary	Primary
64 Provide priority funding to basic research on managing invasive species	Secondary	No linkage	Tertiary	Primary	Tertiary	Tertiary	Tertiary	Secondary	Secondary	Secondary	Tertiary	Secondary
65 Support capacity building for managing invasive alien species at different levels with priority on local area activities	Secondary	Secondary	Tertiary	Primary	Primary	Primary	Tertiary	Secondary	Secondary	Secondary	Tertiary	Primary
66 Promote restorative measures of degraded ecosystems using preferably locally adapted native species for this purpose	Secondary	Tertiary	Primary	Primary	Tertiary	Tertiary	Tertiary	Secondary	Secondary	Secondary	Tertiary	No linkage
67 Promote regional cooperation in adoption of uniform quarantine measures and containment of invasive exotics	Secondary	Tertiary	Tertiary	Primary	Tertiary	Tertiary	Tertiary	Secondary	Secondary	Secondary	Tertiary	Tertiary



ADDENDUM 2014
TO NBAP 2008

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Actionable points of NBAP 2008

National Biodiversity Targets

1	2	3	4	5	6	7	8	9	10	11	12
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Assessment of vulnerability and adaptation to climate change, and desertification

68	Identify the key sectors of the country vulnerable to climate change, in particular impacts on water resources, agriculture, health, coastal areas and forests	Secondary	Tertiary	Primary	Tertiary	Primary	Tertiary	Primary	Tertiary	Secondary	Tertiary	Tertiary
69	Promote research to develop methodologies for tracking changes and assessing impacts of climate change on glaciers, river flows and biodiversity	Secondary	Tertiary	Primary	Tertiary	Primary	Tertiary	Primary	Tertiary	Secondary	Tertiary	Tertiary
70	Assess the need for adaptation to future impacts of climate change at national and local levels, and the scope for incorporating the outputs of such assessments in relevant programmes, including watershed management, coastal zone planning and regulation, agricultural technologies and practices, forestry management, and health programmes	Secondary	Primary	Primary	Tertiary	Primary	Tertiary	Primary	Primary	Secondary	Tertiary	Primary
71	Explicitly consider vulnerability of coastal areas and their biodiversity to climate change and sealevel rise in coastal management plans, as well as infrastructure planning and construction norms	Secondary	Primary	Primary	Primary	Tertiary	Primary	Primary	Primary	Secondary	Tertiary	Primary
72	Participate in voluntary partnerships with other countries both developed and developing, to address the challenges of sustainable development and climate change, consistent with the provisions of the UNFCCC	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
73	Identify the most important gaps in knowledge that limit the national ability to develop and implement climate change adaptation strategies for species, and ecological processes and functions	Secondary	Secondary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Secondary	Primary	Primary
74	Enhance the capacity of climate modeling in the country substantially to get clear idea on the impacts of climate change on biodiversity at national and local levels	Secondary	Secondary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Primary	Secondary	Primary	Primary



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
75 Develop ecological criteria for identifying the species and ecosystems that are at great risk from climate change and identify their priority habitats	Secondary	Primary	Secondary	No linkage	Tertiary	Primary	Tertiary	No linkage	Tertiary	Secondary	Tertiary	No linkage
76 Identify information requirements and priorities, through expert consultative processes, for longterm monitoring of climate change impacts on biodiversity	Secondary	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	No linkage	Secondary	Tertiary	Primary
77 Establish a climate change and biodiversity website for decision makers concerned with national resource management to facilitate information exchange about the actual and potential impacts of climate change and relevant policies, strategies and programmes	Secondary	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage
78 In view of the multidisciplinary nature of the subject, undertake an 'All India Coordinated Research Project on Impacts of Climate Change' on various facets of wild and agricultural biodiversity	Secondary	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	Secondary	No linkage	No linkage
79 Integrate biodiversity concerns into measures for energy conservation and adoption of renewable energy technologies with a focus on local biomass resources and dissemination of improved fuelwood stoves, and solar cookers	Secondary	Primary	Primary	Primary	Secondary	Primary	No linkage	Primary	Primary	Secondary	Primary	No linkage
80 Strengthen efforts for partial substitution of fossil fuels by bio-fuels, through promotion of biofuel plantations, promoting relevant research and development, and streamlining regulatory certification of new technologies	Secondary	No linkage	Secondary	No linkage	No linkage	No linkage	No linkage	No linkage	No linkage	Secondary	No linkage	Secondary
81 Strengthen and augment the existing programmes and activities of the Central and State Governments relating to drylands	Secondary	Primary	Secondary	Tertiary	Primary	Tertiary	Tertiary	Tertiary	No linkage	Secondary	No linkage	No linkage
82 Prepare and implement thematic action plans incorporating watershed management strategies, for arresting and reversing desertification and expanding green cover	Secondary	No linkage	Primary	Tertiary	Tertiary	Tertiary	No linkage	Primary	No linkage	Secondary	No linkage	No linkage



ADDENDUM 2014
TO NBAP 2008

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
83 Promote reclamation of wastelands by energy plantations for rural energy through multistakeholder partnerships involving the landowning agencies, local communities, and investors												

