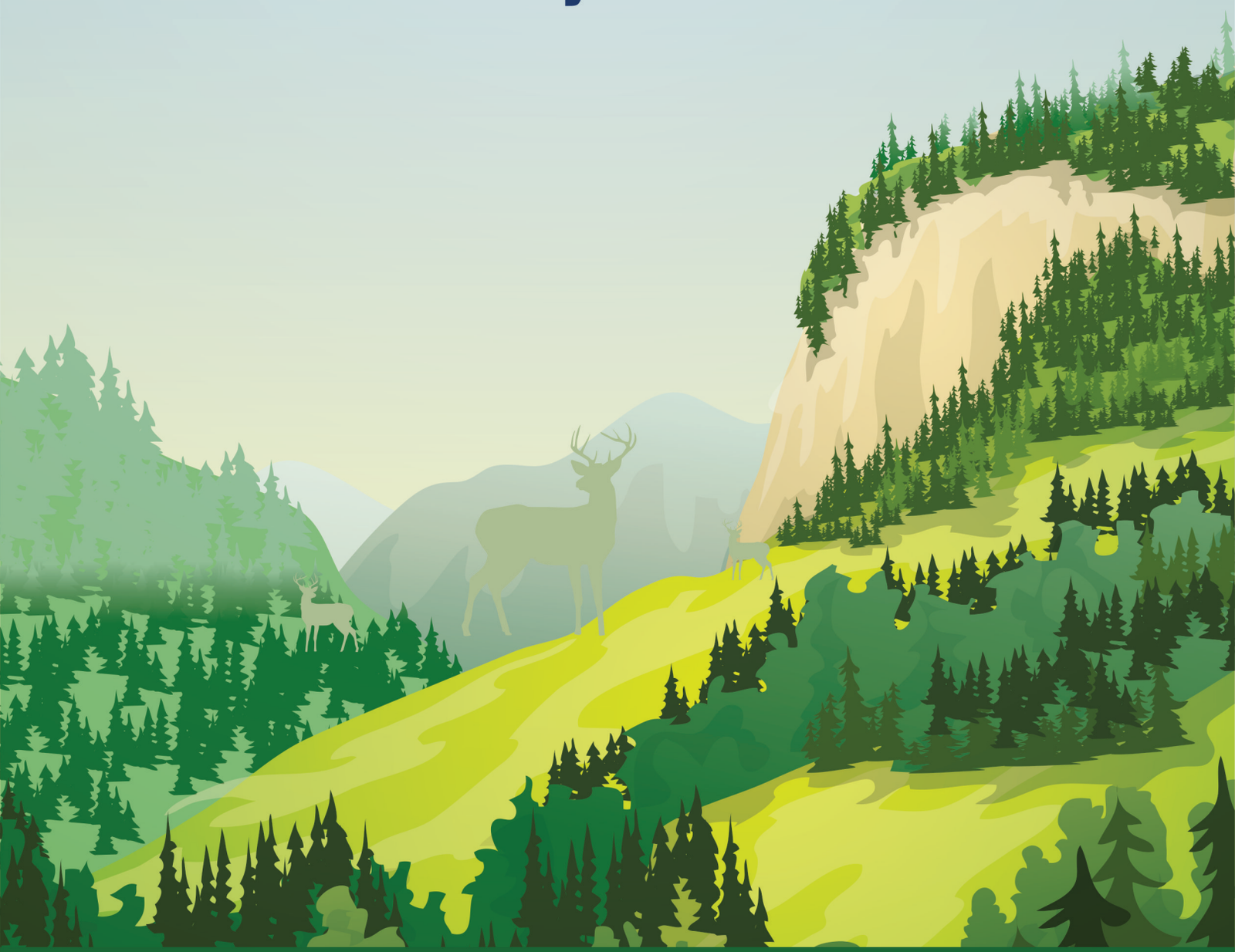
Training Manual on Biodiversity Governance



Centre for Biodiversity Policy and Law
National Biodiversity Authority

2019

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The content of the Chapter 1-10 basically has been compiled from different resource materials of the National Biodiversity Authority especially from the training manual developed by the "Expert Committee on Training Module on Biological Diversity Act 2002" headed by Shri T. C. James.

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1 Biodiversity - An Overview

1.1 Concepts

Biodiversity encompasses the variety and variability of all life forms on earth and is the product of over 3.5 billion years of evolutionary history. Biodiversity brings enormous benefits to humankind from direct harvesting of plants and animals for food, medicine, fuel, construction materials and so on. In addition, it provides for aesthetic, cultural, recreational and research values. It facilitates ecological balance and ecosystem services.

Types of Biodiversity

The diversity may be intraspecific (within species) and intra-specific (in between the species) but these are well supported by ecosystem. It is seen that the diverse living forms of the ecosystems are modulated with the global environmental changes (Ref?). There are three interrelated hierarchical levels of biodiversity namely,

a. Genetic diversity,
b. Species diversity and
c. Community or ecosystem diversity.

a. Genetic diversity

It describes the variation in the number and types of genes as well as chromosomes present in different species. The magnitude of variation in genes of a species increases with increase in size and environmental parameters of the habitat. The genetic variation arises by gene and chromosome mutation in individuals and in sexually reproducing organisms and it is spread in the population by recombination of genetic materials during cell division after sexual reproduction. Genetic diversity has the following importance:

i) It helps in speciation or evolution of new species;
ii) It is useful in adaptation to changes in environmental conditions;
iii) It is important for agricultural productivity and development.

b. Species diversity

It describes the variety in the number and richness of the species within a region. The species- richness may be defined as the number of species per unit area. The richness of a species tells about the extent of biodiversity of a site and provides a means for comparing different sites.

The species-richness depends largely on climatic conditions. The number of individuals of different species within a region represents species evenness or species equitability. The product species-richness and species-evenness give species diversity of a region. When a species is confined entirely to a particular area, it is termed as endemic species.

c. Ecosystem diversity

It describes the assemblage and interaction of spices living together and the physical environment in a given area. It relates varieties of habitats, biotic

communities and ecological processes in biosphere. It also tells about the diversity within the ecosystem. It is referred as land escape diversity because it includes placement and size of various ecosystems.

For example, the landscapes like grasslands, deserts, mountains etc. show ecosystem diversity. The ecosystem diversity is due to diversity of niches, trophic levels and ecological processes like nutrient cycling, food webs, energy flow, role of dominant species and various related biotic interactions. Such type of diversity can generate more productive and stable ecosystems or communities capable of tolerating various types of stresses e.g. drought, flood, etc.

1.1.1. Biodiversity of India

India is one of the mega-diverse countries in the world covering an area of 329 Mega hectare (Mha) and is the seventh largest country in the world. With only 2.5% of the land area, it accounts for 7-8% of the globally recorded species including over 47,000 species of plants and 91,000 species of animals in its ten bio-geographic regions. The varied edaphic, climatic and topographic conditions and years of geological stability have resulted in wide range of ecosystems and habitats such as forests, mountains, grasslands, wetlands, deserts, coastal and marine ecosystems.

India has ten bio-geographic zones. It is endowed with vast forest resources. The total forest and tree cover of the country is estimated as 23.39% of the geographic area, of which forest cover alone accounts for 21.02%, extending over an area of 69.09 MHA. The forests in India have been classified into 16 major types and 251 subtypes based on climatic and edaphic features.

India is home to four of 34 global biodiversity hotspots, which is an indicator of high degree of endemism of species in India. About 5,150 plant and 1,837 animal species are endemic. India is one of the eight primary centres of origin of cultivated plants with about 379 closely related wild species including rice, pulses, millets, vegetables, fruits and fibre plants. There are nearly 255 breeds including regional, international and trans-boundary domesticated animals such as cattle, sheep, goat, camel, horse and poultry. India stands seventh in the world in terms of contribution of species to agriculture and animal husbandry and the second largest producer of fresh fruits and vegetables globally and is the largest exporter of spices and cashew.

Continuous surveys and explorations have added new discoveries – 41 plant species in 2007 by Botanical Survey of India (BSI) alone. The unique features of the plant diversity, among others, include 60 monotypic families and over 6000 endemic species. Recent estimates indicate the presence of over 256 globally threatened plant species in India.

India accounts for about 5% of the world's mangroves, including Sundarbans delta - the largest mangrove forest in the world. Coral reefs in India occupy an extent of 2,375 sq. km., including the Andaman Islands, which have rich coral diversity. The Sacred Grove Information System holds information on 3000 groves in the country out of an estimated number of 100,000. India is also equally rich in traditional and indigenous knowledge both codified and informal.

A network of 771 Protected Areas has been established, extending over 162099.47. km^2. (5.09

% of the total geographic area of India), comprising 104 National Parks, 544 Wildlife Sanctuaries, 77 Conservation Reserves and 46 Community Reserves. There are 50 Tiger Reserves and 32 Elephant Reserves designated for species -specific management of tiger and elephant habitats. UNESCO has designated five Protected Areas as World Heritage Sites. As the ecosystems and species do not recognize political borders, the concept of Trans-boundary Protected Areas has been initiated for coordinated conservation of ecological units and corridors with bilateral and/or multilateral cooperation of the neighbouring nations.

1.1.2. Biodiversity and Economy

Predictions say that "future belongs to nations who have grains and not guns" and India is well poised to fit that vision. The Indian economy may join that of China in surpassing the size of the U.S. economy by 2050 to become a motor of global growth, according to a new forecast by Goldman Sachs, the investment bank. The Indian economy, heavily depends on export of material of biological origin, be it agricultural produce, forestry, non-timber produces, fisheries, products of animal husbandry, carbon sequestration, bio- prospecting, ecotourism, bio-fuel, natural beverages or textile fabrics. The biodiversity is commercially utilized for making drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours, extracts and genes used for improving crops and livestock through genetic intervention.

The TEEB, in a report, ***The Economics of Ecosystems and Biodiversity for National and International Policy Makers (2009)***, provided the following examples of sectors depending on genetic resources given in Table 1.

Table 1 : Sectors that depend on genetic resources

Sector	Size of market	Comments
Pharmaceutical	$ 640 bn. (2006)	25-50% derived from genetic resources
Biotechnology	$ 70 bn. (2006) from public companies alone	Many products derived from genetic resources (enzymes, microorganisms)
Agricultural seeds	$ 30 bn. (2006)	All derived from genetic resources
Personal care, Botanical and food & Beverage industries	$ 22 bn. (2006) for herbal supplements $ 12 bn. (2006) for personal care $ 31 bn. (2006) for food products	Some products derived from genetic resources represent 'natural' component of the market

At the level of individual products, genetic resources and their derivatives fetch prices that range from just a few cents to tens of millions of dollars per kg, and often command prices far higher than standard indicators of value such as gold (*e.g. Human growth hormone $20,000,000 per l/kg, Vincristine sulphate $ 11,900,000 per l/Kg)*. Thus, clippings from the yew tree fetch some $ 0.75 per kg, but the anti-cancer drug taxol, which is made from these clippings, costs $12 million per kg. Illegal trade in a breeding pair of the highly endangered Lear's Macaw can fetch $260,000 (Burrel, 1998) and tiger bones for traditional Chinese medicine are worth $3,000 per kg (Crawford Allen, 1999). These prices are one factor that may contribute to the decline of these species, without a raft of properly enforced legal and policy measures.

1.1.3. Multilateral Environmental Agreements

India has participated actively in all the major international events related to environment protection and biodiversity conservation over the past decades and ratified all the major biodiversity and environment related global conventions (Table 2).

Table 2 : Major Multilateral Environment Agreements (MEAs) ratified by India

S.No	MEAs	Year	Entry into force	Date of ratification by India	Issues covered
1	Convention on Wetlands of International Importance	1971	21.12.1975	11.02.1982	Conservation and wise use of wetlands primarily as habitat for the water birds
2	Convention for the Protection of World Cultural and Natural Heritage	1972	17.12.1975	04.11.1977	Protection and conservation of cultural and natural heritage
3	Convention on International Trade in Endangered Species of wild flora and fauna	1973	01.07.1975	20.07.1976	International trade in endangered species of wild fauna and flora
4	Bonn Convention on Migratory Species of Wild Animals	1979	01.11.1983	01.11.1983	Conservation, management and wise use of migratory species of wild animals and their habitats
5	Vienna Convention for Protection of the Ozone Layer	1985	22.09.1988	18.03.1991	Protection of atmospheric ozone layer above the planetary boundary layer
6	Montreal Protocol on Substances that Deplete the Ozone Layer	1987	01.01.1989	19.06.1992	Protection of atmospheric ozone layer above the planetary boundary layer
7	Basel Convention on Trans-boundary Movements of Hazardous Wastes and their Disposal	1989	05.05.1992	24.06.1992	Regulation of trans-boundary movements of hazardous wastes and their disposal
8	United Nations Framework Convention on Climate Change (UNFCCC)	1992	21.03.1994	01.11.1993	Changes in the earth's climate system due to anthropogenic interference
9	Kyoto Protocol to the UNFCCC	1997	16.02.2005	26.08.2002	Quantified emission limitation and reduction commitments for Annex I Parties
10	Convention on Biological Diversity (CBD)	1992	29.12.1993	18.02.1994	Biological diversity and genetic resources and associated Traditional Knowledge

11	Cartagena Protocol on Biosafety to the CBD	2000	11.09.2003	11.09.2003	Regulation of trans-boundary movement, transit, handling and use of living Modified organisms (LMOs)
12	United Nations Convention to Combat Desertification	1994	26.12.1996	17.12.1996	Combating desertification and mitigating the effects of drought, particularly in Africa
13	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	1998	24.02.2004	24.05.2005	Promote shared responsibility and cooperative efforts among the Parties in the international trade of certain hazardous chemicals, in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use
14	Stockholm Convention on Persistent Organic Pollutants	2001	17.05.2004	13.01.2006	Protect human health and the environment from persistent organic pollutants

1.1.4. Legal Framework

Human interactions with biological resources are determined by cultural contexts, religious beliefs and economic considerations. For several thousands of years humankind has freely been using as well as exchanging biological resources around the world for the betterment of life. The situation changed due to emergence of issues like privatization of resources and knowledge through components like intellectual property rights such as patents. Consequently, the term "biological diversity" came to be viewed as a "resource" which could be accessed, marketed and controlled. This has led to conflict between "users" and "possessors" of natural resources resulting in illegal access and over-exploitation of the bio-resource, ultimately leading to its extinction. It is in this scenario that decision-makers have developed legal frameworks whereby biological resources can be conserved for their intrinsic values, commercial use and research requirements. Mechanisms for regulation and restriction of access, management and mitigation of impacts and related compensatory regimes have also been developed.

Environment protection is enshrined in the Constitution of India (Articles 48A and 51A (g)). Wide-ranging policies, programmes and projects are in place, which directly or indirectly serve to protect, conserve and sustainably use the country's biological resources. These include the Forest (Conservation) Act, Wildlife (Protection) Act, Biological Diversity Act, National Green Tribunal Act, National Biodiversity Action Plan, National Forest Policy, National Wildlife Action Plan, National Forestry Action Programme, National Environment Policy and National Action Plan on Climate Change.

India is committed to conservation of biodiversity. This is not only because of India's international obligations as a signatory to the Convention on Biological Diversity, but because India believes that protecting our biodiversity is a critical national priority as it is linked to local livelihoods of millions of people in the country. Sustainable use of our biodiversity, therefore, has both ecological and economic value. It is with this objective that India has enacted Biological Diversity Act, 2002 and set up a National Biodiversity Authority (NBA) in 2003 with an explicit mandate of promoting conservation of biological resources and associated knowledge as well as facilitating access to them in a sustainable manner.

India's strategy for conservation and sustainable utilization of biodiversity evolved from various initiatives framed and formulated largely by the Ministry of Environment, Forests & Climate Change (MoEF&CC), the focal point for biodiversity conservation at the Central Government level, appropriately complemented by other related Ministries/Departments and affiliated agencies dealing with Agriculture, Health, Water Resources, Rural Development, Power, Industry, New and Renewable Energy, Urban Development and Science and Technology.

The following chapters will elaborate on the genesis and various provisions of the BD Act such as those relating to regulating access to bio- resources by Indian nationals, Indian entities, foreigners, non-Indian entities, seeking no objection for obtaining IPRs, access and benefit sharing (ABS) mechanisms, notification of species which are on the verge of extinction in the States and declaration of biodiversity heritage sites (BHS), etc.

1.1.5. Cultural Diversity

It has been estimated that there are over five thousand different cultures in the world today (Salzman & C.Rice (2011). The Anthropological Survey of India has identified 4635 communities (K.S. Singh, 1999) and documented their brief ethnography in India. With such enormous cultural variability in the world, understanding culture using holistic, ethnographic anthropological approach has been scientifically accepted.

The term tribe has been defined by many anthropologists and contested by even more. They have been referred to by different names by different people – autochthons, indigenous people/ communities, tribes, aboriginals, forest dwellers and *adivasis*—these communities which practiced and still trying practicing an alternate way of life, and had and still have a different and distinct world view. Mostly they are forest-dependent communities.

India has the second largest concentration of tribal population, after the African continent. The Anthropological Survey of India has enumerated 461 tribal communities, of which 174 have been identified as subgroups. (Singh, K.S.; 1996) The total Scheduled Tribe population in India, as per 2001 Census is about 8.08% of the total population of 102, 86,10,328 in the country. In India the term 'Scheduled Tribe', is used in day today life and special privileges are given to them. The beneficiaries are issued with Scheduled Tribe (ST) community certificates in order to establish their identity. But the term 'tribe' has not been defined anywhere in the Constitution of India. It states in Article 342 that the Scheduled Tribes are "the tribes or tribal communities or parts of or groups within tribes or tribal communities" which the President may

specify from time to time by public notification. As these communities are presumed to constitute the oldest ethnological segment of the Indian society, the term *'Adivasi'* is also used to designate them. All the States of India have already listed certain communities/groups of people as "Scheduled Tribes" (ST).