Integration of biodiversity concerns in economic and social development

84 Develop strong research base on impact assessment and conduct rigorous impact assessment of development projects, with a focus on biodiversity and habitats												
85 Integrate biodiversity concerns across development sectors (such as industry, infrastructure, power, mining, etc.) and promote use of clean technologies												
86 Accord priority to the potential impacts of development projects on biodiversity resources and natural heritage while undertaking EIA. In particular, ancient sacred groves and biodiversity hotspots should be treated as possessing incomparable values												
87 Take steps to adopt and institutionalize techniques for environmental assessment of sectoral policies and programmes to address any potential adverse impacts, and enhance potential favourable impacts												
88 Develop and integrate pre-project plans for reallocation and rehabilitation of local people likely to be displaced by development projects keeping in view their socio-cultural and livelihood needs												
89 Ensure that in all cases of diversion of forest land, the essential minimum needed land for the project or activity is permitted. Restrict the diversion of dense natural forests, particularly areas of high endemism of genetic resources, to non-forest purposes, only to site-specific cases of vital national interest												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
90 Give priority to impact assessment of development projects on wetlands; in particular, ensuring that environmental services of wetlands are explicitly factored into cost-benefit analysis	Secondary	Primary	Tertiary	No linkage	Tertiary	Tertiary	No linkage	Primary	Tertiary	Secondary	No linkage	Tertiary
91 Promote integrated approaches to management of river basins considering upstream and downstream inflows and withdrawals by season, pollution loads and natural regeneration capacities, in particular, for maintenance of in-stream ecological values	Secondary	Tertiary	Primary	Tertiary	Tertiary	Tertiary	No linkage	Primary	No linkage	Secondary	No linkage	No linkage
92 Consider and mitigate the impacts on river and estuarine flora and fauna, and the resulting change in the resource base for livelihoods, of multipurpose river valley projects, power plants and industries	Secondary	Primary	Primary	No linkage	Tertiary	Tertiary	Tertiary	Primary	No linkage	Secondary	No linkage	No linkage
93 Adopt best practice norms for infrastructure construction to avoid or minimize damage to sensitive ecosystems and despoiling of landscapes	Secondary	Primary	Secondary	No linkage	Secondary	Tertiary	Tertiary	Tertiary	No linkage	Secondary	No linkage	No linkage
94 Support practices of rain water harvesting and revival of traditional methods for enhancing groundwater recharge	Secondary	No linkage	Tertiary	No linkage	Tertiary	Tertiary	No linkage	Primary	No linkage	Secondary	Secondary	No linkage
95 Give due consideration to the quality and productivity of lands which are proposed to be converted for development activities, as part of the environmental clearance process	Secondary	Tertiary	Tertiary	Tertiary	Secondary	Tertiary	No linkage	Tertiary	No linkage	Secondary	No linkage	Tertiary
96 Ensure provision for environmental restoration during commissioning and after decommissioning of industries. For example, in all approvals of mining plans, institutionalize a system of postmonitoring of projects to ensure safe disposal of tailings and ecosystem rehabilitation following the principles of ecological succession	Secondary	Primary	Primary	Tertiary	Secondary	Tertiary	No linkage	Tertiary	No linkage	Secondary	No linkage	No linkage
97 Promote, through incentives, removal of barriers and regulation, the beneficial utilization of wastes such as fly ash, bottom	Secondary	Tertiary	Primary	Tertiary	Tertiary	Primary	No linkage	Primary	No linkage	Secondary	Tertiary	No linkage



ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
ash, red mud, and slag, minimizing thereby their adverse impacts on terrestrial and aquatic ecosystems												
98 Promote sustainable tourism through adoption of best practice norms for tourism facilities and conservation of natural resources while encouraging multistakeholder partnerships favouring local communities												
99 Develop and implement viable models of public-private partnerships for setting up and operating secure landfills, incinerators, and other appropriate techniques for the treatment and disposal of toxic and hazardous wastes, both industrial and biomedical, on payment by users, taking the concerns of local communities into account. The concerned local communities and State Governments must have clear entitlements to specified benefits from hosting such sites, if access is given to non-local users. Develop and implement strategies for clean-up of toxic and hazardous waste dump legacies, in particular in industrial areas, and abandoned mines, and reclamation of such lands for future, sustainable use												
100 Survey and develop a national inventory of toxic and hazardous waste dumps, and an online monitoring system for movement of hazardous wastes. Strengthen capacity of institutions responsible for monitoring and enforcement in respect of toxic and hazardous wastes												
101 Strengthen the legal arrangements and response measures for addressing emergencies arising out of transportation, handling and disposal of hazardous wastes as part of the chemical accidents regime												
102 Promote organic farming of traditional crop varieties through research in and												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
dissemination of techniques for reclamation of land with prior exposure to agricultural chemicals, facilitating marketing of organic produce in India and abroad, including by development of transparent, voluntary and science-based labeling schemes												
103 Develop and enforce regulations and guidelines for management of e-waste as part of the hazardous waste regime												
104 Promote, through incentives, removal of barriers, and regulations, the beneficial utilization of generally non-hazardous waste streams such as fly ash, bottom ash, red mud, and slag, including in cement and brick-making, and building railway and highway embankments												

Pollution impacts

105 Minimise and eliminate activities leading to loss of biodiversity due to point and non-point sources of pollution and promote development of clean technologies												
106 Strengthen the monitoring and enforcement of emission standards for both point and non-point sources												
107 Develop location-specific work plans focusing on biodiversity conservation while managing pollution problems												
108 Treat and manage industrial effluents so as to minimize adverse impacts on terrestrial and aquatic biological resources												
109 Promote biodegradable and recyclable substitutes for non-biodegradable materials, and develop and implement strategies for their recycle, reuse, and final environmentally benign disposal, including through promotion of relevant technologies, and use of incentive based instruments												



ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

	National Biodiversity Targets											
Actionable points of NBAP 2008	1	2	3	4	5	6	7	8	9	10	11	12

110 Avoid excessive use of fertilizers, pesticides and insecticides while encouraging integrated pest management practices, and use of organic manures and biofertilisers												
111 Promote organic farming of locally adapted and traditional crop varieties through appropriate incentives, and direct access to markets duly supported by credible certification systems												
112 Develop a strategy for strengthening regulation, and addressing impacts, of ship-breaking activities on human health, coastal and near marine bioresources												
113 Accord priority to potential impacts on designated natural heritage sites in view of their incomparable values that merit stricter standards than in otherwise comparable situations												
114 Promote R&D on impacts of air, water and soil pollution on biodiversity and use of biological methods for pollution amelioration												

Development and integration of biodiversity databases

115 Develop an integrated national biodiversity information system with distributive linkages for easy storage, retrieval and dissemination including through augmentation of extant efforts of spatial mapping of natural resources and development of interactive databases at national level												
116 Intensify survey, identification and inventorization activities, involving local institutions and giving priority to hitherto unexplored areas												
117 Conduct regular surveys to monitor changes in populations of target species (wild and												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008 **National Biodiversity Targets**

	1	2	3	4	5	6	7	8	9	10	11	12
domesticated), using remote sensing and other updated tools and techniques												
118 Update list of endangered species of flora and fauna on priority, based on internationally accepted criteria												
119 Extend listing of keystone, umbrella and endemic species for conserving them on priority basis, and develop models/packages for their conservation												
120 Update database on sacred groves and sacred ponds documenting bio-resources and associated knowledge conserved at these sites												
121 Promote DNA fingerprinting, other molecular analytical techniques and studies on genetic diversity of critically endangered species to develop appropriate conservation strategies												
122 Expand area specific surveys of land races, traditional cultivars of crops, wild relatives of crop plants and breeds of domesticated animals inter alia through application of appropriate statistical techniques												
123 Use modern taxonomic methods for documentation/identification of species												
124 Strengthen and build capacity for taxonomy and biosystematics, particularly for groups of plants, animals and microorganisms which are as yet inadequately understood												

Strengthening implementation of policy, legislative and administrative measures for biodiversity conservation and management

125 Accelerate effective actions at the central, state and local levels to implement provisions under the Biological Diversity Act												
126 Review enabling policies to prevent transfer of prime agricultural land to non-agricultural purposes, and promote sustainability of agricultural lands												



ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
127 Formulate suggestive policies for strengthening and supporting conservation and management of grasslands, pastoral lands, sacred groves and other areas significant for biodiversity conservation												
128 Support preparation of PBRs with technical help by the scientific institutions												
129 Strengthen systems for documentation, application and protection of biodiversity associated traditional knowledge, providing adequate protection to these knowledge systems while encouraging benefits to communities												
130 Revive and revitalize sustainable traditional practices and other folk uses of components of biodiversity and associated benefits to local communities with a view to promoting and strengthening traditional knowledge and practices												
131 Create public education and awareness about the need to conserve, protect and gainfully use traditional knowledge systems												
132 Identify emerging areas for new legislation, based on better scientific understanding, economic and social development, and development of multilateral environmental regimes, in line with the NE												
133 Review the body of existing legislations relevant to biodiversity conservation to develop synergies among relevant statutes and regulations, eliminate obsolescence, and amalgamate provisions with similar objectives, in line with the NEP. Further, encourage and facilitate review of legislations at the level of state and local governments with a view to ensuring their consistency with this policy												
134 Review the regulatory processes for LMOs so that all relevant scientific knowledge is												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
taken into account, and ecological, health, and economic concerns are adequately addressed												
135 Periodically review and update the national biosafety guidelines to ensure that these are based on current scientific knowledge												
136 Ensure conservation of biodiversity and human health while dealing with LMOs in transboundary movement in a manner consistent with the multilateral biosafety protocol												
137 Develop appropriate liability and redress mechanisms to internalize environment costs and address economic concerns in case of any damage to biodiversity												
138 Harmonise provisions concerning disclosure of source of biological material and associated knowledge used in the inventions under the Patents Act, Protection of Plant Varieties and Farmers' Rights Act, and Biological Diversity Act, to ensure sharing of benefits by the communities holding traditional knowledge, from such use												
139 Develop supportive regulatory regime for protection of identified wetlands and biosphere reserves												
140 Develop appropriate system and modalities for operationalizing provisions for prior informed consent and benefit sharing under the Biological Diversity Act, working towards greater congruence between these provisions and trade related aspects of intellectual property rights												

Building of national capacities for biodiversity conservation and appropriate use of new technologies

141 Develop consortium of lead institutions engaged in conservation providing linkages and networking across public and private sectors												
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ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
142 Outsource research and promote joint ventures on key conservation issues												
143 Promote application of biotechnology tools for conserving endangered species												
144 Encourage DNA profiling for assessment of genetic diversity in endangered species to assist conservation												
145 Develop DNA-probe based technology for tracking of LMOs												
146 Develop specific pilot gene banks for LMOs approved for undertaking research and commercial use												
147 Develop capacity for risk assessment, management and communication on LMOs												
148 Support pilot studies on use of biotechnology tools for conservation where appropriate												
149 Develop specific complimentary capacity building measures based on national needs and priorities for the formulation and implementation of national rules and procedures on liability and redress to strengthen the establishment of baseline information and monitoring of changes												
150 Develop protocols for monitoring products based on genetic use restriction technologies												
151 Strengthen participatory appraisal techniques and encourage formation of local institutional structures for planning and management of natural resources for ensuring participation of women												
152 Preserve and strengthen traditional, religious, ritualistic, ethical and cultural methods of conservation												
153 Promote livelihood diversification opportunities for making value added												



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12
bioresource based products and building upon traditional as well as emerging environmental technologies customized at local/field level												
154 Strengthen manpower, infrastructure and other pertinent capacities including upgradation of skills of officials of the MoEF to enable it to address new and emerging requirements in the field of biodiversity conservation and management												
155 Strengthen capabilities of BSI and ZSI and promote their technical cooperation with SBBs and BMCs												
156 Augment human resource development and personnel management in forestry and wildlife sector												
157 Strengthen multidisciplinary R&D efforts on key areas pertaining to conservation and management of biological diversity												
158 Strengthen and support departments of biology, botany, zoology, sociology, anthropology and other relevant disciplines in central, state and deemed universities/ colleges, with a view to raising the standard of research and producing faculty who could guide the process of environmental education in schools												
159 Promote both formal and non-formal means for environment education and biodiversity conservation												
160 Design and implement awareness programmes, particularly for rural women, and also benefit from their wisdom. Women's organizations such as women's councils and mahila mandals could be used for this purpose												
161 Incorporate modules on conservation and sustainable utilization of biodiversity in												



ADDENDUM 2014
TO NBAP 2008

- The linkage is primary/ direct
- The linkage is secondary/ indirect
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Actionable points of NBAP 2008

National Biodiversity Targets

	1	2	3	4	5	6	7	8	9	10	11	12	
foundational and professional training courses for the officers of various services													
162 Promote and/or strengthen education, training, awareness and extension programmes on biodiversity issues for various stakeholders including all levels of students, professionals (such as engineers, doctors, lawyers, CAs, etc.), elected representatives (such as representatives of PRIs, MLAs, MPs, Mayors, etc.), judiciary, NGOs, public and private sectors (e.g. corporate representatives, industrial associations etc.), defence and para military forces, customs, police, media, cultural, spiritual and religious institutions/ individuals													
163 Enhance public education and awareness for biodiversity conservation through audio, visual and print media													
164 Promote activities relating to animal welfare													

Valuation of goods and services provided by biodiversity, and use of economic instruments in decision making processes

165 Develop a system of natural resource accounting reflecting the ecological as well as economic values of biodiversity, with special attention to techniques of green accounting in national accounts and estimation of positive and negative externalities for use of various types of natural resources in the production processes as well as in household and government consumption													
166 Develop suitable valuation models for adoption at national, state and local levels													
167 Support projects and pilot studies aimed at validating methods of valuation of bioresources													
168 Identify key factors and indicators to assess effectiveness of valuation methods and													



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

- The linkage is primary/ direct
- The linkage is secondary/ indirect
- The linkage is at a tertiary level
- There is no primary, secondary or tertiary linkage, except a peripheral connect

Actionable points of NBAP 2008 **National Biodiversity Targets**

	1	2	3	4	5	6	7	8	9	10	11	12	
models, taking into consideration the UN guidelines on monitoring and evaluation of socio-economic projects													
169 Assess the utility of traditional and innovative fiscal instruments for promoting conservation and sustainable utilization of biodiversity													
170 Develop systems for partial ploughing back of the revenues generated in protected areas, zoological parks, botanical gardens, aquaria, etc., for improving their management													
171 Mobilize additional resources based on project formulation for biodiversity conservation													

International cooperation

172 Further consolidate and strengthen global cooperation, especially with UN agencies and other international bodies on issues related to biodiversity													
173 Promote regional cooperation for effective implementation of suitable strategies for conservation of biodiversity, especially with neighbouring countries through fora such as SAARC, ASEAN and ESCAP													
174 Develop projects for accessing funds for conservation and sustainable use of biodiversity from external sources, earmarked for conservation through bilateral, regional and other multilateral channels													
175 Promote technology transfer and scientific cooperation towards conservation of biological resources, their sustainable use and equitable sharing of benefits arising out of their use, taking also into account extant regulations including those relating to taxation													

FUNDING FOR BIODIVERSITY CONSERVATION AND ALLOCATIONS CONTRIBUTING TOWARDS ACHIEVEMENT OF NATIONAL BIODIVERSITY TARGETS

1.7

ADDENDUM 2014
TO NBAP 2008

Resource flows to the biodiversity sector include direct core funding and non-core funding (that originates from the budgetary resources of the MoEF); indirect peripheral funding, which comprises development budgetary resources that are allocated by other scientific and development Ministries/Departments of the GoI towards programmes that have a bearing on biodiversity conservation; and funding by the State Governments on biodiversity and environment. The MoEF undertook an assessment of funding for biodiversity conservation for the year 2010–2011 in which funding for core (direct and immediate biodiversity impact of MoEF programmes/schemes), net non-core (indirect), and net peripheral funding flows (from biodiversity relevant 29 schemes of seven Ministries/Departments other than MoEF), along with core funding by the State Governments was assessed (MoEF 2012 b). Building on this study and using similar methodology, an assessment was conducted for 2013–2014 that included expanded datasets based on peripheral funding related to 77 schemes of 23 Ministries/Departments of the GoI (MoEF 2014).

In the context of Strategic Goal E and Aichi Biodiversity Target 20 relating to resource mobilization, and keeping into consideration the call to Parties for providing data on resource mobilization according to the indicators adopted in CoP decision X/3, activities have been classified into those that are directly related to biodiversity and others that are indirectly related to biodiversity for assessing funding for biodiversity conservation. Funding for activities directly related to biodiversity include activities taken up for *in situ/ex situ* conservation, for protected areas, for maintaining genetic diversity and for addressing threats to specific ecosystems and/or species. Funding considered under this category is generally provided by environmental agencies that directly and purposely consider biodiversity within their mandates. Activities that have benefits for biodiversity but for which biodiversity conservation and sustainable use are not the main focus are considered to bear an indirect relation with regard to funding for biodiversity conservation. The total estimated funding for biodiversity conservation during 2013–2014 (including core, non-core and peripheral funding for biodiversity conservation) is provided in Table 3. As explained in the foregoing, peripheral funding pertains to funding related to biodiversity conservation under 77 schemes and programmes of 23 Ministries/ Departments of the GoI other than the MoEF.

Table 3. Core, non-core and peripheral funding for biodiversity conservation in 2013–2014

Nature of funding	Amount (₹ in crores)
Core	1564.34
Non-core	259.8
Core + non-core	1824.14
States	5025.57
Peripheral	₹ 2354.74 (23 Ministries, 77 schemes)
Total	₹ 9204.45 crores or USD 1482.68 million (at 1USD = ₹ 62.08 in February 2014)

The allocations of funding for biodiversity conservation for activities that are contributing towards achieving the 12 NBTs have been explored below (Figures 1, 2, 3) with regard to core, non-core funding of MoEF and peripheral funding related to 23 Ministries.

CORE AND NON-CORE FUNDING FOR BIODIVERSITY CONSERVATION: MOEF BUDGET ALLOCATION VIS-À-VIS NATIONAL BIODIVERSITY TARGETS

1.7.1

NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

MoEF in 2013-14 had allocated a sum of ₹ 1824.14 crores towards biodiversity conservation of which 1564.34 crores and 259.8 crores formed core and non-core funding, respectively. In early 2014, MoEF formulated 12 NBTs (MoEF 2014). An effort has been made to work out the relative allocation of the overall MoEF funding for biodiversity conservation contributing towards each of the 12 NBTs (Figure 1).

The highest allocation works out to be for NBT 6, followed by NBT 1, and NBT 3, while the lowest allocation is for NBT 7 followed by that for NBT 4. The highest allocation for NBT 6 results due to the fact that within the overall budget of the MoEF, a substantial part of the budgetary allocation is under "Forestry and Wildlife" wherein the funds contribute strongly towards activities envisaged under NBT 6. The next highest allocation contributing towards achieving NBT 1 is due to the fact that a large number of MoEF insitutions and Centres of Excellence are creating information and are helping in generating awareness on environment and biodiversity conservation. The high allocation for NBT 3 is owing to the allocation for programmes and activities that prevent habitat loss and fragmentation and support afforestation and ecological restoration. Although MoEF allocation for NBT 4 works out to be low, there are other Ministries in Gol, particularly Ministry of Agriculture and Ministry of Earth Sciences, which have programmes/ schemes for dealing with invasive species. Similarly, MoEF allocations for NBT 7 have emerged to be low since activities under NBT 7 fall within the purview of the Ministry of Agriculture, specifically the five national bureaus, namely, National Bureau of Plant Genetic Resources (NBPGR), National Bureau of Animal Genetic Resources (NBAGR), National Bureau of Agriculturally Important Microorganisms (NBAIM), National Bureau of Agriculturally Important Insects (NBAIL), and National Bureau of Fish Genetic Resources (NBFGR), which are carrying out activities that contribute to achieving NBT 7.