The tribal communities (rural communities as well) have developed a vast knowledge systems and have several cultural practices to preserve the biodiversity (agri-diversity). Control over the local crop varieties provided these communities food security and they also served the purpose of preserving agro-diversity. This is a process which has taken several centuries of practice and updating.

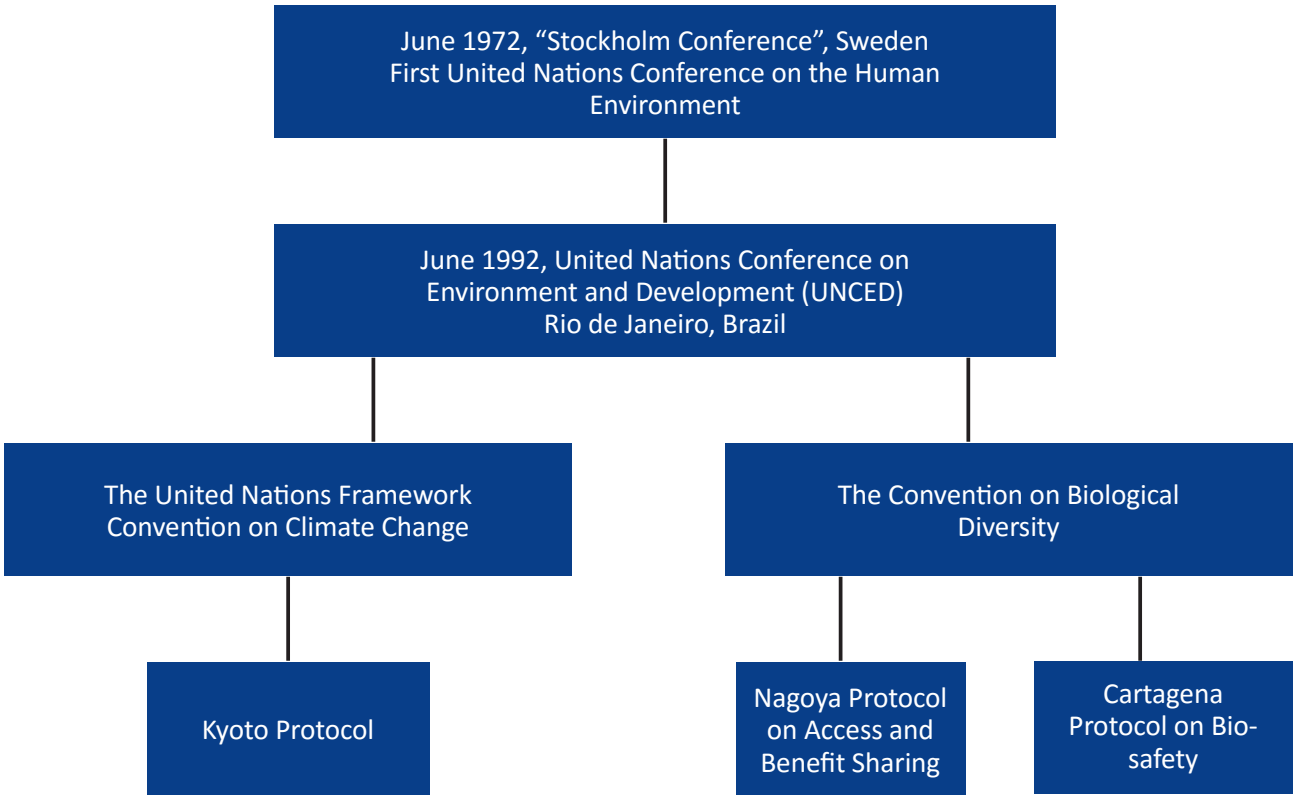
1.2 Genesis of the Biological Diversity Act, 2002

1.2.1 Convention on Biological Diversity

It was in the year 1984 that the proposal for a global Convention on Biological Diversity started gaining momentum. In response, the United Nations Environment Programme (UNEP) in the year 1987 recognized the need to streamline international efforts to protect biodiversity. It therefore established in 1988 an *ad hoc* working group of Technical and Legal Experts to prepare an international legal instrument for the conservation and sustainable use of biological diversity. This group concluded that the existing treaties were inadequate to address the issue of conservation and sustainable use and stressed on the requirement of a new global treaty on biological diversity. Organizations such as the International Union for the Conservation of Nature (IUCN) and the Food and Agricultural Organization (FAO) contributed draft articles in addition to specific studies commissioned by the UNEP.

The Convention on Biological Diversity (CBD) is a comprehensive international treaty (See diagram below) to conserve world's biological diversity, for sustainable use of the diversity and to share the benefits of such use equitably. Article 15 of the CBD suggests ways in which countries could facilitate access to genetic resources and recommends that countries make appropriate legal, administrative or policy measures to provide access to genetic resources based on prior informed consent (PIC) and mutually agreed terms (MAT). It also encourages the providers of resources to enter into a material transfer agreement (MTA) with the users, which defines conditions of further development and use of biological resources.

The Convention was opened for signature on 5th June, 1992 at the United Nations Conference on Environment and Development (the Rio "Earth Summit"). It remained open for signature until 4th June, 1993, by which time it had received 168 signatures. The Convention entered into force on 29th December, 1993 which was 90 days after the 30th ratification. India signed the CBD on 5th June, 1992 and ratified it on 18th February, 1994.



The main objectives of the Convention are:

a) Conservation of biological diversity;
b) Sustainable use of the components of biological diversity; and
c) Fair and equitable sharing of benefits arising out of the utilization of genetic resources.

Recognizing the sovereign rights of States to use their own biological resources, the Convention expects the Parties to facilitate access to genetic resources by other Parties subject to national legislation and on mutually agreed upon terms (Articles 3 and 15 of CBD). Article 8(j) and Article 10 of the CBD recognizes contributions of local and indigenous communities to the conservation and sustainable utilization of biological resources through traditional knowledge (TK), practices and innovations and provides for equitable sharing of benefits with such people arising from the utilization of their knowledge, practices and innovations.

1.2.2 National Biodiversity Action Plan (NBAP)

National Biodiversity Strategy and Action Plans (NBSAP) are the principal instruments for implementing the Convention on Biological Diversity (CBD) at the national level. Accordingly, the Government of India developed a National Policy and Macro-level Action Strategy on Biodiversity in 1999 within five years of ratifying the CBD. This document is a macro-level statement of policies and strategies needed for conservation and sustainable use of biological diversity.

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, in order to achieve consonance between the NBAP and the NEP 2006, which was approved by the Government of India in 2008. The NBAP draws from the principles 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.

The Conference of Parties (CoP-10) to the CBD urged the Parties to develop national and regional targets, using strategic plan (SP) and its targets as a flexible framework, in accordance with national priorities and capacities. Thereafter, following adoption of the Strategic Plan for Biodiversity 2011-2020 and 20 Aichi biodiversity targets by CoP-10 in 2010 for this UN Decade on Biodiversity, India through a consultative process, has prepared 12 National Biodiversity Target (NBTs) using the Strategic Plan and Aichi targets as the broad framework, and included these in NBAP Addendum 2014 to NBAP 2008. In the light of the SP 2011-2020 and the Aichi Biodiversity Targets, India has undertaken a process of updating its NBAP in order to further build synergies between the NBAP and Aichi Biodiversity Targets. 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, 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.

India is among the select countries in the world that have developed their own National Biodiversity Targets aligned with the Aichi Biodiversity Targets. A monitoring framework with indicators, agencies responsible for monitoring and reporting and frequency of monitoring/reporting has been developed for monitoring the trends and reporting progress in implementation of the National Biodiversity Targets. The National Biodiversity Targets and monitoring framework have been developed on the basis of consultations with a range of stakeholders and a review of the programmes and activities being undertaken by relevant Ministries/ Departments in the GoI, SBBs and Non-Governmental Organizations (NGOs). The 12 NBTs call for action plans including integration of biodiversity concerns in socio-economic development; biodiversity valuation and use of economic instruments in decision-making; and global cooperation on issues related to biodiversity.

The road map for implementation of the NBAP involves the MoEFCC and 23 Ministries/Departments of the GoI that have been identified for achieving the National Biodiversity Targets. NBA, the SBBs, State Forest Departments (SFDs), State Planning Boards and 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 Eco-development Committees (VEDCs), Joint Forest Management Committees (JFMCs) and Gram sabhas village assemblies) are critical elements for implementation of the NBAP.

1.2.3 Nagoya Protocol

The *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (Nagoya Protocol)* was adopted by the Conference of the Parties to the Convention on Biological Diversity (CoP-10) at its tenth meeting on 29th October, 2010 in Nagoya, Japan. India has made significant positive contributions in finalisation of the Nagoya Protocol, which is considered as a milestone achievement in multilateral environmental negotiations. Hence, implementation of the ABS provisions of CBD is of special interest to us.

In accordance with its Article 32, the Nagoya Protocol was opened for signature from 2th February, 2011 to 1st February, 2012 at the United Nations Headquarters in New York by Parties to the Convention. As per Article 33, the Protocol will enter into force on the ninetieth day after the date of deposit of the 50th instrument of ratification, acceptance, approval or accession. India signed the Protocol on 11th May, 2011 and ratified it on 9th October, 2012. Following its ratification by 54 Parties to the CBD, the Nagoya Protocol has entered into force on 12th October, 2014.

The objective of Nagoya Protocol is the fair and equitable sharing of benefits arising from utilisation of genetic resources. The Protocol establishes a clear framework on how researchers and companies can obtain access to genetic resources and associated TK, and how benefits arising from the use of such material or knowledge will be shared. The Nagoya Protocol also sets out clear obligations for Parties to provide that users of genetic resources within their jurisdiction respect the domestic regulatory framework of Parties from where the resource has been accessed. The Nagoya Protocol is expected to address the concerns of biodiversity-rich countries such as India, relating to misappropriation of genetic resources and associated TK and lead to a more balanced implementation of CBD.

As the domestic regulatory framework on ABS is already in place in India in the form of BD Act and BD Rules, there is no need to enact any new legislation or set up a separate national regulatory authority to implement the Nagoya Protocol.

2 Biological Diversity Act, 2002- Institutional mechanism for implementation

The Biological Diversity Act, 2002 (18 of 2003) was developed through an extensive and intensive consultation process initiated in 1994. India is one of the few countries to have enacted such legislation. In line with the objectives of the CBD, the BD Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto. Thus, it primarily aims at giving effect to the provisions of the CBD suiting to our national needs and circumstances.

The Biological Diversity Act, 2002 (BD Act) has 12 Chapters and 65 Sections and received assent of the Hon'ble President of India on 5th February, 2003. Majority of the provisions of the BD Act came into force on 1st October, 2003 and the ABS provisions are effective from 1 July, 2004. The Biological Diversity Rules, 2004 came in to force on 15 April, 2004.

Government of India established the National Biodiversity Authority (NBA) in October 2003 at Chennai, Tamil Nadu under Section 8 of the BD Act with a mandate to implement the provisions of the BD Act. The NBA's mandate is to facilitate conservation, sustainable use and access to biological resources. It also regulates issues related to access of biological material and sharing of benefits arising from their use. Besides, NBA also performs an advisory role on issues related to conservation, sustainable use, access to biological resources and benefit sharing.

2.1 Scope of the Act

The BD Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out the use of bio-resources, knowledge and for matters connected therewith or incidental thereto. The BD Act extends to the whole of India.

2.2 Aims and Objectives

The aims and objectives of the BD Act are:

a. To reaffirm the sovereign rights of India over its biological resources;
b. To prevent misappropriation of bio-resources and/ or associated knowledge;
c. To protect biodiversity in general and in a holistic manner;
d. To regulate use of biological resources obtained from India;
e. To ensure sustainable utilization and equitable sharing of accrued benefits;
f. To provide legal recognition and support to the biological resources and associated traditional knowledge.

2.3. Definition of Terms

Some of the important definitions given in Section 2 are as follows:-

(a) “benefit claimers” means the conservers of biological resources, their by-products, creators and holders of knowledge and information relating to the use of such biological resources, innovations and practices associated with such use and application;

(b) “biological diversity” means the variability among living organisms from all sources and the ecological complexes of which they are part and includes diversity within species or between species and of eco systems;

(c) “biological resources” means plants, animals and micro-organisms or parts thereof, their genetic material and by products (excluding value added products) with actual or potential use or value, but does not include human genetic material;

(d) “bio-survey and bio-utilization” means survey or collection of species, subspecies, genes, components and extracts of biological resource for any purpose and includes characterization, inventorisation and bioassay;

(f) “commercial utilization” means end uses of biological resources for commercial utilization such as drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours, extracts and genes used for improving crops and livestock through genetic intervention, but does not include conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee keeping;

(g) “fair and equitable benefit sharing” means sharing of benefits as determined by the National Biodiversity Authority under section 21;

(h) “local bodies” means Panchayats and Municipalities, by whatever name called, within the meaning of clause (1) of article 243B and clause (1) of article 243Q of the Constitution and in the absence of any Panchayats or Municipalities, institutions of self-government constituted under any other provision of the Constitution or any Central Act or State Act;

(m) “research” means study or systematic investigation of any biological resource or technological application, that uses biological systems, living organisms or derivatives thereof to make or modify products or processes for any use;

(o) “sustainable use” means the use of components of biological diversity in such manner and at such rate that does not lead to the long term decline of the biological diversity thereby maintaining its potential to meet the needs and aspirations of present and future generations;

(p) “Value added products” means products, which may contain portions or extracts of plants and animals in unrecognizable and physically inseparable form.

2. As per Section 3(2) of the BD Act, the term “ Non-Indian/ Non -Indian entity “ refers to any person who is not a citizen of India; a citizen of India, who is a non-resident as defined in clause (30) of section 2 of the Income Tax Act, 1961; a body corporate, association or organization not incorporated or registered in India; or incorporated or registered in India under any law for the time being in force, which has any non-Indian participation in its share capital or management.

2.4 Important sections of the Biological Diversity Act, 2002

Access to biological resources and / or associated knowledge is dealt with in the following sections:

Section 3: (1) No person referred to in sub-section (2) shall, without previous approval of the National Biodiversity Authority, obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio-survey and bio-utilization.

(2) The persons who shall be required to take the approval of the National Biodiversity Authority under sub-section (1) are the following, namely:

a. a person who is not a citizen of India;
b. a citizen of India, who is a non-resident as defined in clause (30) of section 2 of the Income-tax Act, 1961;
c. a body corporate, association or organization-
   i. not incorporated or registered in India; or
   ii. incorporated or registered in India under any law for the time being in force which has any non-Indian participation in its share capital or management.

Following section deals with transfer of Results of research:

Section 4: No person shall, without the previous approval of the National Biodiversity Authority, transfer the results of any research relating to any biological resources occurring in, or obtained from, India for monetary consideration or otherwise to any person who is not a citizen of India or citizen of India who is non-resident as defined in clause (30) of section 2 of the Income-tax Act, 1961 or a body corporate or organization which is not registered or incorporated in India or which has any non-Indian participation in its share capital or management.

Application for intellectual property rights is dealt with in the following section:

Section 6: 6(1) No person shall apply for any intellectual property right, by whatever name called, in or outside India for any invention based on any research or information on a biological resource obtained from India without obtaining the previous approval of the National Biodiversity Authority before making such application.

Access to biological by Indians is dealt with under the following section:

Section 7: No person, who is a citizen of India or a body corporate, association or organization which is registered in India, shall obtain any biological resource for commercial utilization, or bio-survey and bio-utilization for commercial utilization except after giving prior intimation to the State Biodiversity Board concerned.

Provided that the provisions of this section shall not apply to the local people and communities of the area, including growers and cultivators of biodiversity, and vaids and hakims, who have been practicing indigenous medicine.

Section 23(b) : The functions of the State Biodiversity Board shall be to regulate by granting of approvals or otherwise requests for commercial utilization or bio-survey and bio-utilization for commercial utilization

of any biological resource by Indians;

The following section deals with transfer of biological resource or knowledge

20.(1) No person who has been granted approval under section 19 shall transfer any biological resource or knowledge associated thereto which is the subject matter of the said approval except with the permission of the National Biodiversity Authority.

(2) Any person who intends to transfer any biological resource or knowledge associated thereto referred to in sub-section (1) shall make an application in such form and in such manner as may be prescribed to the National Biodiversity Authority.

The following section deals with Determination of equitable benefit sharing by National Biodiversity Authority

21.(1) The National Biodiversity Authority shall while granting approvals under section 19 or section 20 ensure that the terms and conditions subject to which approval is granted secures equitable sharing of benefits arising out of the use of accessed biological resources, their by-products, innovations and practices associated with their use and applications and knowledge relating thereto in accordance with mutually agreed terms and conditions between the person applying for such approval, local bodies concerned and the benefit claimers.

(2) The National Biodiversity Authority shall, subject to any regulations made in this behalf, determine the benefit sharing which shall be given effect in all or any of the following manner, namely:

a. grant of joint ownership of intellectual property rights to the National Biodiversity Authority, or where benefit claimers are identified, to such benefit claimers;

b. transfer of technology;

c. location of production, research and development units in such areas which will facilitate better living standards to the benefit claimers;

d. association of Indian scientists, benefit claimers and the local people with research and development in biological resources and bio-survey and bio-utilization;

e. setting up of venture capital fund for aiding the cause of benefit claimers;

f. payment of monetary compensation and non-monetary benefits to the benefit claimers as the National Biodiversity Authority may deem fit.

2.5 Institutional Mechanism for Implementation of the Biological Diversity Act

To implement the BD Act, a decentralized three-tier system is in operation as shown under Table -3:

Table 3 : Decentralized system for Implementation of the BD Act

National level	NBA	NBA is on the top of the hierarchical pyramid as the main authority to implement the provisions of the BD Act. It is an autonomous and statutory body performing facilitative, regulatory and advisory role to Central Government and Ministries of Government of India on issues of conservation of biodiversity, sustainable use of its components and ensuring equitable sharing of benefits arising out of the use.

State level	SBB	Section 22(1) of the BD Act empowers a State Government to establish a State Biodiversity Board by making a notification in the official gazette. Further, the BD Act vests the State Governments with powers to frame its own rules without prejudice to the generality of the provisions of the BD Act.
Local level	BMC	The BMCs are constituted by the local bodies as per Section 41 of the BD Act.

2.5.1 National Biodiversity Authority

2.5.1.1 Composition:

A Chairperson, who is an eminent person having adequate knowledge and experience in the conservation and sustainable use of biological diversity and in matters relating to equitable sharing of benefits, appointed by the Central Government;

Three ex-officio members appointed by the Central Government, one representing the Ministry dealing with Tribal Affairs and two representing the Ministry dealing with Environment and Forests of whom one is the Additional Director General of Forests or the Director General of Forests;

Seven ex-officio members appointed by the Central Government to represent respectively the Ministries of the Central Government dealing with

- Agricultural Research and Education;
- Biotechnology;
- Ocean Development;
- Agriculture and Cooperation;
- Indian Systems of Medicine and Homeopathy;
- Science and Technology; and
- Scientific and Industrial Research

Five non-official members appointed from amongst specialists and scientists having special knowledge of, or experience in, matters relating to conservation of biological diversity, sustainable use of biological resources and equitable sharing of benefits arising out of the use of biological resources, representatives of industry, conservers, creators and knowledge-holders of biological resources.

The Ministry of Environment and Forests, vide notification S.O. 1147(E) dated 01.10.2003, established the National Biodiversity Authority consisting of ex-officio members from various Ministries/Scientific departments along with non-official members. The non-official members appointed were notified by the MoEF vide notification S.O. 497(E) dated 15.04.2004.

2.5.1.2 Role and Responsibilities

National Biodiversity Authority regulates the activities referred to under sections 3, 4 and 6 of the Act as under Table - 4:

Table - 4: Regulation of activities referred under different sections

S. No	Corresponding Section of the BD Act	Persons covered under NBA	For Activities carried out
	Section 3	a) A person who is not a citizen of India b) A citizen of India who is a non-resident as defined in clause 30 of section 2 of the Income Tax Act, 1961 c) A body corporate, association or organisation not incorporated or registered in India d) A body corporate, association or organisation incorporated or registered in India under any law for the time being in force, which has any non-Indian participation in its share capital or management.	Obtain any biological resource occurring in India or knowledge associated thereto for: a) Research b) Commercial Utilisation c) Bio-Survey and Bio-Utilisation
	Section 4	Any person "Any person" includes: a) A person who is a citizen or not a citizen of India b) A citizen of India who is a non-resident as defined in clause 30 of section 2 of the Income Tax Act, 1961 c) A body corporate, association or organisation incorporated or not incorporated or registered or not registered in Indiad) A body corporate, association or organisation incorporated or registered in India under any law for the time being in force, which has any non-Indian participation in its share capital or management.	Transfer of results of research relating to any biological resources occurring in or obtained from India for monetary consideration or otherwise to persons mentioned in section 3(2) of the BD Act.
	Section 6	Same as persons mentioned in serial no.2 column 3.	Applying for any intellectual property right (IPR) in or outside India for any invention based on any research or information
	Section 20	Same as persons mentioned in serial no.2 column 3 who have been granted approval under Section 19 of the BD Act, from the National Biodiversity Authority by applying in Form I, II and III prescribed in Biological Diversity Rules, 2004.	Transfer of any biological resource or knowledge associated thereto.

2.5.1.3 Other functions of NBA:

NBA may advise the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources;

a. NBA may advise the State Governments in the selection of areas of biodiversity importance to be notified under sub-section (1) of section 37 of the Biological Diversity Act, 2002 as heritage sites and measures for management of such heritage sites;
b. NBA shall perform such other functions as may be necessary to carry out the provisions of the Biological Diversity Act, 2002;
c. NBA may, on behalf of the Central Government, take any measures necessary to oppose the grant of intellectual property rights in any country outside India on any biological resources obtained from India or knowledge associated with such biological resource which is derived from India, illegally (Sec.18(4)).

2.5.1.4 Quasi-Judicial Powers of NBA

By virtue of section 50 (4) of the BD Act, the NBA is vested with quasi-judicial powers to adjudicate any dispute that arises between the State Biodiversity Boards once Central Government refers such disputes to the NBA. Rule 23 of the BD Rules deals with the procedure for handling of appeals for settlement of disputes under Section 50 of the BD Act.

2.5.2 State Biodiversity Board

Section 22(1) of the BD Act empowers a State Government to establish a State Biodiversity Board by making a notification in the official gazette.

Section 22(2) of the BD Act states that the authority or its authorized body shall exercise the powers and perform the functions of the Board for a Union Territory and it clearly specifies that no Boards will be constituted for a Union Territory.

2.5.2.1 Composition

The SBBs are established by the State Governments with a Chairperson, five ex-officio members representing the concerned departments and five members appointed from experts in matters relating to conservation of biological diversity, sustainable use of biological resources and equitable sharing of benefits arising out of the use of biological resources.

2.5.2.2 Role and responsibilities

The State Biodiversity Boards shall have the following functions as per Section 23 of the BD Act:

- To advise the State Government, subject to any guidelines issued by the Central Government, on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits arising out of the utilization of biological resources.
- To regulate by granting of approvals or otherwise requests for commercial utilization or bio survey and bio utilization of any biological resource by Indians.
- To perform such other functions as may be necessary to carry out the provisions of this BD Act or as may be prescribed by the State Government.

2.5.3 Biodiversity Management Committee

Biological Diversity Act, 2002 (BD Act) stipulates that every local body shall constitute a Biodiversity

Management Committee (BMC) within its area of jurisdiction for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land and folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity.

The Act also envisages that both National Biodiversity Authority (NBA) and State Biodiversity Boards (SBBs) shall consult the BMCs while taking any decision on the use of biological resources and associated knowledge occurring within the territorial jurisdiction of the BMC. The BMCs are also empowered to levy charges from person accessing or collecting any biological resource for commercial purposes.

One of the main functions of the BMC is to prepare People's Biodiversity Register (PBR) in consultation with the local people. The register shall contain comprehensive information on availability and knowledge of local biological resources, their medicinal or any other use or any other traditional knowledge associated with them.

However, since the inception of the BD Act, the process of BMC constitution in India has been a slow process which needs to be accelerated due to obvious reasons. Currently, SBBs have been constituted in all the 29 States in India. But when it comes to the BMC, out of the 2,40,000 (approximately) local bodies in India, there are only about 74,063 BMCs in place.

The Guidelines on Access and Benefit Sharing (ABS) and Associated Knowledge and Benefit Sharing Regulations notified in November 2014, also clearly mentions on determination and sharing of benefits. It provides for 95% of the accrued benefits going to the concerned BMCs and/or benefit claimers. Thus, BMCs have a pivotal role in ABS systems. Establishment of BMCs in all the local bodies, together with the empowerment of the local level committees calls for urgent attention to strengthen the biodiversity governance in the country.

2.5.3.1 Role of SBBs, Institutions and Civil Society in the formation of BMCs[1]

The process of BMC formation would involve all the stakeholders in the gram sabha including tribal groups and other marginalized communities to ensure an effective consultative process to meet the requirements of the state and local conditions.

BMC formation can possibly be mediated through institutions or civil society organizations or Technical Support Groups (TSGs). Potential areas rich in biodiversity and locations where there is popular interest or support should be identified and BMCs established. The Member-Secretary should get approval from the State Biodiversity Board for forming BMCs. Technical Support Groups can extend all possible help in identification, formation and operationalization of BMCs.

The State Biodiversity Boards may require a percentage of the funds earmarked for the establishment of each BMC. This may include costs incurred by the SBBs in involving civil society organizations and TSGs in identifying potential areas for BMC formation.

[1] BMC operational guidelines 2012

The local body shall make efforts to integrate BMCs to other village level committees related to natural resources management.

2.5.3.2 Integration of BMCs to other village level committees related to natural resource management

The BMC will be constituted by the local body with members of the Participatory forest/natural resources management committees members, including from members of horticulture/vaids/ foot botanists/tribal heads., etc., based on the local conditions. The SBB should issue suggestive list of persons to be included in the BMC. The representation may be flexible to meet the local requirements.

The Biodiversity Management Committee may also draw its members from amongst the existing committees which have been formed under statutory powers/administrative orders of the respective Governments.

2.5.3.3 Time period for operationalization

Once a BMC is formed, its operation should commence immediately and a set of tasks completed in a period of 12 months. Any, unspent part of the startup BMC fund BMC may be utilized at a later date. BMCs may be authorized to retain up to 50% of the sanctioned grant amount and make use of the interest for conducting their activities.

2.5.3.4 Office of the BMC

The BMC will function from the office premises to be provided by the local body.

2.5.3.5 Tenure of the BMC

The tenure of the BMC will be five years / co-terminus with the tenure of the local body

however, the existing BMC will continue to operate, until a new committee is constituted.

2.5.3.6 Methodology of BMC Startup Fund Release

Each State Biodiversity Board shall arrive at a realistic number of BMCs to be established in the state based on biodiversity rich areas and socially conscious areas. The National Biodiversity Authority (NBA) on its part shall release the amount requested by the State Biodiversity Boards (SBBs). The SBBs are advised to release the amount to each BMC in installments (2 – 4 installments) after obtaining either a Statement of Expenditure and an Utilisation Certificate (UC). No copies of bills should be insisted upon by the SBBs. The fund would be released by NBA for formation of BMCs is given in Table - 5.

Table – 5 : NBA fund for formation of BMCs

No	Item	Village Level BMC (In Rs.)	Block Level BMC (In Rs.)	District level BMC (In Rs.)
1	Startup fund	60,000	80,000	100,000
2	On Opening of Bank Account	10,000	13,328	16,660
3	Purchase of Office Equipment including stationary	15,000	20,000	25,000

4	Conduct of meetings (2 meetings in a year)	3,000	4,000	5,000
5	One Training to BMC and Panchayat general BD Profile	7,000	9,328	11,660
6	Formation of BMC	25,000	33,328	41,660

2.5.3.7 Roles and Functions of the BMCs

The BMCs would, in addition to the preparation of the People's Biodiversity Register (PBR), participate in ensuring:

a. Conservation and sustainable utilization of biological resources
b. Eco-restoration of the local biodiversity
c. Proper feedback to the SBB in the matter of IPR, Traditional Knowledge and local Biodiversity issues, wherever feasible and essential feedback to be provided to the NBA.
d. Management of Heritage Sites including Heritage Trees, Animals/ Micro organisms etc., and Sacred Groves and Sacred Water bodies.
e. Regulation of access to the biological resources and/ or associated Traditional Knowledge, for commercial and research purposes.
f. Sharing of usufructs arising out of commercial use of bio-resources
g. Conservation of traditional varieties/breeds of economically important plants/animals.
h. Biodiversity Education and Awareness building.
i. Documentation, enable procedure to develop bio-cultural protocols .
j. Sustainable Use and Benefit Sharing.
k. Protection of Traditional Knowledge recorded in PBR

2.5.3.8 Meetings of BMCs

BMC shall hold a minimum of 4 meetings in a year, and meet once at least in every 3 months.

The meetings shall be chaired by the Chairperson of the BMC, and in his/her absence, by any other member elected by the members present.

The quorum at every meeting shall be three including the chairperson and excluding official members.

2.5.3.9 Minutes of the BMC Meetings

Minutes/proceedings of the BMC Meetings will be drawn and submitted to the Local Body / District Nodal Officer. The SBB shall provide a format for drafting of minutes of the meetings, maintenance of meeting registers and alike, lay down the procedures for updating the registers & record of discussions, resolutions made, audit etc., which would facilitate Process Documentation at the BMC level.

2.5.3.10 BMC Action Plan

Each BMC shall prepare an Action Plan, drawing information validated in the People's Biodiversity Register. The Technical Support Group (TSG) shall guide in the preparation of the action plan. The Action Plan may include in addition to the steps outlined for conservation of the bio-resources, the training needs identified for the personnel of the BMC and the list of potential items for consideration

for registration as Geographical Indicators (G.I).

To draw a management micro plan for the sustainable use of local biodiversity including medicinal plants and associated traditional knowledge.

2.5.3.11 Capacity Building on BD Act and BMCs

Awareness Building on Biological Diversity Act 2002, its scope and implications with issues specific to operation of Biodiversity Management Committees (BMCs), may include:

Awareness building on the Biodiversity Act 2002, the role of Biodiversity Management Committees, the procedures, the role of BMCs with various associated departments of the Government such as Forests, Environment, Tribal Welfare, Rural Development, Agriculture, Horticulture, Animal Husbandry, Fisheries and Aquaculture, Poultry, Health, Local systems of Medicine, Education etc.,

a. Awareness building on the Acts, Rules and Institutions pertaining to the Conservation of Biodiversity at large.
b. Capacity Building at various levels of Government and Non-Governmental Agencies including the elected representatives at State, District and Local levels.
c. Capacity Building and Skill development of BMC members as identified by SBB. The areas of skill building may include:
    - Preparation of PBR
    - Administrative procedures of BMC
    - Maintenance of accounts/audit.
    - Intellectual Property Issues.
    - Access and Benefit Sharing issues.
    - Levy of fees.
    - Preparation of Action Plan, Project Report, Annual Report.
    - All Acts and Rules pertaining to Biodiversity
    - Management of Biodiversity Heritage Sites

2.5.3.12 Financial Resources for BMCs

BMCs shall generate funds through the following modes:

a. Receipts (grants and loans) from NBA, SBB and State Government. In addition, BMCs may access funds from various sources including raising donations, line departments of Government of India and state governments, other Central and State Boards, institutions and corporate bodies.
b. Receipts from fee, license fee, levies, royalties and other receipts.

For purpose of transparency, monitoring and follow up, each BMC shall maintain bank accounts separately for both categories of receipts**.**

2.5.3.13 Funding BMCs and maintenance of their accounts

The State Government on the recommendation of the SBB shall designate Nodal officers for each of the districts to oversee the various matters of the BMC. An officer from appropriate line department relevant to the local conditions may be appointed as Nodal Officer, who will report to the SBB.

BMC should draw a plan of Action for accessing resources from various sources such as – NBA, SBB, Grants, Donations, Various line departments of Government of India and the State Governments, other Central and State Boards, Institutions, Corporate Bodies etc.,

Start up funds may be obtained from the NBA, SBB. The state government may make appropriate provision in the budget for funding SBBs and provide financial support through SBBs to the BMCs.

The SBB shall facilitate the BMC to open a Bank Account with an Enabling Letter that BMC have been formed in accordance with The Biological Diversity Act, 2002**.**

The SBB shall fund the BMC directly and the concerned district level Nodal officer/ the DFO / District Administration/ Zilla parishad shall be duly informed. The Utilization Certificate (UC) along with the Statement of Expenditure should be submitted to the SBB. The BMC would give Utilization Certificate (UC) to the appropriate authority from whom they received the Funds /NBA/SBB etc., as required.

All the funds of the BMC will be operated jointly by the Chairperson and the Secretary of the BMC.

The Secretary of the BMC will maintain the accounts of the BMC. The accounting procedures will be drawn up and format for the maintenance of the accounts will be provided by the SBB. The SBB will also draw a check list to ensure that there is proper maintenance and submission of accounts.

The accounts would be audited annually by an Auditor specially appointed for the purpose and after being passed by the BMC will be given to the local body and the SBB.

The members of the BMC and the Secretary of the BMC should be trained and educated on the procedure for giving Utilization Certificate (UC) and accounting procedures including preparation of Annual Report and utilization of the resources in accordance with the Action Plan drawn up by the BMC, prioritizing the conservation of the local biodiversity.

The State Governments upon the recommendation of the SBB shall provide adequate fund and support staff at Nodal/district levels, to carry out the implementation of the Act, keeping in view the priorities and importance of the regional issues. Such funds may be routed through the SBB.

2.5.3.14 Custody of funds

The funds of the BMCs will be kept in a bank account. The custody of the funds of the BMC is the responsibility of the person belonging to the permanent establishment like local / district administration and will take necessary steps for safeguarding during receipt, deposition and transmission of the money, maintain suitable records for purposes of accounting and auditing.

The BMC shall issue cheques for making payments and by and large avoid cash transactions.

BMCs may require the procurement of good, equipments, furniture and other supplies and services like consultancy, upkeep and maintenance, other management services, technical services and expert assistance.

Procurement of goods and services can be made in a most efficient and judicious manner keeping in view the financial properties of the funds. Standard rules and regulations governing purchases etc., on such activity relevant in the Local bodies may be adhered to.

2.5.3.15 Modus Operandi of Expenditure for BMC

A startup fund, appropriate for its level may be provided for each BMCs and a manner of disbursement would be in the manner prescribe given in table 6.