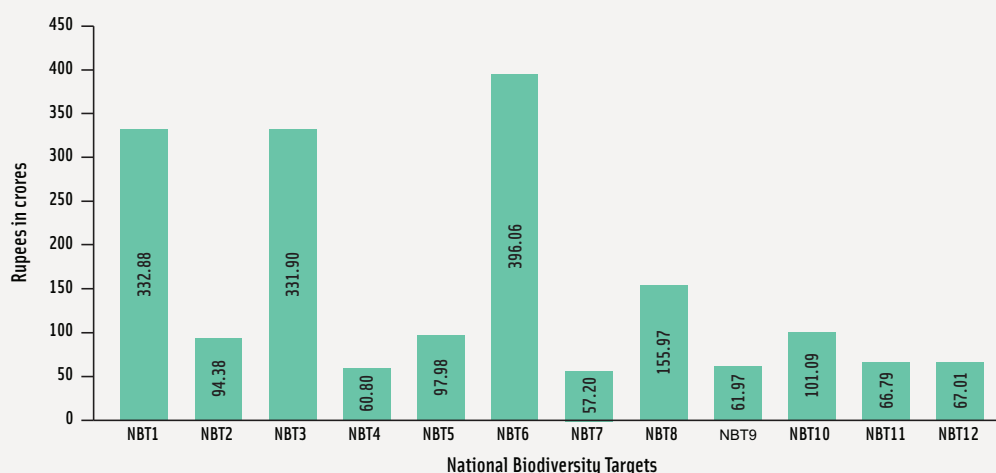


Figure 1. MoEF budget allocation (2013-2014) that contributes towards NBTs

PERIPHERAL FUNDING FOR BIODIVERSITY CONSERVATION: 23 MINISTRIES VIS-À-VIS NATIONAL BIODIVERSITY TARGETS

1.7.2

ADDENDUM 2014
TO NBAP 2008

Of the 23 Ministries that have been identified as contributing towards peripheral funding for biodiversity conservation, the allocations of MoRD and MoDWS constitute the highest proportion of funding (as MoRD and MoDWS allocations are several times higher than the rest of the 21 Ministries, these have not been depicted graphically in Figure 2). This is due to the overall high allocations of the schemes of MoRD and MoDWS that contribute to biodiversity conservation in peripheral or indirect ways. The allocations of MoRD particularly contribute towards NBT 2. The allocation of the MoDWS schemes contribute towards activities envisaged under NBT 5.

Of the remaining 21 Ministries (Table 4), the allocations are highest towards NBT 12, followed by NBT 10 and NBT 2 while the lowest three allocations are for NBT 1 followed by NBT 7 and NBT 6 (Figure 2).

Table 4. Indicative list of Ministries/Departments and National Biodiversity Targets for Implementation of the National Biodiversity Action Plan

Ministries/Departments of Government of India and Planning Commission	National Biodiversity Targets											
Ministry of Agriculture (MoA)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Chemicals and Fertilizers (MoCF)	3	4	5	6	7	8	9	10	11	12		
Ministry of Coal (MoC)	3	4	5	6	7	8	9	10	11	12		
Ministry of Commerce and Industry (MoCI)	2	3	5	7	8	9	10	12				
Ministry of Drinking Water and Sanitation (MoDWS)	3	4	5	6	9	10	11	12				
Ministry of Earth Sciences (MoES)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Environment and Forests (MoEF)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Health and Family Welfare (MoHFW)	1	3	4	5	6	9	10	11	12			
Ministry of Human Resource Development (MoHRD)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of New and Renewable Energy (MoNRE)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Panchayati Raj (MoPR)	1	3	4	5	6	7	8	9	10	11	12	
Ministry of Petroleum and Natural Gas (MoPNG)	3	4	5	6	7	8	9	10	12			
Ministry of Power (MoP)	2	3	4	5	6	7	8	9	10	12		
Ministry of Rural Development (MoRD)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Science and Technology (MoST)	1	2	3	4	5	6	7	8	9	10	11	12
Ministry of Shipping (MoS)	3	4	6	7	8	9	10	12				
Ministry of Tourism (MoT)	3	4	5	6	7	8	9	10	11	12		
Ministry of Tribal Affairs (MoTA)	1	2	3	4	5	6	7	8	9	10	11	12



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)

Ministries/Departments of Government of India and Planning Commission	National Biodiversity Targets											
Ministry of Urban Development (MoUD)	1	3	4	5	6	7	8	9	10	11	12	
Ministry of Water Resources (MoWR)	1	2	3	4	5	6	7	8	9	10	11	12
Department of Space (DoS)	3	4	5	6	7	8	9	10	11	12		
Ministry of Youth Affairs and Sports (MoYAS)	1	2	3	9	10	11	12					
Ministry of Statistics and Programme Implementation (MoSPI)	1	2	3	5	7	8	9	10	11	12		
Ministry of Communications and Information Technology Technology (MoCIT)	9	10	12									
Planning Commission of India	1	2	3	4	5	6	7	8	9	10	11	12

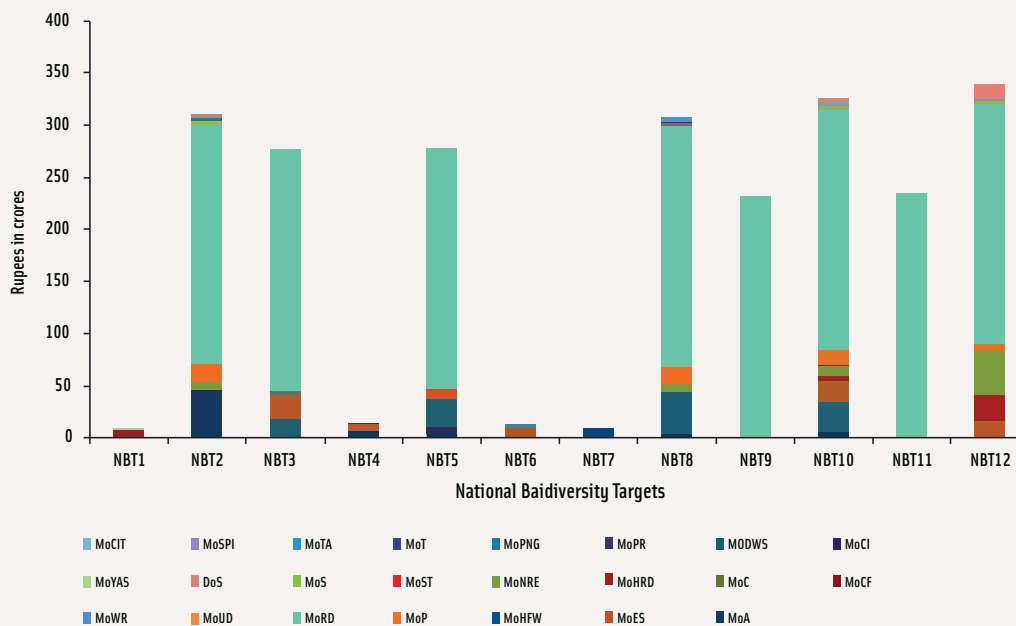


Figure 2. Budget allocations (2013-2014) of 21 Ministries of Gol (excluding MoRD and MoDWS) that contribute towards NBTs

COMBINED ALLOCATIONS FOR BIODIVERSITY CONSERVATION: MOEF AND 23 MINISTRIES VIS-À-VIS NATIONAL BIODIVERSITY TARGETS

1.7.3

ADDENDUM 2014
TO NBAP 2008

Of the combined allocations of all 24 Ministries including MoEF for biodiversity conservation, maximum funds allocated contribute towards NBT 3 followed by NBT 8 and NBT 10, while the lowest allocations are towards NBT 7 followed by NBT 4 (Figure 3).