2.5.3.16 Modus Operandi of Expenditure for People's Biodiversity Register

Funds earmarked for preparation of People's Biodiversity Registers (PBRs) may be utilized in the given in table 6.

Table – 6 : Modus Operandi of Expenditure for BMCs and PBRs

No	Item	Village level BMC & PBR (in Rs.)	Block/Taluk level BMC & PBR (in Rs.)	District level BMC & PBR (in Rs.)
1	Amount apportioned for SBB to meets its expenditure for undertaking various activities during the preparation of PBR	15,000	20,000	30,000
	PHASE–I			
1	Awareness/PRA exercise	5,000	10,000	15,000
2	Skill development/field visit /Meetings	10,000	10,000	20,000
3	Collection of primary data	20,000	20,000	35,000
	PHASE-II			
4	Processing of data / documentation /drafting	20,000	30,000	40,000
5	Printing cost of PBR	10,000	20,000	30,000
6	Remuneration /TA/DA to Technical Support group/personnel	25,000	25,000	40,000
7	Miscellaneous charges	10,000	15,000	20,000
	Total	**1,15,000**	**1,50,000**	**2,30,000**

2.5.3.17 Signing of cheques and support for member of the permanent establishment

Cheques may be signed by the Chairperson and the Secretary of the BMC. The Secretary should be from permanent establishment like forest/panchayat raj/ Department etc., The Secretary of the BMC will maintain the accounts of the BMC. This task would be treated as an Additional Charge for the member of the permanent establishment. And therefore suitable honorarium in rupees would be paid for the services rendered to every Secretary. In this regard the State Government may issue a suitable Government Order/ Resolution in consultation with SBB.

2.5.3.18 Cash Book

A Cash Book is to be maintained by the BMC. All records of cash/ bank transaction are to be recorded in the cash Book. While compiling the cashbook, page numbers of all receipts / cash payments record of certificates must be maintained. Cash payments must also be recorded in the cash book

2.5.3.19 Control of Expenditure

The Chairperson of the BMC is responsible for enforcing financial order and strict economy in every step.

The Secretary of the BMC is responsible for maintenance and upkeep of accounts in the prescribed manner.

2.5.3.20 Bank Reconciliation Statement

Balance in Bank and in the cash book should be reconciled in the last day of every month and the cashier should prepare the reconciliation statement. In case there is no expenditure, then such statement need not be prepared.

2.5.3.21 Statement of expenditure

A Statement of Expenditure upon receipt and expenditure of funds is to be submitted to the funding agency within the stipulated time. After expenditure of a minimum of 80% of the funds received, an Utilization Certificate in the prescribed format, as provided in the Guidelines on BMCs, shall be submitted.

2.5.3.22 BMCs and Access to Biological Resources, Levy and Benefit Sharing

The Committee (BMC) shall also maintain a Register giving information about the details of the access to biological resources and traditional knowledge granted, details of the collection fee imposed and details of the benefits derived and the mode of their sharing; which shall be intermittently examined by the local body.

The issues related to collection fee, benefit sharing and management of heritage sites, sacred groves, water bodies etc., will be done in consultation with the technical support of the SBB, and the SBB shall in this regard set up technical support groups comprising of local experts to provide necessary assistance to the BMC at State/Regional/District level.

Technical Aspects

2.5.3.23 Areas covered by the Sixth Schedule

In case of Sixth Schedule Areas under the Constitution of India, BMCs shall be formed at the levels of local institutions recognized by Autonomous District Councils. The Local Bodies shall ensure that the Biodiversity Management Committees are integrated with the existing local institutions by cross membership and regular coordination meetings.

The concerned State Biodiversity Board in the North-Eastern states will provide a suggestive list of members for the constitution of the Biodiversity Management Committees duly taking into cognizance the ethnic and cultural diversity.

2.5.3.24 Technical Support Groups (TSG) for strengthening BMCs

The SBB shall formulate District level technical support groups (TSGs) comprising of officials/ institutions /people of excellence and expertise in the biodiversity issues at local level, which should guide the BMC in its operation.

The People's Biodiversity Registers shall be maintained, **authenticated** and validated by the Biodiversity Management Committees with the assistance/guidance of the Local Technical Support Committee, a copy of which would be made available to the SBB.

The TSGs established at the appropriate level (State/ Regional/ District) shall assist BMCs with regard to

collection fee, benefit sharing and management of heritage sites, sacred groves and water bodies.

The Technical Support Group shall be formed at district level including representative from the departments of Forests, Agriculture, Horticulture, Veterinary and Fishery, Local Educational and Research Institutions, Autonomous District Councils, Non Governmental Organisations, Herbal Practitioner etc. based on the local conditions.

The Technical support group shall assist the BMC in listing local names of flora, fauna, traditional knowledge relating to flora and fauna, and current practices of communities regarding conservation within its territorial jurisdiction, to be included in the PBR.

2.5.3.25 Monitoring

The National Biodiversity Authority (NBA) may constitute every two years a Committee of Experts consisting field officers, scientists, academicians, member-secretaries and others to review the workings of BMCs to amend the guidelines from time to time.

2.5.3.26 Custody of PBRs and information therein

The BMC shall ensure the protection of the knowledge recorded in the People's Biodiversity Register principally in the matters of regulation of access to agencies and individuals outside the village limits. Access to registers need to be recorded in writing and maintained in consultation with SBB/ Technical Support group. Use of any information/ knowledge from PBR should be duly and properly acknowledged

2.5.3.27 BMCs and Biodiversity Heritage Sites

To incentivize BMCs to protect more areas of biodiversity importance, a sum of Rs.50,000/= (Rupees fifty thousand only) would be deposited in a nationalized bank in the name of BMCs declaring Biodiversity Heritage Sites (BHS). The interest of the said amount can be use by the BMC to pursue activities that aid in strengthening the efforts.

2.5.3.28 Resolution of Disputes

Disputes between/amongst BMCs in the same district may be referred to the Nodal Officer/ CEO ZP /District Magistrate.

3 Regulating Access to Biological Resources and Associated Knowledge

The procedures for access to biological resources and associated traditional knowledge in accordance with the sections 3 (Access to Biological Resources), 4 (Transfer of Research Results) and 6 (Seeking 'No objection Certificate' for obtaining patent) under the BD Act are given under Rules 14, 17 and 18 respectively.

Under the BD Act, the Indian citizens/body corporate/ associations/organisations are required to give prior intimation to the SBBs for access of biological resources for commercial utilisation, whereas non-Indians are required to take prior approval for access from NBA.

As per Section 3(2) of the BD Act, the term "Non-Indian/ Non -Indian entity" refers to any person who is not a citizen of India; a citizen of India, who is a non-resident as defined in clause (30) of section 2 of the Income Tax Act, 1961; a body corporate, association or organization not incorporated or registered in India; or Incorporated or registered in India under any law for the time being in force which has any non-Indian participation in its share capital or management.

3.1 Procedure for access to biological resources and/ or associated traditional knowledge for research or bio-survey and bio-utilization for research by Indians.

As per Section 7 of the BD Act, an Indian citizen or a body corporate, association or organization, which is registered in India should obtain any biological resources for commercial utilization, or bio-survey and bio-utilization for commercial utilization only after giving prior intimation to the State Biodiversity Board concerned where the biological resources are accessed.

However, this section will not be applicable to the following persons who are free to access biological resources under the BD Act:

a. Local people and communities of the area,
b. Growers and cultivators of biodiversity,
c. *Vaids* and *hakims* practising indigenous medicine.

Section 7 should be read together with Section 24 of the BD Act wherein clear indication as to the person/body corporate who should give prior intimation to the State Biodiversity Board in the form as prescribed by the State Government .

3.2 Procedure for transfer of results of research relating to biological resources by Indians:

As per Section 4 of the BD Act read with Rule 17 of the BD Rules, prior approval of the NBA is a prerequisite for transfer of research results to non-Indians (which include a body corporate, association or organization that is not incorporated or registered in India or if incorporated or registered in India has non-Indian participation in its share capital and/ or management) for monetary

consideration or otherwise. The applicant has to apply in Form-II along with the prescribed fee.

However, "transfer" does not include publication of research papers or dissemination of knowledge in seminar or workshop, if such publication is as per guidelines issued by the central government.

Such transfer is restricted to data/information that pertains to the declared research and not any biological resources or knowledge associated thereto.

3.3 Procedure for obtaining Intellectual Property Rights (IPR) by Indians:

As per Section 6 of the BD Act, read with Rule 18 of the BD Rules, Indians/Indian entities should apply for any intellectual property right only with the approval of the NBA, whether within or outside India, for any invention based on any research or information on a biological resource obtained from India. Such approval may be obtained after the acceptance of patent but before the sealing of the patent by the patent authority.

While granting approval the NBA may impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the use of such rights.

The applicant should apply in Form-III with the prescribed fee.

The provisions of this section shall not apply to any person making an application for any right under any law relating to protection of plant varieties enacted by Parliament. However Section 6(4) of the BD Act directs the concerned Authority (Protection of Plant Varieties and Farmers' Rights Authority) to endorse a copy of such document granting the right to the NBA.

3.4 Procedure for transfer of accessed biological resource and/ or associated knowledge to third party for research/ commercial utilization by Indians:

If any Indian or body corporate, association or organization who has obtained necessary approval of NBA with respect to a biological resource or knowledge associated with such biological resource under Form I and/or Form II and/or Form III wishes to transfer such approved biological resource or knowledge associated thereto to any third party (both Indians and non-Indians), he shall apply in Form-IV with the prescribed fee.

The following table indicates various activities for access to biological resources and/or associated knowledge by non- Indians, for which the prior approval of the NBA is required, along with form prescribed. (See Table - 7).

Table - 7: Activities regulated by NBA for non-Indians:

Corresponding Section	For Activities carried out	To apply in Form
Section 3	Obtain any biological resource occurring in India or knowledge associated thereto for: a) Research b) Commercial utilisation c) Bio-Survey and Bio-utilisation	I
Section 4	Transfer of results of research relating to any biological resources occurring in or obtained from India for monetary consideration or otherwise to persons mentioned in section 3(2) of the BD Act.	II
Section 6	Applying for any intellectual property right (IPR) in or outside India for any invention based on any research or information.	III
Section 20	Transfer of any biological resource or knowledge associated thereto.	IV

3.5 Procedure for access to biological resources and/ or associated traditional knowledge for research or bio-survey and bio-utilization for research by non-Indians

Any non-Indian citizen/non-resident/entity listed in Section 3 of BD Act is prohibited from obtaining any biological resource occurring in India or knowledge associated for research or commercial utilization or for bio-survey or bio-utilization without the prior approval of the National Biodiversity Authority.

The applicant should apply in Form-I and pay the prescribed fee.

3.6 Procedure for transfer of results of research relating to biological resources by non-Indians

As per Section 4 read with Rule 17, approval of the NBA is a prerequisite for transfer of research results to non-Indians (includes a body corporate, association or organization that is not incorporated or registered in India or if incorporated or registered in India has non-Indian participation in its share capital and/ or management) for monetary consideration or otherwise. The applicant has to apply in Form-II with the prescribed fee.

However, "transfer" does not include publication of research papers or dissemination of knowledge in seminar or workshop, if such publication is as per guidelines issued by the central government.

Such transfer is restricted to data/information pertains to research and not any biological resources.

3.7 Procedure for obtaining Intellectual Property Rights (IPR) by non-Indians

As per Section 6 of the BD Act, read with Rule 18 of the BD Rules, non- Indians before applying for any IPR, whether within or outside India, for any invention based on any research or information on a biological resource obtained from India, should obtain the approval of the NBA. Such approval may be obtained after the acceptance of patent but before the sealing of the patent by the patent authority.

The applicant should apply in Form-III along with the prescribed fee.

While granting approval, the NBA may impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the use of such rights.

The provisions of section 6 of the BD Act will not apply to any person making an application for any right under any law relating to protection of plant varieties enacted by Parliament. However Section 6(4) directs the concerned Authority (Protection of Plant Varieties and Farmers' Rights Authority) to endorse a copy of such document granting the right to the NBA.

3.8 Procedure for transfer of accessed biological resource and/ or associated knowledge to third party for research/ commercial utilization by Non-Indians to any Third Party

If any non-Indian citizen/non-resident/entity listed in Section 3 of BD Act who has obtained necessary approval of NBA with respect to a biological resource or knowledge associated with such biological resource under Form I and/or Form II and/or Form III wishes to transfer such approved biological resource or knowledge associated thereto to any third party (both Indians and non-Indians), he shall apply to NBA in Form-IV with the prescribed fee.

3.9 Collaborative Research

Section 5(1) of the BD Act exempts certain collaborative research projects from the purview of Sections 3 and 4 of the BD Act even if such projects involve transfer or exchange of biological resources or information relating thereto. Such collaborative research projects should be between institutions, including government-sponsored institutions of India, and such institutions in other countries. Under Section 5(3) of the BD Act, these research projects have to be approved by the Central Government and should conform to the policy guidelines issued by the Central Government.

3.10 Process of ABS applications:

The applications received for access to bioresources and/or associated knowledge received by NBA along with its enclosures are examined by the Expert Committee on Access and Benefit Sharing (ABS) constituted by the Authority and case-by-case recommendations made by the committee are deliberated and considered in the Authority meeting.

3.11 Certain activities or persons exempted from approval of NBA or SBB:

The following activities or persons shall not require approval of the NBA or SBB, namely:--

a. Indian citizens or entities accessing biological resources and/ or associated knowledge, occurring in or obtained from India, for the purposes of research or bio-survey and bio-utilization for research in India;
b. collaborative research projects, involving the transfer or exchange of biological resources or related information, if such collaborative research projects have been approved by the concerned Ministry or Department of the State or Central Government and conform to the extant policy guidelines issued by the Central Government for such collaborative research projects;
c. local people and communities of the area,

including growers and cultivators of biological resources, and vaids and hakims, practising indigenous medicine, except for obtaining intellectual property rights;

d. accessing biological resources for conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee keeping, in India;

e. publication of research papers or dissemination of knowledge, in any seminar or workshop, if such publication is in conformity with the guidelines issued by the Central Government from time to time;

f. value added products, which are products containing portions or extracts of plants and animals in unrecognizable and physically inseparable form; and

g. Biological resources, when normally traded as commodities as notified by the Central Government under section 40 of the Act.

3.12 Revocation of access or approval

Rule 15 of the BD Rules empowers NBA to revoke the approval given by NBA in the form of a written agreement granted for the purpose of access, etc., in the following circumstances when the person to whom approval was granted:

a. Fails to comply with the terms of the agreement or any of the conditions under which access or approval was granted.

b. Fails to take further appropriate action in prohibiting the access and also to assess the damage, if any, caused and take steps to recover the damage.

c. Violates any of the provisions of the BD Act.

d. Acts against any public interest or detrimental to the protection of environment and conservation of biological diversity.

4 Fair and Equitable Benefit Sharing

The NBA while granting approvals, is also charged with ensuring that the terms and conditions subject to which approval is granted secures fair and equitable sharing of benefits arising out of the use of the accessed biological resources, their by-products, innovations and practices associated with their use and applications and knowledge relating thereto in accordance with mutually agreed terms between the persons applying for the approval, local bodies concerned and the benefit claimers.

4.1 Mutually Agreed Terms (MAT)

MAT are those terms and conditions that are negotiated between the person applying for such approval, local bodies concerned and the benefit claimers. i.e., the conservers of biological resources and their by-products, creators and holders of knowledge and information relating to the biological resources, innovations, practices associated with their use and applications.

The negotiation is done using a set of non-negotiable terms and some negotiable ones. Generally, the details of such terms are defined in the Material Transfer Agreement (MTA). The MTA is largely based on the international instrument namely Bonn Guidelines for access and benefit sharing.

4.2 Determination of Equitable Benefit Sharing

Section 21 of the BD Act deals with determination of equitable sharing of benefits. It clearly explains that when NBA grants approvals under Form I, Form II and Form III under Section 19 and 20 as the case may be, it has to ensure that the terms and conditions on which approval is granted is as per MAT between the applicant, local bodies concerned and the benefit claimers. When any monetary benefits are received from the applicant then it shall be deposited in a fund created under the BD Act for NBA called the National Biodiversity Fund (NBF). The fund is applied for channelling the benefits to the benefit claimers and other purposes described under Section 27(2) of the BD Act.

In cases where the biological resource or knowledge associated thereto was accessed from specific individual or group of individuals or organisations, then NBA may direct the payment to be made directly to such individual or group etc. There may be any agreed terms and appropriate manner as decided by NBA and the payment shall be done accordingly.

The criteria for equitable sharing of benefits are elaborated under Rule 20 of the BD Rules. The determination of benefit sharing is the mandate of

NBA and it shall be given effect in all or any of the following manners, namely (Section 21):

a. grant of joint ownership of intellectual property rights to the NBA, or where benefit claimers are identified, to such benefit claimers;
b. transfer of technology;
c. location of production, research and development units in such areas which will facilitate better living standards to the benefit claimers;
d. association of Indian scientists, benefit claimers and the local people with research and development in biological resources and bio survey and bio utilization;
e. setting up of venture capital fund for aiding the cause of benefit claimers;
f. payment of monetary compensation and non-monetary benefits to the benefit claimers as the NBA may deem fit.

4.3 Guidelines for Benefit Sharing

The request for access to biological-resources and/or associated knowledge thereto is examined by an Expert Committee on Access and Benefit Sharing (EC on ABS) constituted by NBA. This Committee makes recommendations on a case by case basis and the same are deliberated and considered in the meetings held by NBA called the Authority meetings.

As per Section 18 read with Rule 20 of the BD Rules, the NBA shall, by notification in the official gazette, formulate the guidelines and describe the benefit sharing formula. The guidelines should provide for monetary and other benefits such as royalty, joint ventures, technology transfer, product development, education and awareness raising activities, institutional capacity building and venture capital fund.

5 People's Biodiversity Register (PBR)

As per Rule 22(6) of the BD Rules, BMC is required to prepare PBRs in consultation with local people. The PBR should contain comprehensive information on availability and knowledge of local biological resources their medicinal or any other use and traditional knowledge (TK) associated with them.

The village/block-level documentation of crop cultivars, locally used medicinal herbs, wild foods and other biodiversity resources, their use and conservation and management practices take the form of PBRs. India is the home of a large number of tribal groups, pursuing different kinds of nature-based livelihoods. Additionally, a large number of farming and fishing communities and nomadic groups possess TK of varying degrees.

The development in the fields of biotechnology and information technology have increased the value of biodiversity and associated knowledge including TK. The growing importance of biodiversity, bio-resources and associated knowledge is fairly well understood and emphasizes the need for conservation and sustainable utilization of biodiversity and its associated knowledge.

The first step towards conservation and sustainable utilization of biodiversity is its documentation. Biodiversity and associated knowledge is found in different ecosystems under different legal management regimes and hence the results and manner of documentation differ. The BMCs with the support of Technical Support Groups (TSGs), SBB and local experts are involved in the preparation of PBRs.

The preparation of PBRs involves the active support and cooperation of a large number of people who need to share their common as well as specialized knowledge. One of the first steps for preparing a PBR is to organize a group meeting to explain the objectives and purpose of the exercise. Different social groups in the village need to be identified for purpose of data collection from those groups. In an urban situation, spots where biodiversity are important need to be identified for the purpose of the study and documentation.

The documentation process includes information gathered from individuals through detailed questionnaire, focused group discussion with persons having knowledge and published secondary information. Legally, the PBR is an important base document, as evidence of prior knowledge. This document is to be endorsed by the BMC and publicized in the Gram Sabha. The PBR is also useful in conservation management as well as in education at school, college and university levels.

5.1 Guidelines on PBR

The NBA has brought out a comprehensive publication on the Guidelines on PBR in 2009 including its methodology, preparation and

maintenance. These guidelines are available for the public access in NBA website. The guidelines were further revised in 2013 based on the inputs obtained from the national consultation process held in this regard.

Format 1 : for PBR Documentation - Agrobiodiversity

1.	2.	3.	4.	5.	6.	7.		8.	9.	10.	11.	12.	13.	14.
Crop	Scientific Name	Local Name	Variety	Landscape / Habitat	Approx. area shown	Local Status		Special features	Cropping season	Uses	Associated TK	Other details	Source of Seeds/ Plants	Community/ Knowledge Holder
						Past	Present							
Rice	Oryza sativa		Veliyan	Lowland valleys		Plenty	Rare	Tall variety High yield Resistant to drought, flood, pest & diseases		Food Fodder Roofing Fuel	Provides more energy	Suitable for "Valicha" cultivation		Kurichiya Kuruma W. Chetty

The format 1 could be used for documenting information about Millets, Cereals, Oil seeds, Commercial crops, Tuber crops, Vegetables, Legumes, Aromatic crops etc. The column No. 9 'other details' vary with the nature of crops. For measuring local status, there need to identify a particular year significant changes in ecology occurred and compare the status as past and present (past = before the particular incident). We have to list out all possible features of a crop/plant and give short forms of the same. If relevant, cultivation practices, propagation techniques, usage etc can be included in the column 8, in associated TK.

5.2 Process in PBR Preparation

The preparation of People's Biodiversity Registers (PBRs) involves the active support and cooperation of a large number of people who need to share their common as well as specialized knowledge. One of the first steps for preparing a PBR is to organize a group meeting to explain the objectives and purpose of the exercise. Different social groups in the village need to be identified for purpose of data collection from those groups. In an urban situation, spots where biodiversity are important need to be identified for the purpose of the study and documentation. The documentation process includes information gathered from individuals through detailed questionnaire, focused group discussion with persons having knowledge and published secondary information. The following is the process of PBR preparation

Step 1: Formation of Biodiversity Management Committee (BMC)

Step 2: Sensitization of the public about the study, survey and possible management. Involve students and teachers in first hand collection of information in the PBR exercises

Step 3: Training of members in identification and collection of data on biological resources and traditional knowledge

Step 4: Collect data by direct field observations, Participatory Rural Appraisal (PRAs), household interviews, individual interviews with village leaders, elected representatives and NGOs. Use modern Information and Communication Technologies in the PBR exercises

Step 5: Analysis and validation of data in consultation with technical support group

Step 6: Preparation of People's Biodiversity Register (PBR)

5.3 Involving Community in Preparation of PBR

Preparation of PBR has to be done in a participatory mode involving varying sections of the society. The wide consultation is needed in the while documentation process. It is an enormous challenge that will have to be addressed in phases, carefully building capacity of the many different actors that would have to join hands, as the activity progresses

1. Information provided by people need to be collated, analysed and crosschecked by the members of the Technical Support Group
2. The knowledge and views of both genders are to be recorded.
3. The PBR is important base document in the legal arena as evidence of prior knowledge and hence careful documentation is necessary.
4. The document should be endorsed by the BMC and later publicized in the Gram Sabha / Gram Panchayat / Panchayat Samiti.
5. The document should be periodically updated with additional and new information as and when generate.

5.4 Benefits of PBR

The following are the major benefits of maintaining People's Biodiversity Register

1. Community regulation of access to biodiversity resources leading to sustainable harvests
2. Promoting knowledge-based sustainable management of agriculture, livestock, fish, forests and public health so as to enhance the quality of life of the community members
3. Opportunities to generate funds through imposition of collection fees for access to biodiversity resources
4. Conserving valued resources
5. Value addition to biodiversity resources
6. Recording of biodiversity related knowledge, pertaining to management
7. Recording of biodiversity related knowledge, coupled to opportunities to generate funds through imposition of collection fees for access to local knowledge
8. Sharing in the benefits of commercial application of local knowledge

6 Conservation

Conservation of biological resources is one of the primary objectives of the BD Act. The conservation provisions envisage a number of responsibilities that the governments are bound to pursue. The Central Government, along with the NBA, is mandated to take appropriate steps for the conservation of threatened species and designate institutions as repositories of biodiversity.

The State Governments and SBBs have the power to restrict, prohibit and order any activity, which is contrary to conservation and sustainable use of biological resources. It is also directed to identify and declare Biodiversity Heritage Sites in consultation with local bodies.

BMCs have an express mandate of promoting conservation, which includes preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and recording of knowledge relating to biological diversity.

The BD Act states that *ex situ* conservation means the conservation of components of biological diversity outside their natural habitats and *in situ* conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

6.1 What is a Biodiversity Heritage Site?

BHS are well defined areas that are unique, ecologically fragile ecosystems. They are spread over terrestrial, coastal and inland and marine waters having rich biodiversity comprising of any one or more of the following components: richness of wild as well as domesticated species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

6.2 Declaration of "Biodiversity Heritage Site" (BHS)

As per section 37 of the BD Act, the State Governments in consultation with the local bodies are required to notify areas of biodiversity importance as BHS in the official gazette. The State Government in consultation with Central Government should frame rules for the management and conservation of all the heritage sites. Further, the State Government should also frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.

6.3 Criteria for identification of BHS

The BHS may be identified in accordance with the criteria given under the heading 'Significance and Objectives of Biodiversity Heritage Sites' in the ***Guidelines for selection and management of the Biodiversity Heritage Sites***. (See **Annex 1**) Accordingly areas having any of the following characteristics may qualify to be declared as BHS.

a. Areas that contain a mosaic of natural, semi-natural, and man-made habitats, which together contain a significant diversity of life forms.
b. Areas that contain significant domesticated biodiversity component and/or representative agro-ecosystems with ongoing agricultural practices that sustain this diversity.
c. Areas that are significant from a biodiversity point of view as also are important cultural spaces such as sacred groves/trees and sites, or other large community conserved areas.
d. Areas including very small ones that offer refuge or corridors for threatened and endemic fauna and flora, such as community conserved areas or urban greens and wetlands.
e. All kinds of legal land uses whether government, community or private land could be considered under the above categories.
f. As far as possible those sites may be considered which are not covered under Protected Area network under the Wildlife Protection Act, 1972 as amended.
g. Areas that provide habitats, aquatic or terrestrial, for seasonal migrant species for feeding and breeding.
h. Areas that are maintained as preservation plots by the research wing of Forest department.
i. Medicinal Plant Conservation Areas.

6.4 Declared BHS Sites:

As per Section 37 of the BD Act, the State Government may notify in the Official Gazette, areas of biodiversity importance as biodiversity heritage sites (BHS). So far, 11 Biodiversity Heritage Sites have been notified by the Seven State Governments viz Assam (1), Karnataka (4), Maharashtra (1), Manipur (1), Uttar Pradesh (1), Telangana (1) and West Bengal (3). The details of the BHS are as follows:

Karnataka

1. Name of the Site	**Nallur Tamarind Grove**
Name of the District	Bengaluru
Taluk	Devanahalli
Area	54 acres
Importance of the area	It is popularly believed to be a relic of the Chola Dynasty that ruled nearly 800 years ago, is spectacle of awesome wonder and a freakish site. This BHS spread over 54 acres comprising a population of nearly 300 trees, is a picture of dynamic pattern of plant diversity. The significant component of this popular structure is a group of old plants standing like ageless sentinels, firmly rooted to the ground with their gigantic trunks, along with large picturesque crowns spread very high and aloft like open wings.

Government Notification	Aaapaji 154 ENV 2006, B'lore dt.24.01.2007
2. Name of the Site	**Hogrekan**
Name of the District	Chikmagalur
Taluk	Kadur
Gram Panchayat	Balliganuru
Area	2508.15 acres
Importance of the area	The area has unique Shola vegetation and grass land with number of floral species which are unique and having lot of medicinal value. Hogrekan is moderately wooded land and its vegetation is of dry deciduous type and has a link with Bababudanagiri and Kemmangundi, adjoining Bhadra Wildlife Sanctuary and Yemmedode Tiger Reserve and serving as "Wildlife Corridor" between Kudremukha and Bhadra Wildlife Sanctuary.
Government Notification	No.FEE.35 ENV 2009 dated 4.9.2010
3. Name of the Site	**University of Agricultural Sciences, GKVK Campus, Bengaluru**
Name of the District	Bengaluru
Area	167 hectares
Importance of the area	The GKVK campus is considered one of the greenest areas in Bengaluru. Biological diversity of this campus constitutes a critical repository of various forms of flora and fauna (including 13 sp of mammals, 10 sp of reptiles, 165 sp of birds and 530 sp of plants) which needs to be protected nurtured to posterity.
Government Notification	No.FEE.132 ENV 2009 dated 2.9.2010
4. Name of the Site	**Ambaraguda**
Name of the District	Shimoga
Area	3857.12 hectares
Importance of the area	It is a revenue land located between Sharavathi Wild Life Sanctuary and Someshwara Wildlife Sanctuary. It has Shola vegetation which is primitive vegetation in the Western Ghat and also has grasslands.
Government Notification	2011

2. Maharashtra

1. Name of the Site	Glory of Allapalli
Name of the State	Maharashtra
Name of the District	Gadchiroli
Taluk	---
Area	6 hectares
Importance of the area	It is a reserved forest being preserved as natural forest having biological, ethinical and historical values.
Government Notification	No.WLP.0914/C.R.317/M-1 dated 15th July 2014

3. West Bengal

Name of the Site	Tonglu BHS under the Darjeeling Forest Division
Name of the State	West Bengal
Name of the District	Darjeeling
Taluk	---
Area	230 hectares
Importance of the area	It is a Medicinal Plant Conservation Areas
Government Notification	No.716-ENT/T-11-7/003-ii/2003 dated 20th March, 2015
2. Name of the Site	**Dhotrey BHS under the Darjeeling Forest Division**
Name of the State	West Bengal
Name of the District	Darjeeling
Taluk	---
Area	180 hectares
Importance of the area	It is a Medicinal Plant Conservation Areas
Government Notification	No.716-ENT/T-11-7/003-ii/2003 dated 20th March, 2015
3. Name of the Site	**Chilkigarh Kanak Durga**
Name of the State	West Bengal
Name of the District	Jhargram
Taluk	Chilkigarh
Area	55.9 Acres (Perimeter Of 1,969 Meters)
Importance of the area	Chilkigarh Kanak Durga Sacred Grove is a remnant forest with traditional beliefs and taboos of local inhabitants and rich in biodiversity covering an area of 55.9 acres in Jhargram District of West Bengal.
Government Notification	No. 926/EN/T-II-7/003-II/2003 dt 16th April 2018

4. Manipur

Name of the Site	Dialong Village
Name of the State	Manipur
Name of the District	Tamenglong
Taluk	---
Area	11.35 Sq.km
Importance of the area	---
Government Notification	No.24/3/2017-For &ENVT dt. 23rd May, 2017

5. Telangana

Name of the Site	Ameenpur lake
Name of the State	Telangana
Name of the District	Sangareddy
Taluk	Ameenpur
Area	---
Importance of the area	---
Government Notification	449/EFS&T (FOR.II) Department, dated 21.11.2016

6. Assam

Name of the Site	Majuli
Name of the State	Assam
Name of the District	Majuli
Taluk	---
Area	875 Sq.km
Importance of the area	It is an island situated in the Brahmaputra River which is harboring unique Ecological and Cultural Heritage.
Government Notification	FRW 57/2005/Vol.II/14 dated 29th March, 2017

7. Uttar Pradesh

Name of the Site	Ghariyal Rehabilitation Centre
Name of the State	Uttar Pradesh
Name of the District	Lucknow
Taluk	Kukrail Reserve Forest
Area	10 Hectares
Importance of the area	It is a centre established for conservation and rehabilitation of critically endangered species of Gharial.
Government Notification	1348/XVI-5-2016-15/2016 dated 11th August, 2016

Several States are taking efforts to declare the BHS in their States.

6.5 Threatened Species

In accordance with Section 38 of BD Act, the Central Government in consultation with the concerned State Government may notify species which are on the verge of extinction or likely to become extinct in the near future as a threatened species. Further, the Government may prohibit or regulate collection of the notified species for any purpose and act appropriately to rehabilitate and preserve those species.

Notifications of the species of plants and animals, which are on the verge of extinction have been made in respect of 18 States viz., Assam, Bihar, Jammu & Kashmir, Himachal Pradesh, Kerala, Karnataka, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Manipur, Mizoram, Orissa, Meghalaya, Tamilnadu, Tripura, West Bengal, Goa and Punjab and Two Union Territory of Andaman and Nicobar Islands and Diu & Daman. The BD Act prevents the collection of living or dead specimens of the notified species.

Exemption is made for the following purposes provided it is approved by the SBB, Indian Forest Act, 1927 and Wildlife Protection Act, 1972.

1. Scientific research,
2. Herbarium and museum of scientific and academic institutions,
3. Propagation and
4. Other scientific investigation.

6.6 National Repositories

To keep the biological materials including voucher specimens in safe custody, the Central Government may designate institutions as repositories in accordance with Section 39 of the BD Act. In India, 15 such repositories have been designated by the Central Government. The roles of repositories are to keep in safe custody different categories of biological resources, including voucher specimens and new taxon discovered, deposited with them by the applicant (user).

6.7 National, State and Local Biodiversity Funds

National, State and Local level biodiversity funds are for channelling benefits to bonafide claimants and for conservation and promotion of biological resources and development of areas from where such biological resources and/or knowledge associated thereto has been accessed and for socioeconomic development of such areas. These funds are established under Sections 27, 32 and 43 respectively of the BD Act.

6.7.1 National Biodiversity Fund (NBF)

As per the Section of 27(1) of the BD Act all grants and loans charges, royalties and other sums received by the NBA may be credited into an account called the NBF. The NBF shall be applied for channelling benefits to the benefit claimers, conservation and promotion of biological resources and development of areas from where such biological resources or knowledge associated thereto have been accessed and for socio-economic development of areas in consultation with the local bodies. The monetary benefits of unidentified benefit claimers shall also be deposited in the NBF after a waiting period.

6.7.2 State Biodiversity Fund (SBF)

The SBF is constituted, as per Section 32(1) of BDA, out of all grants and loans made to the SBB / any grants or loans made by the NBA / all sums received by the SBB from such other sources as may be decided upon by State Government. The SBF is to be used for the management and conservation of heritage sites, compensating or rehabilitating any section of the people economically affected by notification as BHS, conservation and promotion of biological resources and socioeconomic development of areas from where such biological resources or knowledge associated thereto has been accessed and also for meeting the expenses incurred for the purposes authorised by the BD Act.

6.7.3 Local Biodiversity Fund (LBF)

As per Section 43 of the BD Act, the LBF is constituted in every area notified by the State Governments where any institution of self-government is functioning. Any grants or loans made by NBA, fees/levy charges by way of collection fees from any person for accessing or collecting any biological resources for commercial purposes is to be credited under the fund. The LBF may be used for conservation and promotion of biodiversity in the areas falling within the jurisdiction of the concerned local body and for the benefit of the community in so far as the use is consistent with conservation of biodiversity.