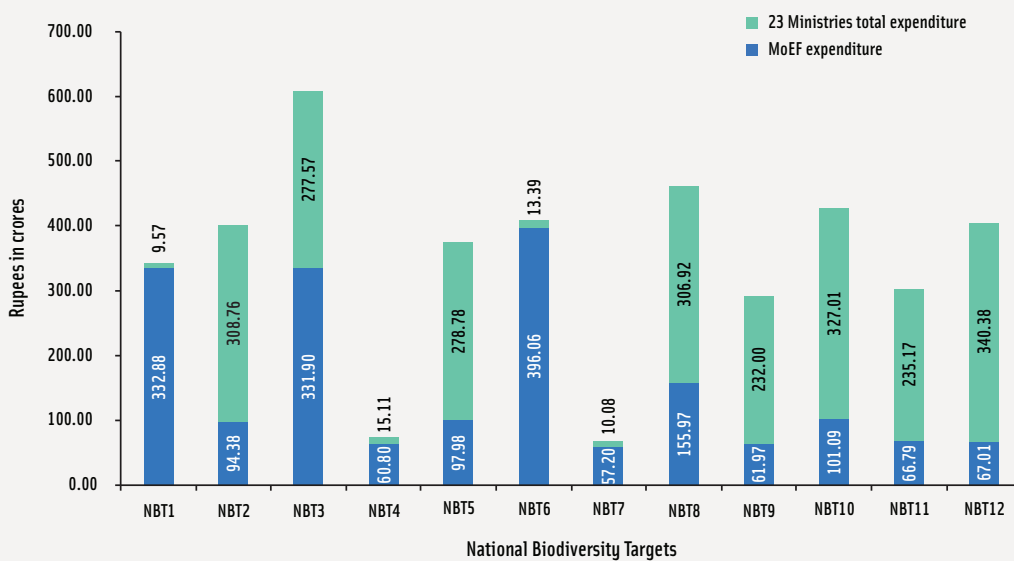


Figure 3. Combined allocation of funds (2013-2014) of MoEF and 23 Ministries/ Departments of GoI that contribute towards NBTs

PROGRAMME OF WORK ON PROTECTED AREAS: LINKAGES WITH NATIONAL BIODIVERSITY ACTION PLAN AND NATIONAL BIODIVERSITY TARGETS

1.8

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

The CBD vide CoP-7 Decision VII/28 established PoWPA with the overall purpose to support the establishment and maintenance by 2010 for terrestrial and by 2012 for marine areas of comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas that collectively, inter alia, through a global network contribute to achieving the three objectives of the Convention and the 2010 target to significantly reduce the current rate of biodiversity loss at the global, regional, national and sub-national levels and contribute to poverty reduction and the pursuit of sustainable development, thereby supporting the objectives of the Strategic Plan of the Convention, the World Summit on Sustainable Development Plan of Implementation and the Millennium Development Goals.

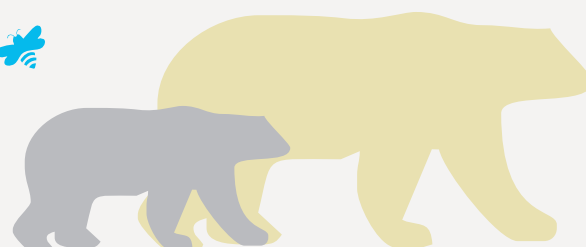
The PoWPA was developed bearing in mind the need to avoid unnecessary duplication with existing thematic work programmes and other ongoing initiatives of the CBD, and to promote synergy and coordination with relevant programmes of various international organizations. It consists of the following four interlinked elements intended to be mutually reinforcing and cross-cutting in their implementation:

- 1) Direct actions for planning, selecting, establishing, strengthening, and managing, protected area systems and sites.
- 2) Governance, participation, equity and benefit sharing.
- 3) Enabling activities.
- 4) Standards, assessment, and monitoring.

In pursuance to CoP-10 decision X/31 requesting Parties to submit action plans for the implementation of the PoWPA, India prepared and submitted PoWPA action plan (www.cbd.int/database/attachment/?id=1551).

In line with paragraph 1(c) of decision X/31, the CoP urged Parties to integrate national PoWPAs into updated NBSAPs, which, in accordance with paragraphs 3 (c) and (d) of decision X/2, should be adopted as policy instruments and used as a primary framework for implementation and as the basis for securing the necessary financial support, including from national budgets and from bilateral, multilateral and other sources.

The linkages between India's action plan for PoWPA implementation and the action points under India's NBAP 2008 accordingly are shown in Table 5.





ADDENDUM 2014
TO NBAP 2008

Table 5. Linkages between India's action points for PoWPA implementation and action points of NBAP 2008

Action Points under PoWPA Implementation Plan (India)	NBAP 2008 Action Points										
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Development of site specific management plan	Primary	Secondary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary
Integration of Protected Areas (PA) (securing identified corridors and connectivity areas)	Primary	Secondary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary
Diversifying the governance types	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
PA valuation assessment	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
Climate change resilience and adaptation assessment	Primary	Secondary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary

The linkage is primary/ direct
 The linkage is secondary/ indirect

As can be seen from Table 5, the action points under India's plan for PoWPA implementation demonstrate convergence with all NBAP 2008 action points. However, linkages of PoWPA implementation action points under "Diversifying the governance types" and "PA valuation assessments" with NBAP 2008 action points are currently indirect and need to be strengthened.

The linkages between India's action plan for PoWPA implementation and the 12 NBTs is shown in Table 6.

Table 6. Linkages between India's action points for PoWPA implementation and 12 NBTs

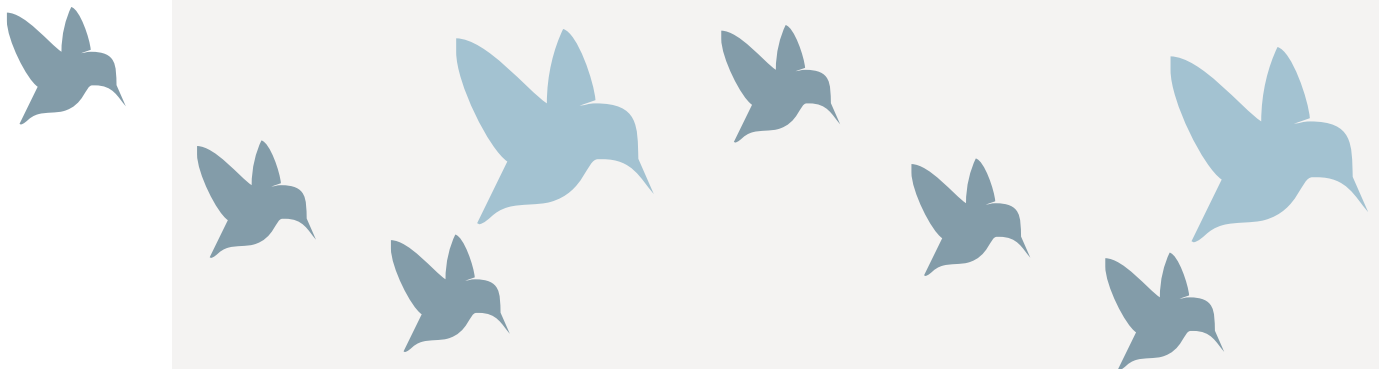
Action Points under PoWPA Implementation Plan (India)	National Biodiversity Targets											
	1	2	3	4	5	6	7	8	9	10	11	12
Development of site specific management plan	Secondary	Secondary	Primary	Secondary	Primary	Primary	Secondary	Primary	Secondary	Primary	Primary	Primary
Integration of Protected Areas (PA) (securing identified corridors and connectivity areas)	Secondary	Primary	Primary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Primary	Primary	Secondary
Diversifying the governance types	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary
PA valuation assessment	Secondary	Secondary	Primary	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary
Climate change resilience and adaptation assessment	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary

The linkage is primary/ direct
 The linkage is secondary/ indirect



**NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)**

Since PoWPA is directly related to Aichi Biodiversity Target 11 and NBT 6, there is strong convergence between India's PoWPA implementation plan and NBT 6, as indicated in Table 6. The first action point under India's PoWPA implementation plan on "Development of site-specific management plans" incorporates aspects related to both Aichi Biodiversity Target 9 and NBT 4 on invasive species management. However, there is a need to strengthen convergence between this first action point for PoWPA implementation and NBT 4. There is also a need for building stronger linkages of the NBTs with action points under PoWPA implementation for "PA valuation assessment" and "Climate change resilience and adaptation assessment". The funding support for programmes and activities that show strong linkages between PoWPA implementation will have to be continued and where the linkages are as yet indirect, more funding resources will have to be allocated.



LINKAGES BETWEEN NATIONAL BIODIVERSITY ACTION PLAN, NATIONAL BIODIVERSITY TARGETS AND GLOBAL STRATEGY FOR PLANT CONSERVATION

1.9

ADDENDUM 2014
TO NBAP 2008

Recognizing the critical role of plants in supporting ecosystem resilience, provision of ecosystem services, adapting to and mitigating environmental challenges, and for supporting human well being, CoP-10 adopted the consolidated update of Global Strategy for Plant Conservation (GSPC) in 2010, including the 16 outcome-oriented global targets, the implementation of which is to be pursued as a part of the broader framework of the SP (see Appendix II). These targets range from protecting threatened species to ensuring that plant products are taken from sources which are sustainably managed. Implementing the GSPC will contribute to meeting the goal to reduce significantly the rate of biodiversity loss. The linkages between GSPC Targets and the action points under India's NBAP 2008 are shown in Table 7.

Table 7. Linkages between GSPC Targets and NBAP 2008 Action Points

Global Strategy for Plant Conservation Targets	NBAP 2008 Action Points										
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
1	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary
2	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary
3	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary
4	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
5	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
6	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
7	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
8	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
9	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
10	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
11	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
12	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
13	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
14	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
15	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary
16	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Primary

The linkage is primary/ direct
 The linkage is secondary/ indirect

As indicated in Table 7, the action points under NBAP 2008 demonstrate convergence with all the targets of GSPC. In particular, Action Point I of NBAP 2008, namely "Strengthening and integration of *in situ*, on farm and *ex situ* conservation", is strongly linked with the GSPC targets.

The linkages between GSPC Targets and the 12 NBTs are shown in Table 8.



Table 8. Linkages between GSPC Targets and 12 National Biodiversity Targets.

Global Strategy for Plant Conservation Targets	National Biodiversity Targets											
	1	2	3	4	5	6	7	8	9	10	11	12
1	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary
2	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
3	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
4	Secondary	Secondary	Primary	Primary	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary
5	Secondary	Secondary	Primary	Secondary	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary
6	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
7	Secondary	Secondary	Primary	Secondary	Secondary	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary
8	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
9	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary
10	Secondary	Primary	Secondary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
11	Secondary	Primary	Secondary	Secondary	Secondary	Primary	Primary	Secondary	Primary	Secondary	Secondary	Secondary
12	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary
13	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary
14	Primary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
15	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
16	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary

The linkage is primary/ direct
 The linkage is secondary/ indirect

India's NBTs and the GSPC targets have linkages which are strong in relation to several aspects (as indicated in Table 8) particularly in case of GSPC target 4 ("At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration"), target 5 ("At least 75 per cent of the most important areas for plant diversity of each ecological region protected, with effective management in place for conserving plants and their genetic diversity"), and target 7 ("At least 75 per cent of known threatened plant species conserved *in situ*"), which bear strong convergence with NBTs. NBT 6, which pertains to species conservation and area-based measures and their effective and equitable management, and NBT 11, pertaining to protection and promotion of traditional knowledge, bear important direct linkages with the GSPC targets. Opportunities for building stronger convergence need to be explored and supported where the inter-linkages are indirect.

IMPLEMENTATION OF NATIONAL BIODIVERSITY ACTION PLAN

1.10

ADDENDUM 2014
TO NBAP 2008

The road map for implementation of the NBAP and for achieving the NBTs involves the MoEF and 23 Ministries/Departments of the GoI that have been identified (Table 4), the National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs), Biodiversity Management Committees (BMCs), State Forest Departments (SFDs), State Planning Boards and the relevant Departments of State Governments such as Fisheries, Forests, Agriculture, Livestock and Animal Husbandry, Mining and Education. Local-level institutions, including BMCs, Forest Rights Committees (FRCs), Village Ecodevelopment Committees (VEDCs), Joint Forest Management Committees (JFMCs) and Gram Sabhas (village assemblies) are crucial for implementation of the NBAP. A multi-tier mechanism for implementation as depicted in Figure 4 will be used.