7 Sustainable Use of Biological Diversity

Sustainable use of biological diversity, one of the three objectives of the BD Act, is essential for achieving the broader goal of sustainable development and is a crosscutting issue relevant to biological and natural resources. Sustainable use entails the introduction and application of methods and processes for the utilization of biodiversity to prevent its long term decline, thereby maintaining its potential to meet current and future human needs and aspirations. The BD Act envisages the following activities under sustainable use:

7.1 Restriction on Activities Related to Access to Biological Resources

The NBA may prohibit or restrict access to biological resources under Rule 16 of the BD Rules. It states that NBA may restrict or prohibit the access either by rejecting the request or restricting the access granted for several reasons such as when the request for access

a. Is for any endangered taxa;
b. Is for any endemic and rare species;
c. May likely to result in adverse effect on the livelihoods of the local people;
d. May result in adverse environmental impact which may be difficult to control and mitigate;
e. May cause genetic erosion or affecting the ecosystem function; and
f. Is for the use of resources for purposes contrary to national interest and other related international agreements entered into by India.

7.2 Normally Traded Commodities (NTC)

As per Section 40 of the BD Act, the Central Government may in consultation with NBA declare that the provisions of the BD Act shall not apply to any items including biological resources normally traded as commodities. The Ministry of Environment and Forests via S.O. 2726 (E) has notified a list of 190 plant species exempted from the purview of the BD Act. The list includes medicinal plants, species, horticultural crops, fruits, vegetables, root, tuber and bulbous crops, flower crops, plantation crops and aromatic crops.

2. Notification of bioresources as NTACs is a dynamic process. After extensive consultations over a period of more than three years, the list of 190 species notified earlier has been augmented to 385 species to be exempted from the purview of the Act, when traded as commodities, through a Notification issued on 7th April, 2015 in supersession of the earlier notification. The Notification further provides that products derived from listed items that are traded as a matter of common practice are to be treated as NTACs (examples: ketchup from tomato, chips from potato, oil from ground nut, yarn/fabric from cotton). This list has been made more comprehensive

in terms of crop plants with information like trade/ common name; part used, and sources procurement as cultivated or mixed (cultivated plus wild). A self-declaration form appended to the notification provides for the exporter to declare the source of procurement to keep the implementation of the notification under careful watch and scrutiny. This notification is to facilitate trade of items including biological resources which are normally traded as commodities and if any of these items is intended to be used for any other purpose, the relevant provisions of the aforesaid Act shall apply

3. Based on the request of the stakeholders, MoEFCC, in consultation with NBA, vide notification no. S.O. 3533(E) dated 7th November, 2017 further augmented the list of items/ biological resources from 385 to 421 items under section 40 of the BD Act.

8 Offences and Penalties

The MoEF&CC, GoI has notified the officers (not below the rank of Scientist C and Forest officers not below the rank of range officers) authorized to file complaints under Section 61(a) (See **Annex 2**) of the BD Act in order to curb the illegal exploitation/ utilization of biological resources and IPRs obtained from such resources.

Any offence under the BD Act is cognizable and non-bailable as per Section 58.

8.1 Punishment/ penalties for violating the provisions of the BD Act.

As per Section 55(1) of the BD Act, in cases where an approval of NBA is required for the use of biological resources and knowledge associated thereto and such approval is not obtained, the punishment can extend to five years imprisonment or a fine of ten lakh rupees or both. If the damage caused exceeds ten lakh rupees then an appropriate amount may be imposed as fine or with both.

As per Section 55(2) of the BD Act, in cases where the SBB needs to be prior intimated about the use of biological resources and associated knowledge (Section 7 or any order under sub section 2 of Section 24) and when this is not done, the punishment can extend to three years imprisonment or a fine of five lakh rupees or both.

8.2 Penalty for contravention of directions or orders

As per Section 56 of the BD Act, for any person who contravenes any direction given or order made by the Central Government, the State Government, the NBA or the SBB, for which no punishment has been separately provided under the BD Act, then, he/she shall be punished with a fine which may extend to one lakh rupees and in case of a second or subsequent offence, with fine which may extend to two lakh rupees and in the case of continuous contravention with additional fine which may extend to two lakh rupees every day during which the default continues.

As per Section 57(1) of the BD Act, if a company commits an offence or contravention, then every person who at the time when the offence or contravention was committed was in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence or contravention and shall be liable to be proceeded against and punished accordingly.

If any offence or contravention under BD Act has been committed by a company with the consent or connivance of, or is attributable to, any neglect on the part of any director, manager, secretary

or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of the offence or contravention and shall be liable to be proceeded against and punished accordingly.

8.3 Legal Cell

In exercise of powers under Section 18 (4) of the BD Act read with Rule 12 of the BD Rules, a legal cell has been constituted in NBA for taking necessary measures to protect the interests of India, on behalf of the Central Government, in respect of grant of IPRs on any biological resource and/or knowledge associated thereto obtained from India in an illegal manner.

8.4 Filing of case by Benefit Claimers

As per Section 61 of the BD Act read with Rule 24 of the BD Rules, any benefit claimer can file a complaint in a court for violation of the provisions of the BD Act after giving a notice to the Central Government or the NBA, of not less than thirty days of his intention to file the case.

8.5. Filing of appeal against determination of benefit sharing

As per Section 52 A of the BD Act, any person aggrieved by any determination of benefit sharing or order of the NBA or a State Biodiversity Board under this Act, may file an appeal to the National Green Tribunal in accordance with the provisions of the National Green Tribunal Act, 2010.

8.6. Contravention of Section 6 of BD Act notified as a scheduled offence under the Prevention of Money Laundering (Amendment) Act, 2012

The Prevention of Money Laundering (Amendment) Act 2012 has specified the penalties for contravention of Section 6 etc. (Section 55 read with 6 of BD Act) as a scheduled offence in paragraph 23 of Part A of the Schedule.

9 Intellectual Property Rights and Biological Resources

One of the major concerns in the efforts to protect biological resources of the country is to protect them from being misappropriated through the acquisition of intellectual property rights (IPRs) since such rights are private rights. This is also one of the underlying principles of the BD Act. NBA may, on behalf of the Central Government, take any measures necessary to oppose the grant of intellectual property rights in any country outside India on any biological resources obtained from India or knowledge associated with such biological resource which is derived from India (Section18(4) of the BD Act).

9.1 Patent Legislation in India

Among the various IPR legislations, the Patents Act, 1970, as amended in 2005 (Patents Act), is the one of the legislations which has very close links with the BD Act, but it is a bi-polar relationship, since there are complementary provisions in both these Acts.

Section 6 of the BD Act specifically states the persons and contexts in which the prior approval of the NBA is required before applying for a patent for an "invention based on any research or information on a biological resource obtained from India." Of course, such a permission may be obtained after the acceptance of the patent by the patent office (i.e., not necessarily at the time of the submission of the application, but it has to be done before the sealing of the patent by the patent office).

In Form 1 of the Patents Act, in which the application for a patent is to be filed, the applicant has to make a declaration that the invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted before the grant of the patent. The NBA, while granting the approval, may "impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the commercial utilisation" of the IPRs.

The Patents Act has specific provisions to protect against misappropriation of biological resources and associated knowledge of India. Section 3(p) of the Patents Act clearly states that "an invention, which in effect, is TK is not patentable". This would cover knowledge associated with biological resources, both traditional as well as contemporary which has already become public. Similarly, Section 3(j) of the Patents Act excludes plants and animals in whole or any part thereof, other than microorganisms, but including seeds, varieties and species are not patentable. This covers all existing biological resources, which as per the BD Act, includes genetic material and by- products. While newly created (made in laboratories) micro-organisms are patentable, existing microorganisms are not patentable. Also, the provision in that same subsection prohibiting patenting of essentially biological processes for production or propagation

of plants and animals which is a kind of knowledge associated with biological resources as per Section 3(1) of the BD Act.

Another provision that has relevance is the one in Section 10 of the Patents Act requiring disclosure of the biological material when used in an invention, for which a patent application is submitted. Suppression of this information will lead to the rejection of the application, or, if granted, later revocation of the patent.

The Patents Act, in section 25, provides that non-disclosure or wrong disclosure of the source or geographical origin of biological material used for an invention is a ground for pre-grant and post-grant opposition to a patent application. Similarly, if any claim in a patent application is anticipated having regard to the knowledge, oral or otherwise, available within any local or indigenous community in India is also a ground for such opposition. Knowledge of indigenous communities is generally closely associated with local biological resources.

The grounds for revocation of a patent under section 64 of the Patents Act, inter alia, includes anticipation of the invention or any claim made in the patent having regard to the knowledge, oral or otherwise, available within any local or indigenous community in India besides non-disclosure or wrong disclosure of source or geographical origin of the biological material used for the invention, as mentioned above.

9.2 Traditional Knowledge Digital Library (TKDL)

A major Indian initiative to protect at least the TK associated with biological resources is the development of the TKDL. This vast database now extends to more than 2,50,000 formulations in Ayurveda, Siddha, Unani and Yoga and is accessed by major patent offices of the world such as those of the United States, Europe (European Patent Office), Japan, Germany, United Kingdom and so on besides India. It presents TK in a patent database format, thus making it easy for patent examiners to search for prior art for any new invention. It has already resulted in rejection of a number of new patent applications based on India's TK in the European Patent Office. The TKDL is in five languages, namely English, French, German, Spanish and Japanese.

9.3 Geographical Indications of Goods (Registration and Protection) Act, 1999

The Geographical Indications Act extends to all goods bearing a geographical indication which identifies such goods as originating in a specific territory or locality where a given quality, reputation or other characteristic of such geographical indications is essentially attributable to its geographical origin. Since natural goods are covered by the definition of goods in Geographical Indications Act, biological resources can also get covered by the Geographical Indications Act in a limited way. The Geographical Indications Act essentially protects the name only from being misappropriated or misused or falsely applied. It does not extend to biological resources or knowledge associated thereto from being accessed or utilised otherwise.

10 Best practices/Case studies on Access and benefit sharing

There are many experiences/best practices across the country on codes of conduct and guidelines on ABS. A few of these are briefly described below.

10.1 Access to Bovine Cattle Embryo's:

In pursuance of the CBD, India enacted the Biological Diversity Act in 2002 (BD Act) and National Biodiversity Authority (NBA) is the responsible agency for implementing the provisions of the BD Act in the country. One of the objectives of the BD Act is Fair and equitable sharing of the benefits arising out of the utilization of biological resources with the custodians of the biological resource (local people and communities/ organization etc.) for improvement of their livelihood and also for conservation and sustainable management of the biological resources and knowledge associated thereto. This element is being implemented through granting approval to request for access to biological resources made by the users. It is to mention that the user of India's biological resources needs to secure prior approval of NBA for carrying out certain activities including research and commercial utilization as per the provisions of the BD Act.

Since these breeds are fetching high value in global market, the Brazilian firm, viz M/s Brasif S.A made a request to NBA for access to 4000 bovine embryos and import the same to Brazil for conducting zoo-technological research as required under the BD Act. NBA, being a regulatory authority, after consulting the Gujarat State Biodiversity Board & other related scientific departments on the request, granted approval in the form of agreement on Mutually Agreed Terms subject to payment of upfront payment i.e 5% of the equivalent cost of production of embryos. The benefit sharing amount thus realized from the user is being defrayed to benefit claimers/ custodians.

Gir

Ongole Bull

Kankrej

Image Sources:http://agritech.tnau.ac.in/

In the instant case, though Gir and Kankrej breeds were from Gujarat province and Ongole from Andhra Pradesh province, the user accessed the embryos of these breeds from Gujarat through a trust which collected the breeds from different parts of the country. The provisions of the BD Act provide that where benefit claimers are not identified, benefit sharing amount shall be used to support conservation and sustainable use of biological resources and to promote livelihoods of the local people from where the biological resources are accessed. Accordingly, the BS amount is being shared between Andhra Pradesh and Gujarat in the ratio of 60:40 which will be utilized for the purpose of research, conservation and sustainable use of the concerned breed. Besides the BS amount should be earmarked for undertaking activities such as conservation, increasing the number of registered animals of the breed, supplying semen to farmers free of cost, conducting cattle shows, training and awareness programmes, health camps of animals, etc., through credible agencies including Breeders' Association; and constitution of BMCs and documentation of People's Biodiversity Registers in the areas where these breeds are originally reported from.

Similarly, as per the regulation relating to benefit sharing for the biological resources of high economic value like Red sanders and sandal wood, the NBA granted approvals for access to Red sanders to 59 foreign buyers, who participated in the auctions held by the Government of Andhra Pradesh/ Department of Revenue Intelligence. In this process, NBA realized around Rs 66.05 Crores as benefit sharing component from the foreign buyers collected, of which NBA, as a first instalment, distributed a sum Rupees 3.00 crores to the Andhra Pradesh Forest Department through Andhra Pradesh State Biodiversity Boards for protection and conservation of Red Sanders as per the recommendation of the Expert committee on Red sanders with the approval of the Authority and remaining amount is being channelized to the concerned stakeholders.

Kovel Foundation, an NGO in Vishakhapatnam, Andhra Pradesh works with 253 Gum picker Associations for conservation of Gum Karaya plants and non-timber forest products (NTFP), including wild honey, amla (Phyllanthus emblica), and kalmegh (Adrographis paniculate) etc. Activities include creation of awareness on conservation issues, imparting technical knowledge to primary collectors on sustainable harvesting, post-harvesting value addition and marketing of medicinal plants and other NTFP. Resource mapping and inventory preparation is carried out. The Gum Karaya harvested through sustainable methods fetches good price in the market due to brand image of the Foundation. The NGO also promotes sustainable agriculture through organic farming in 15 tribal districts of AP.

BMC of the village Piprai Morena in Madhya Pradesh is located in Chambal ravines which is dreaded dacoit territory with degraded ecosystem and thorny shrub and grasses. Water is scarce and vegetation is sparse. Wildlife hunting, prohibited trade and illegal activities are common. Guggal, a critically endangered plant species grows in the area. Over exploitation of the species for its gum is common through destructive extraction methods like debarking and branch cutting. Even young trees are not spared. This poses a risk to its sustainability and future availability of the resource. Satavar (Asparagus racemosus) and Gokhuru (Tribulus terrestris) are other important medicinal plants which are harvested destructively.

The BMC and the Sujagriti Samaj Sansthan, an NGO, have together taken up projects for reclamation of ravine areas and *in situ* conservation of local biological resources This includes preparation of PBR, conservation of existing plants of Guggal (10,000) and plantation work of 10,000 Guggal plant in ravinous area. Training for improved techniques for safe harvesting of gum has also been provided to the community and the produce is sold to Dabur. For water conservation three thousand metres of bandh (Dorbandi) has been constructed.

Gram Mooligai Company Ltd. is a collective community enterprise for medicinal plants collection and trade and works in drought affected areas around Madurai in Tamil Nadu. Several common medicinal plants grow in the fallow farm lands and waste lands which are collected by landless women and sold in the market. However, earlier reckless harvesting was done from common property resources leading to further degradation of habitat and reduction in availability. The company took up training of women for sustainable harvesting and has initiated kitchen garden program. A nursery of 10,000 saplings of important medicinal plants of the area has been set up to provide saplings to the kitchen gardens and schools. Two threatened taxa i.e. Gudmar (*Gymnema sylvestris*) and guggal (*Commiphora wightii*) have been replanted and protected. The work has now been extended to states like Maharashtra (Vidarbha area), Madhya Pradesh (Chambal), Odisha (Balangir) and Chhattisgarh. Sustainable harvesting of about 20 medicinal plants in the area has led to an annual income growth of 10%.

11 Sustainable Use of Biodiversity through Flagship Programmes - Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

11.1 Introduction

Indian with only 2.4 per cent of the World's landmass supports an astounding 8.1 per cent of the World's biodiversity (Anon, 2009). It is estimated that 70 per cent of Indian population depend upon biodiversity for a wide range of natural resources for subsistence means of livelihoods; as a result biodiversity is deteriorating at faster rate. The impact of environmental degradation is most severe for people living in poverty, because they have few livelihood options to fall back on. It is integral to key development sectors such as agriculture, forestry, fisheries and eco-tourism for their livelihoods. Consequently, biodiversity mainstreaming into development strategies and programs is essential to achieve poverty alleviation and development.

Sustainable use of biological diversity, one of the three objectives of the biodiversity Act, essential for achieving the broader goal of sustainable development and is a crosscutting issue relevant to biological and natural resources. Climate change has already had an observable impact on biodiversity at the species level, in term of phenology, distribution & populations, and ecosystem level in terms of distribution, composition & function. The conservation and sustainable use of biodiversity and ecosystems, and the services they provide, are vital national priorities as they are linked to the country's economic, ecological and social well-being. Species diversity often contributes to development by supplying material used for small-income generating activities, such as the sale of craft items, local foods or traditional medicines. Ecosystem services improve local well-being by providing clean water and productive agricultural systems.

At this juncture, it is felt necessary to build the capacities of the Community Biodiversity Managements (CBM) on sustainable use and management of biodiversity through flagship programmes such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), National Bamboo Mission (NBM), National Horticulture mission, Green India Mission, etc.

11.2 Clientele Group

Participants will be drawn from Faculty SIRDs, State Biodiversity Board Officials, State Level Officials from Departments of Panchayati Raj and Rural Development, Selective Elected Representatives (Sarpanch etc.), Agriculture, Horticulture, Fisheries, Forestry, Sericulture, Animal Husbandry, Rural Livelihood Mission, State Level Nodal Agency (Watersheds), Academia from Universities, Colleges and Members of Technical Support Groups.

Duration of the session: 90 minutes

Module Objectives:

1. To enable participants to understand the meaning and concepts of convergence
2. To acquaint participants to various Centrally and State Sponsored Schemes
3. To familiarize the participants to modalities of convergence with various Schemes

Training Methods

The following training audio and visual aids will be used:

- Lecture cum discussion
- Power point and case study presentation
- Short film on convergence

Learning Outcomes

By the end of the session, participants will be able to:

a. Define and list out advantages of convergence
b. Types and modalities of convergence
c. List out the various Central and State Sponsored Programmes and the activities relevant to Biodiversity conservation

References for future reading

Anonymous, 2009. Biodiversity Conservation and Rural Livelihood Improvement project. Draft executive summary on Environmental and social assessment and Indigenous peoples development plan – India. www.envfor.nic.in/mef/ESA_main.pdf.

12 Sustainable Use of Biodiversity through Flagship Programmes

12.1 Introduction

Substantial amounts have been spent annually for development of rural areas and eradication of poverty by the Central and State governments under various programmes in various sectors. Each programme is implemented based on a set of guidelines and through separate administrative and institutional arrangements. The main Ministries with substantial resource commitment for rural areas include: MoRD (All programmes),MoPR, MoHRD (Primary education-SSA), MoA (All programmes), MoH (PHCs, NRHM) and Ministry of Women and Child Development (ICDS). There are several other Ministries which have sizeable to marginal resource commitment for rural areas and these include Ministry of Social Justice and Equity, Ministry of Tribal affairs, MoE&F, MoWR and Ministry of Energy and Power (NIRD: National Workshop on Convergence of Development Programmes 2009). Altogether, approximately Rs.1,35,000 Crores are spent on rural development programmes.

Notwithstanding the enormous resources that flow into the rural areas, the outcomes are not in commensurate with the efforts. The results are seen in fragmented manner and in isolated patches. Late Prime Minister Shri Rajiv Gandhi had observed that only 17 paisa out of every rupee reaches the rural beneficiary. Despite concerted efforts by the State, most of the development departments have been functioning in a compartmentalized manner. This has been resulting in problems of coordination and suboptimal utilization of both human and financial resources. Further, nature of programme implementation at the field level is beset with inefficiency, poor implementation efforts, corruption and lack of transparency.

The programmes of Ministry of Rural Development, Govt. of India and the programmes of several other Ministries have some overlapping areas in terms of objectives and target groups. Processes and activities are also quite similar in many ways in these programmes. All guidelines stipulate inter programme coordination and convergence. The issue of convergence and integrated approach is not new in that sense. For instance, the JRY/JGSY/ SGRY have stipulated convergence in the past which has helped the programmes of Universalization of Primary education (OBP and DPEP for school building , toilets and Drinking water)., construction of PHCs and Anganwadis for women child welfare, Housing, Rural Infrastructure etc are some examples of inter-ministry convergence. However, these are sporadic and seen in pockets where leadership is dynamic and pro-active. There is a need to internalize and institutionalize these experiences. In the recent period, heavy emphasis has been laid on convergence in MGNREGA and IWMP.

It is mandated under Biological Diversity Act 2002 that all local bodies to setup Biodiversity Management Committees (BMC) constituted with

a chairperson and six members (besides, 1/3rd of nominated members should be women, SC/ST). Main functions include preserve and promote local biodiversity – breeds of birds, animals and plants, prepare People's Biodiversity Register (PBR) – an electronic database with inputs from locals, Maintain data on medicinal plants/resources used by local vaidhya's, advice State and National Biodiversity Boards on matters related to local biodiversity and under Nagoya Protocol of convention on Biodiversity (CBD), they can collect fees for granting access to Biodiversity register to researchers and commercial companies.

Functioning of BMC can be enhanced through building their capacities to create awareness among the village community and the PRI to avoid litigations. Such as the legal /IPR status of PBR register in grey areas, BMC filed a case against coal India, demanding profit sharing on the premise that coal is a biological resource, PRIs have refused to form BMCs fearing erosion of their authority over minor forest produce, state forest departments, forest traders besides, mining lobby don't cooperate with BMC for the similar reason. Further, UNDP and UNEP have allotted separate funding for BMCs but money not utilized given the administrative red-tapes in the country. Given these limited finance, decision making powers and non-cooperation from others, the BMCs are reduced to mere data gathering bodies; and have failed to catalyze sustainable development in Rural India (Source:http://mrunal.org/2014/05/biodiversity-management-committees-functions-features-limitations.html). PRIs can mobilize funds through resource envelope generated from various on-going Central and State sponsored rural development programmes. A list of Centrally Sponsored Programmes which can convergence to meet the objectives of BMC are presented in Table – 8 and 9.

12.2 Why convergence?

The Central and State Governments have been spending billions of rupees for the development of rural areas and improving the living conditions of the people. Several programmes have been launched to achieve these objectives. It is to be noted that many programmes planned and executed by different ministries/departments/agencies have almost similar objectives and targeting the same groups/areas. This duplicity of efforts has been resulting in wastage of scarce resources and failure to achieve synergies. Further, the evaluation studies have been critical of the leakages, inefficiencies and ineffectiveness of the programme designs and implementation of the rural development programmes. Lack of transparency, use of obsolete technologies, lack of coordination among agencies, non-participation of the target groups in planning and execution, lack of qualified personnel in adequate numbers and top-down approaches (mainly) have been identified as some of the major determinants of the sub-optimal use of the scarce resources. The present levels of poverty, unemployment, food insecurity and environmental degradation are also due to non-convergent and non-participatory planning approaches. Other areas of concern are adoption of less productive technologies and limited institutional capacities. This needs a radical change and development planning process should be sensitive to these challenges.

It is to be noted that, in the past, attempts have been made by some departments, officials and institutions to overcome some of the above mentioned constraints. However, these efforts have been isolated and sporadic. Organized attempts

are needed to institutionalize such initiatives. Such initiatives have paved way for the emergence of 'convergence planning' concept and the planning process aims at achieving maximum sustainable benefits (outcomes) to community and to the poor in particular from the various development programmes. This is possible by pooling human, capital and technical resources in an organized and participatory manner for coherent action by all the stakeholders.

12.3 How Convergence

Convergence planning can achieve multiple goals such as maximization of returns from the investment, promotion of public - private-community partnerships, sustainable development, meeting the unmet needs of the community and emergence of good governance. The instruments include pooling of resources, both human and capital, transfer of productive and eco-friendly technologies and value addition through provision of backward and forward linkages. The 'how' part is described below.

a) Goal Congruence among the stakeholders – the achievement of objectives without compromising on essential conditionalities of the converging programmes will form the bottom line of partnership(s). Participatory approach would pave way for agencies to share their own vision, mission and strategies. The discussions would facilitate realization among the stakeholders that convergence approach would help everyone to realize the common goal of poverty reduction and creation of quality and durable assets, besides achieving individual (organisational) objectives.

b) Local needs, problems and other issues – Bottom Up approach has been the hallmark of decentralization. People's participation in planning and implementation of development programmes would provide more space to the socially and economically disadvantaged in the decision making and assigning priorities. The participatory planning process is expected to identify the local needs and problems and the convergence planning and implementation will ensure that the goals are fulfilled.

c) Identifying potential areas/activities/schemes for convergence: The first and foremost activity of participatory planning is to identify peoples' needs and priorities. The existing perspective/ annual plans of various schemes in the selected area can be reviewed in the district/block/GP level consultations to address the identified needs. This will be followed by the discussions on possible solutions which facilitate identification of schemes to solve specific problems. Schemes which are similar in nature, complementary or supplementary can be converged for realizing set economic benefits.

d) Technical Know-how and administrative guidance – Top Down approach in dissemination of technical knowledge is usually followed in practice but the characteristics of the technology should address the concerns of the functionaries as well as the community.

Since technical up gradation or introduction of appropriate technologies is envisaged as an integral part of the convergence planning, the characteristics and consequences including risks, if any have to be shared with all the partners. The convergence process is an opportunity to the technical organisations to reorient their R&D activities so as to make them relevant to field problems/ development challenges.

e) Activity – Time chart (Gnatt chart) for programmes/schemes converging and re-alignment: knowledge of the activities which will be taken up during the project time frame under the programmes considered for convergence is a pre-requisite for all partner agencies. The Gnatt charts can be super imposed with special reference to the activities identified for convergence and also those which need advanced technical input(s). The discussions on the timing, duration, fund and manpower requirements to execute the tasks and processes to be adopted and also the (specific) functionaries to be associated will help in working out the action plan

f) Role clarity among stakeholders - The above exercise has twin advantages of bringing greater role clarity among the functionaries and also appreciation of the relevance of other's role. Such participatory processes will enhance respect for others while ensuring better co-ordination among the departments. This also provides an opportunity to resolve the problems / irritants among the stakeholders.

g) Funds flow in relation to activity – time frame: Since timely failure to ensure adequate flow of funds has been identified as one of the constraints in execution of projects, to avoid time and cost overruns, there is need to have some convergence fund at the cutting edge level to advance money in case of delays in release of funds. The quantum of this fund need to be assessed by a (Technical) Resource Group and the Centre and State Governments need to support this.

h) Consultations with the stakeholder at various levels: Institutional arrangements have to be made at various echelons of development administration to facilitate and promote interactions among stakeholders regularly or periodically. The views emerging at one level should be shared with other level(s) and this iterative process should necessarily streamline the preparation of action plan for convergence.

i) New Activity Mapping as per convergence plan – Gnatt chart - The consultative meetings/ workshops should enable the related agencies / departments to prepare the (new) activity mapping and time frame for collective action as per the outcomes / suggestions emerging in these workshops. This convergence plan should be prepared at the unit of planning which should be the reference point for all the stakeholders associated with implementation of the programmes / schemes.

j) Capacity Building**:** Since the new working arrangements under convergence demand a new work culture and also different roles for various stakeholders at different levels, the capacities of these functionaries and also community have to be built so that the action plan will be effectively and efficiently implemented. As far as imparting of knowledge inputs including technology is concerned, the functionaries need to be educated on the benefits, costs and risks associated with the new technologies vis-à-vis the technologies in vogue; while the elected members and community need to be informed in a jargon free manner.

12.4 Challenges for Convergence

- The concept of convergence planning lays heavy emphasis on 'bottom-up' approach. Convergence should address the basic needs of the primary

stakeholders (more so, vulnerable groups). The articulation of their needs by themselves warrants 'facilitation' and 'enablement'. Lack of institutional capacities and pro-poor state policies may hinder the entire participatory process. Given the profile of the primary stakeholders in rural development, an effective social mobilization strategies is *sine Qua non.*

- Absence of multi-stakeholder platform for operationalising the concept of 'convergence' is one of the major challenges. The participation of stakeholders and concurrence on the process, roles and responsibilities and (collective) action plan are essential. The participation should lead to identification of common concerns and also help resolving the conflicting interests amicably. Such institutional platform (e.g. Gram Sabha, Panchayat, Office of District Collector) should provide adequate spaces to all stakeholders and ensure that the development process is 'primary stakeholder' centric.
- The compartmental approach of the line departments and 'silo' attitudes of the functionaries are barriers to inter-departmental / agency cooperation and collaboration. The issues of 'control over resources' and 'accountability' become the contesting problems in our existing hierarchical delivery systems. The development functionaries should be sensitized about the new working relations and the work culture. The 'mind set' has to be changed. Lack of role clarity among the stakeholders compounds the problems of coordination. An innovative information, Education and Communication (IEC) strategy is a pre- requisite for awareness building and participation

12.5 Convergence of Development initiatives in the current decade

A. Integrated Watershed Management Programme

In 2008 common guidelines for watershed development projects have been developed aiming at "inclusive growth" and livelihood orientation was provided in these guidelines. Productivity enhancement as well as livelihoods was given priority along with resource conservation measures in watershed programmes. Specific focus was on livestock, dairying in particular and inland fisheries (whenever feasible). West Orissa Rural Livelihood Project (WORLP) in Orissa, Karnataka Watershed Development Programme (KAWAD) in Karnataka, Andhra Pradesh Rural Livelihood Project (APRLP) of Andhra Pradesh etc clearly established the need for addressing the problems of the assetless persons living within a watershed area by providing livelihood opportunities.

Livelihood support systems (LSSs) in Watershed programme include the following:

i. Sericulture / Ericulture / Taser / Moga
ii. Production of green fodder
iii. Vermicompost
iv. Lac production
v. Bee-keeping
vi. Mushroom culture
vii. Non-Timber Forest Products – collection, processing and marketing.

B. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

The Ministries of Rural Development (MoRD), Water Resources (MoWR), Agriculture (MoAg) and

Environment and Forests (MoEF) have taken initiative and evolved guidelines for convergence of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) with the programmes of the other partner Ministries (see the section on 'General Framework for Convergence').

Creation of durable and quality (community and individual) assets and livelihood security to the rural people are critical issues in rural development. Involvement of community and other stakeholders (including programme implementers) in planning process should be the foci of initiatives of the government.

12.6 Convergence through works may be effected in some of the following ways

- Gap filling through MGNREGA for similar works under the schemes of the department with which convergence is being considered;
- Strengthening of different forms of capital;
- Area Approach;
- Value addition to MGNREGA works;
- Technical support for ensuring quality in planning, selection and execution of MGNREGA works;
- Strengthening of democratic processes

12.7 Key Issues in Convergence

1. What type of convergence (financial, institutional, technical, human, material, social, natural and programmatic) has been contemplated? How can simultaneous convergence of all these dimensions be achieved?

2. How participatory is the process to be adopted? Whether PRIs or local bodies in particular, have been involved in the planning and implementation of the convergence initiatives?

3. What is the scope for achieving multi-sectoral collaboration, given the regional diversity for making a significant contribution to project sustainability and maximisation of benefits?

4. What institutional arrangement would ensure identification and selection of convergence projects by the community for wider participation and ownership?

5. Why are the successful/innovative projects not being replicated / cannot be replicated? How can convergence planning and action be institutionalized for achieving synergy and optimal use of resources?

Table 8: List of Centrally Sponsored Schemes and their relevance to address the objectives of the Biological Diversity Act

Objectives & Provisions of the Act	NMGI	RKVY	NBM	NMSA	MIDH	SMAF	NWDPRA	CAMPA	MGNREGS	NMPB	NMSHE	PMKSY	BGEI
Conservation of biological diversity	□					□		□	□	□	□		
Sustainable use of biological resources	□	□	□	□	□	□	□	□		□			
Measures to conserve and sustainably use biological resources, including habitat and species protection, environmental impact assessments (EIAs) of projects, integration of biodiversity into the plans, programmes, and policies of various departments/sector	□	□				□	□	□		□			
Regulation of the use of genetically modified organisms				□	□					□			

NMGI: National Mission on Green India; **RKVY**: Rashtriya Krishi Vikas Yojana; **NBM**: National Bamboo Mission;

NMSA: National Mission on Sustainable Agriculture; **NIDH**: Mission for Integrated Development of Horticulture;

SMAF: Sub- Mission on Agroforestry; **NWDPRA**: National Watershed Development Programme for Rainfed Areas;

CAMPA: Compensatory Afforestation Fund Management and Planning Authority: **NMPB**: National Medicinal Plant Board

MGNREGS: Mahatma Gandhi National Rural Employment Guarantee Scheme; **BGEI**: Brining Green Revolution to Eastern India

NMSHE: National Mission for Sustaining Himalayan Ecosystem; PMKSY: Pradhan Mantri Krishi Sinchayi Yojana

Table 9 : List of Centrally Sponsored Schemes and its Objectives and activities

Mission & Objectives	Activities	Head	Budget
National Mission for Green India ***Objectives:*** Double the area to be taken up for afforestation / eco-restoration in India in the next 10 years (by 2020), taking the total area to be afforested or eco-restored to 20 million ha. Increase the GHG removals by India's forests to 6.35% of India's annual total GHG emissions by the year 2020 Enhance the resilience of forests/ecosystems being treated under the Mission	Enhance infiltration, groundwater recharge, stream and spring flows, biodiversity value, provisioning of services (fuel wood, fodder, timber, NTFPs, etc.) to help local communities adapt to climatic variability The Mission would provide for mitigation / adaptation measures that enhance ecosystem goods and services, particularly carbon stocks, water, and meet biodiversity conservation and livelihood security needs Measures to support adaptation of species and ecosystem to climate change variability would be factored-in across various Mission strategies/ interventions.	State Forest Development Agency District Planning Committees	Rs 44,000 crores
Rashtiya Krishi Vikas Yojana (RKVY) ***Objectives*** To incentivize the States to increase public investment in agriculture & allied sectors To provide flexibility & autonomy to states in the process of planning & executing agriculture & allied sector schemes To ensure the participation of agriculture plans for the district and the states based on the agro-climatic conditions, availability of technology & natural resources To ensure that local needs/crops/priorities are better reflected in the agricultural plans of the states To achieve the goal of reducing the yield gaps in important crops, through focused interventions To maximize returns to the farmers in agriculture & allied sectors To bring about the quantifiable changes in the production & productivity of various components of agriculture &allied sectors by addressing them in a holistic manner.	Integrated development of major food crops such as wheat, paddy, coarse cereals, minor millets, pulses, oilseeds Activities related to enhancement of soil health: This would include efficient quality control of inputs including strengthening of laboratories and enhancing soil health. Development of rainfed farming systems in and outside watershed areas, as also Integrated development of watershed areas, wastelands, river valleys Support to State seed farms: State farms that are used for both research and seed production purposes Activities relating to enhancement of horticultural production and popularization of micro irrigation systems Assistance will be available for nursery development, horticulture activities including marketing and drip/sprinkler irrigation. Animal husbandry and fisheries development activities: Assistance will be available for improvement in fodder production, genetic up gradation of cattle and buffaloes, enhancement of milk production, enlarging raw material base for leather industry, improvement in livestock health, poultry development, development of small ruminants and enhanced fish production Undertaking concept to completion projects: Undertaking specific projects under agriculture/horticulture/ allied sectors in a concept to completion mode with attention given to all the components	State Level Sanctioning Committee Meeting (SLSC) headed by the Chief Secretary of the concerned State	2017-18 to 2019-20 financial allocation of Rs. 15,722 crores