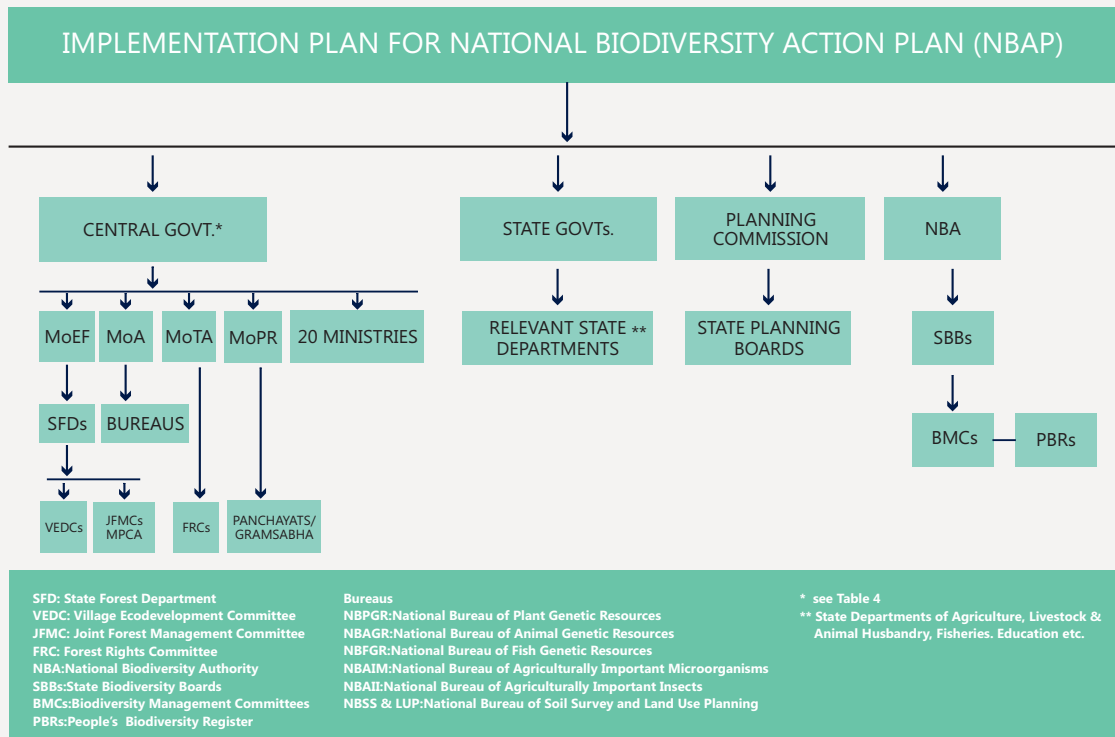


Figure 4. Implementation plan for NBAP



**NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)**

The activities listed in the NBAP are ongoing, and are being undertaken under the ambit of existing schemes and programmes by the Central and State Governments, public and private sector as well as civil society organisations, securing full utilisation of available infrastructure and funds, with augmentation and further inputs, wherever required. In addition, sources of bilateral and multilateral funding are explored and availed of for implementing some of these activities, in accordance with the extant policies and regulations. Thus, the action points in the NBAP are to be the basis for seeking funds from domestic and external sources. In order to sharpen the inter-linkages between the Aichi Biodiversity Targets and India's NBAP, the plan schemes and programmes of the MoEF and those of other Ministries/Departments of the GoI have to be further aligned for their outcomes in terms of indicators provided by the Aichi Biodiversity Targets/NBTs in the coming years. Further, possibilities of leveraging substantial financial resources at the national level to implement India's NBAP in the light of SP 2011-2020 and the Aichi Biodiversity Targets also needs to be explored. Towards this, an indicative list of Ministries/Departments has been prepared with respect to each NBTs (Table 4).

Moreover, fulfilling the overall aim of the NBAP and progress towards achieving NBTs requires widespread public engagement and participation wherein opportunities are made available at the individual level that enable citizens to make long-term choices that support biodiversity and its conservation. This is because conservation of biodiversity has to be everyone's responsibility. While Governments have to play a crucial facilitative role, all citizens must work together and contribute to meet the challenge of halting the continuing decline in biodiversity.





REFERENCES

ADDENDUM 2014
TO NBAP 2008



MoEF (1999) National Policy and Macrolevel Action Strategy on Biodiversity. Ministry of Environment & Forests, Government of India.

MoEF (2008) National Biodiversity Action Plan. Ministry of Environment & Forests, Government of India.

MoEF (2012 a) India's Action Plan for Implementing the Convention on Biological Diversity's Programme of Work on Protected Areas. Ministry of Environment & Forests, Government of India.

MoEF (2012 b) India's Submission to the CBD on Assessment of Funding Support for Biodiversity Conservation in India. Ministry of Environment & Forests, Government of India.

MoEF (2014) India's Fifth National Report to the Convention on Biological Diversity. Ministry of Environment & Forests, Government of India.

APPENDIX I. STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 AND THE AICHI TARGETS "LIVING IN HARMONY WITH NATURE"

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

The Vision

"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

The Mission

"Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented and decision-making is based on sound science and the precautionary approach."

Strategic Goal A:

Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society



Target 1

By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.



Target 2

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.



Target 3

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.



Target 4

By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.



Strategic Goal B:

Reduce the direct pressures on biodiversity and promote sustainable use



Target 5

By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.



Target 6

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.



Target 7

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.



Target 8

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.



Target 9

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.



Target 10

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C:

To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity



Target 11

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.



NATIONAL BIODIVERSITY ACTION PLAN (NBAP)



Target 12

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.



Target 13

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D:

Enhance the benefits to all from biodiversity and ecosystem services



Target 14

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.



Target 15

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.



Target 16

By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E:

Enhance implementation through participatory planning, knowledge management and capacity building



Target 17

By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.



Target 18

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their



ADDENDUM 2014
TO NBAP 2008

customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.



Target 19

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.



Target 20

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011–2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

APPENDIX II

GLOBAL STRATEGY FOR PLANT CONSERVATION (GSPC): OBJECTIVES AND TARGETS

NATIONAL BIODIVERSITY
ACTION PLAN (NBAP)

Objective I: Plant diversity is well understood, documented and recognized

- Target 1:** An online Flora of all known plants
- Target 2:** An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action
- Target 3:** Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

Objective II: Plant diversity is urgently and effectively conserved

- Target 4:** At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration
- Target 5:** At least 75 per cent of the most important areas for plant diversity of each ecological region protected, with effective management in place for conserving plants and their genetic diversity
- Target 6:** At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity
- Target 7:** At least 75 per cent of known threatened plant species conserved in situ
- Target 8:** At least 75 per cent of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes
- Target 9:** 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local Knowledge
- Target 10:** Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded

Objective III: Plant diversity is used in a sustainable and equitable manner

- Target 11:** No species of wild flora endangered by international trade
- Target 12:** All wild-harvested plant-based products sourced sustainably
- Target 13:** Indigenous and local knowledge, innovations and practices associated with plant resources, maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care



ADDENDUM 2014
TO NBAP 2008

Objective IV: Education and awareness about plant diversity, its role in sustainable livelihoods and importance to all life on earth is promoted

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

Objective V: The capacities and public engagement necessary to implement the Strategy have been developed

Target 15: The number of trained people working with appropriate facilities sufficient according to national needs, to achieve the targets of this Strategy

Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy





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