National Mission for Sustaining the Himalayan Eco-system ***Objectives*** Develop a sustainable National capacity to continuously assess the health status of the Himalayan Ecosystem Networking of knowledge institutions engaged in studies on Himalayan Ecosystem and development of a coherent data base Detection and decoupling of natural and anthropogenic induced signals of global environmental changes in mountain ecosystems Assessment of the socio-economic and ecological consequences of global environmental change Studying of traditional knowledge systems for community participation Creation of awareness amongst stakeholders in the region Development of regional cooperation with neighboring countries	Continuous Monitoring of the Ecosystem Glaciology Research and Generation of Database for Ecological Modelling Prediction of Socio -Economic and Climate Change Scenarios and Vulnerability Assessment Identification of desirable Adaptation and Development Policies for IHR Strengthening of Regional Cooperation	Nodal Officer NMSHE	
National Mission on Sustainable Agriculture (NMSA) ***Objectives*** To make agriculture more productive, sustainable, remunerative and climate resilient To conserve natural resources through appropriate soil and moisture conservation measures; Adopt comprehensive soil health management practices Optimum utilization of water resources through efficient To develop capacity of farmers & stakeholders, in conjunction with other on-going Missions To pilot models in select blocks for improving productivity of rainfed farming by mainstreaming rainfed technologies Establish of effective inter and intra Departmental/ Ministerial co-ordination	-Promoting integrated farming system covering crops, livestock & fishery, plantation and pasture based composite farming for enhancing livelihood opportunities -Popularizing resource conservation technologies (both on-farm and off-farm) and introducing practices that will support mitigation efforts in times of extreme climatic events or disasters like prolonged dry spells, floods etc. -Promoting effective management of available water resources and enhancing water use efficiency -Creating database on soil resources through land use survey, soil profile study and soil analysis on GIS platform -Programmatic interventions as per land capability and conducive to climatic parameters in select blocks as pilots for ensuring integrated development ***Convergence interventions***	State Mission for Sustainable Agriculture (SMSA) for implementation of NMSA. At district level, District Mission Committee (DMC) headed by Collector/CEO	Technology, Products and Practices: Rs. 65,000 Crores Infrastructure including Insurance: Rs. 31,500 Crores Research & Development: Rs. 6,500 Crores Capacity Building: Rs. 5,000 Crores ***Total: Rs. 1, 08, 000 Crores (at current prices)***

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) ***Objectives*** Mobilising the resources for expanding coverage of Micro Irrigation by taking up special and innovative projects and also for incentivising micro irrigation	MIF would not only facilitate States in incentivising and mobilizing resources for achieving the target envisaged under PMKSY-PDMC but also in bringing additional coverage through special and innovative initiatives by State Governments. Coverage of more area with micro irrigation in irrigation command to improve water use efficiency and bring additional area under assured irrigation	Joint Secretary, NRM/RFS, DAC&FW	The loans will be extended by NABARD to the State Governments during the remaining period of 14th Finance Commission i.e. during 2018-19 and 2019-20 with an allocation of Rs. 2000 crore and Rs. 3000 crore respectively.
AIBP by MoWR, RD &GR	Focus on faster completion of ongoing Major and Medium Irrigation including National Projects.	Collector/District Magistrate / CEO of Zila Parishad	For 2015-16, an outlay of Rs.5300 crore has been made which includes Rs. 1800 crore for DAC; Rs. 1500 crore for DoLR; Rs. 2000 crore for MoWR(Rs. 1000 crore for AIBP; Rs. 1000 crores for PMKSY).

PMKSY (Har Khet ko Pani) by MoWR, RD &GR	Creation of new water sources through Minor Irrigation (both surface and ground water) Repair, restoration and renovation of water bodies Command area development & strengthening Improvement in water management and distribution system. Diversion of water from source of different location. Creation and rejuvenation of traditional water storage systems.	Collector/District Magistrate / CEO of Zila Parishad	
PMKSY (Watershed) by Dept. of Land Resources, MoRD	Water harvesting structures such as check dams, nala bund, farm ponds, tanks etc. Capacity building, entry point activities, ridge area treatment, drainage line treatment, soil and moisture conservation, nursery raising, afforestation, horticulture, pasture development, livelihood activities for the asset-less persons and production system & micro enterprises for small and marginal farmers etc. Effective rainfall management like field bunding, contour bunding/ trenching, staggered trenching, land levelling, mulching etc.	Collector/District Magistrate / CEO of Zila Parishad	
Per Drop More Crop (Micro Irrigation) Objectives Increase the area under micro irrigation Increase productivity of crops and income of farmers Promote micro irrigation technologies in water intensive/consuming crops Make potential use of micro irrigation systems for promoting fertigation Promote micro irrigation technologies in water scarce and critical ground water blocks/districts Linking of tube-well / river-lift irrigation projects with micro irrigation. Establish convergence and synergy with activities of on-going programmes and schemes Promote, develop and disseminate micro irrigation technology Create employment opportunities for skilled and unskilled persons	Promoting efficient water conveyance and precision water application devices Topping up of input cost particularly under civil construction beyond permissible limit (40%), under MGNREGS Construction of micro irrigation structures to supplement source creation activities Secondary storage structures at tail end of canal system to store water when available in abundance Water lifting devices like diesel/ electric/ solar pumpsets including water carriage pipes. Capacity building, training for encouraging potential use water source through technological, agronomic and management practices including community irrigation. Awareness campaign on water saving technologies, practices, programmes etc.	Collector/District Magistrate / CEO of Zila Parishad	

Bringing Green Revolution to Eastern India ***Objectives*** To increase production & productivity of rice and wheat by adopting latest crop production technologies To promote cultivation in rice fallow area to increase cropping intensity and income of the farmers To create water harvesting structures and efficient utilization of water potential; and To promote post-harvest technology and marketing support Strategy To promote improved production technology of rice To bring rice fallow areas under cultivation Adoption of stress tolerant rice varieties; Create irrigation structures like farm ponds, lift irrigation point To promote use of farm machineries Creation of infrastructure facilities VII. To provide technical backstopping by scientists of CRR!, SAU & ICAR institutions.	**Cluster demonstration of rice**: There will be *various* types of demonstrations for rice such as System of Rice Intensification (SRI), Direct Seeded Rice (DSR), Hybrid Rice Technology, Line Transplanting, Stress Tolerant Varieties and Improved Package of Practices (variety, nutrient management, integrated pest management, etc). **Cluster demonstration of wheat:** There will be demonstrations on *improved* package of practices **Distribution of HYV/Hybrid seed** of Rice **and Wheat** **Production of HYV/Hybrid Seed of Rice and Wheat** **Need Based Inputs** Nutrient management and soil ameliorants Plant protection measures Cropping system based training **Site Specific Intervention** **Marketing Support** **Role of Panchyati Raj Institutions** Panchyati Raj Institutions will be actively involved in selection of sites of demonstrations, beneficiary farmers, etc. The village selected under Saansad Adarsh Garm Yojana will be given priority.	Director of Agriculture District Agriculture Officer	
SUB-MISSION ON AGROFORESTRY (SMAF) UNDER NMSA Objectives To encourage and expand tree plantation in complementary and integrated manner with crops and livestock to improve productivity To ensure availability of quality planting material like seeds, seedlings, clones, hybrids, improved varieties, etc. To popularise various Agroforestry practices/ models suitable to different agro ecological regions and land use conditions. To create database, information and knowledge support in the area of agroforestry.	Nursery Development for quality planting material Peripheral and Boundary Plantation Low Density Plantation on Farm Lands High Density Block Plantation Capacity Building & Trainings Demonstration of Agroforestry Models **Convergence with other schemes** Since trees as part of farming system are to be converged with Crops & Cropping system, therefore, to make SMAF a system approach; crop/cropping system/livestock development programmes like NFSM, RKVY, NMOOP, NMSA Neeranchal project is being implemented in selected districts of nine states. Convergence of the project interventions will be ensured while implementing the sub-mission in these districts. Hydro-geologic tools and decision support system of Neeranchal project will be used in the planning process.	Dept. Of Agriculture & Cooperation State Level Nodal Agency	

National Bamboo Mission (NBM) ***Objectives*** To increase the area under bamboo plantation in non forest Government and private lands To improve post-harvest management through establishment of innovative primary processing units To promote product development keeping in view market demand To rejuvenate the under developed bamboo industry in India. To promote skill development, capacity building, awareness generation for development of bamboo sector from production to market demand. To realign efforts so as to reduce dependency on import of bamboo and bamboo products	Nurseries (Hi-tech Nurseries, Big nurseries, Small nurseries) Raising New Plantations Extension, Education and Skill Development Micro-Irrigation Post-harvest storage and treatment facilities Promotion and Development of Infrastructure for Bamboo Market Bamboo Market Research Production, Development &Processing **Convergence** Department of Agriculture Cooperation and Farmers Welfare Ministry of Environment Forest and Climate Change Ministry of Micro, Small and Medium Enterprises Ministry of Development of North East Region Ministry of Rural Development Ministry of New and Renewable Energy Ministry of Commerce and Industry	Mission Director, NBM District Level Agency (District level officer)	
National Watershed Development Project for Rainfed Areas (NWDPRA) ***Objectives*** Conservation, development and sustainable management of natural resources. Enhancement of agricultural production and productivity in a sustainable manner. Restoration of ecological balance in the degraded and fragile rainfed ecosystems by greening these areas through appropriate mix of trees, shrubs and grasses. Reduction in regional disparity between irrigated and rainfed areas and; Creation of sustained employment opportunities for the rural community including the landless.	Treatment of non-arable lands for soil and moisture conservation and biomass production through afforestation, horticulture and pasture development. Treatment of arable lands for better in-situ soil and moisture conservation and to enhance production through cost effective, sustainable and replicable cropping techniques with minimum infrastructure and soil conservation measures. Adoption of alternate land use to prevent ploughing of steep slopes and thereby reducing runoff and soil erosion by taking up horticulture, silviculture and silvipasture. Development of water resources and improve recharge of underground aquifers.	District Collector or Chairman District Watershed Committee	The cost norm of Rs. 4500 per ha for lands with less than 8 % slope and Rs.6000 per hectare for lands with 8% or more slope, a uniform cost norm of Rs.12000 per hectare

Command Area Development and Water Management Programme (CADWM) ***Objectives*** Bridging the gap between the irrigation potential created and utilized Improving the water use efficiency in canal irrigated areas. Ensuring equity distribution of irrigation water from head reach to tail end Ensuring Participatory Irrigation Management	Construction of field channels. Rotational Water Supply Works Construction of Field drains Correction of System Deficiencies Formation of Farmers' Associations at sluice level, farmers' council at distributory level and farmers' federation at project level		
Mission for Integrated Development of Horticulture Objectives Promote holistic growth of horticulture sector, including bamboo and coconut through area based regionally differentiated strategies Encourage aggregation of farmers into farmer groups like FIGs/FPOs and FPCs to bring economy of scale and scope. Enhance horticulture production, augment farmers, income and strengthen nutritional security Improve productivity by way of quality germplasm, planting material. Support skill development and create employment generation opportunities	Adopt an end-to-end holistic approach covering pre-production, production, post harvest management Promote R&D technologies for cultivation, production, post-harvest management and processing Improve productivity by way of quality through: i. Diversification, from traditional crops to plantations, orchards, vineyards, flowers, vegetable gardens and bamboo plantations. ii. Extension of appropriate technology to farmers for high-tech horticulture iii. Increase of acreage of orchards and plantation crops Improve post-harvest management, processing for value addition and marketing infrastructure. Adopt a coordinated approach and promote partnership, convergence and synergy Promote FPOs and their tie up with Market Aggregators (MAs) and Financial Institutions (FIs) Support capacity-building and Human Resource Development at all levels	CEO, District Mission Committee	

Compensatory Afforestation Fund Management and Planning Authority (CAMPA) ***Objectives*** Promote afforestation and regeneration activities as a way of compensating for forest land diverted to non-forest uses. Lay down broad guidelines for State CAMPA. Facilitate scientific, technological and other assistance that may be required by State CAMPA. Make recommendations to State CAMPA based on a review of their plans and programmes. Provide a mechanism to State CAMPA to resolve issues of an inter-state or Centre-State character.	The Government of India's order prescribes that the money received towards NPV shall be used for conservation, protection, regeneration and management of existing natural forests and wildlife **Project Specific Activities** Compensatory Afforestation Site Specific Activities (Safety Zone Plantation, Fencing, Reclaimation, Soil and Moisture Conservation, Medicinal Plantation) Catchment Area Treatment **CONSOLIDATION & PROTECTION OF FORESTS** Survey and Demarcation of Forests Forest boundary consolidation through CPT Fire Protection **Conservation & Regeneration of Forests** Assisted Natural Regeneration (ANR) Promotion of regeneration through intensive protection Production of quality Planting materials Integrated plan for the conservation of biodiversity & ecology in coastal zone Assistance for protection, consolidation of leased forest area thereby encouraging natural regeneration Revitalisation of old defunct village forest committees **WILDLIFE PROTECTION & MANAGEMENT** Habitat improvement in Protected Areas Active approach of Habitat Management Preventive approach of habitat management Human – Animal Conflict mitigation measures		

National Medicinal Plant Board (NMPB) ***Objectives*** Promote in-situ conservation of medicinal plants Promote ex-situ conservation by supporting such programs in rural/ degraded forest/public/non-public/ institutional lands/urban Engage the Eco-Task Force mechanism for reversing habitat degradation of medicinal plants. Conservation & development of eco-systems with medicinal plants bio-diversity. Enhance community mobilization and facilitate sustainable livelihood systems Ensure Quality Assurance - Maintain Good Quality Gene Pool Sources of medicinal plants and aromatic plants having medicinal applications Good Agricultural Practices for Medicinal Plants. Information, Education and Communication Strengthen NMPB so as to more efficiently co-ordinate all matters related to medicinal plants Promote main streaming of medicinal plants in climate change mitigation strategies	Conservation of medicinal plants through Multi-Pronged Strategy (in-situ and ex-situ) Support to JFMCs/ Panchayats/ Van Panchayats/ BMCs/ SHGs Technology Development, Research and Quality Information, Education and Communication (IEC) Herbal Gardens Other Promotional activities Other Interventions Institutional Strengthening	CEO	
National Rural Livelihood Mission (NRLM) Objectives Mobilizing poor households into functionally effective SHGs and their federations Enhancing access to bank credit and financial, technical and marketing services Building capacities and skills for gainful and sustainable livelihoods development Converging various schemes for efficient delivery of social and economic support services to poor households	Through Mahila Kisan Sashaktikaran Pariyojana **(MKSP)**, is promoting and facilitating scaling-up successful, small-scale projects that enhance women's participation and productivity in agriculture and allied activities. Its key elements include – Focus on inclusion of the poorest of poor Community Managed Environmentally Sustainable Agriculture practices. Support to various strategies and ways of reducing drudgery of MahilaKisans. Supporting institutions around agriculture and allied activities to strengthen livelihoods of the poor. Developing a wide pool of community practitioners (CRPs) to ensure participatory service delivery and country wide scale up of best practises.		

13 Role of Panchayats in Conservation of Biological Diversity

13.1 Introduction

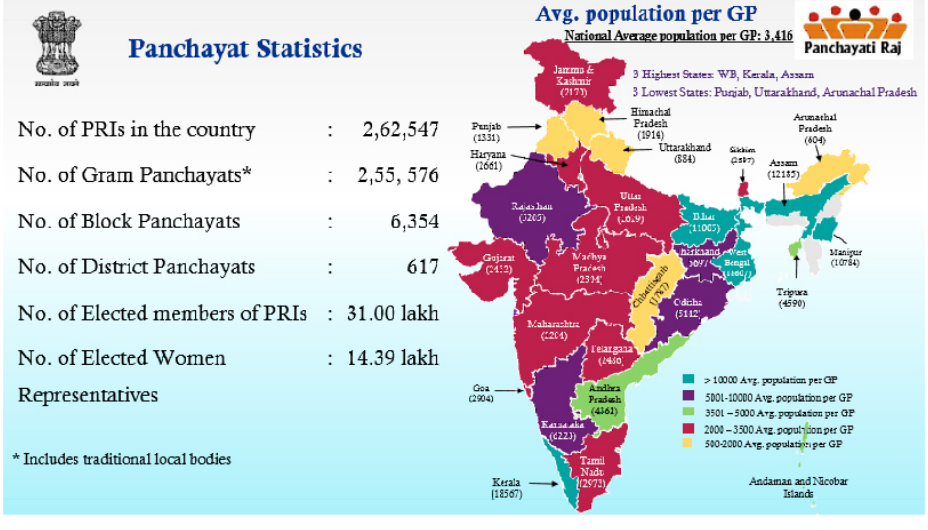
The Panchayati Raj system in India gives the local people the opportunity to directly participate in governance. People can directly participate in the Gram Sabha and the elected representatives of a Panchayat are directly accountable to the people. In other words, we can say that Panchayati Raj is the grassroots unit of local self-government. They have been perceived as vehicle of socio-economic transformation for rural areas. The 73rd Amendment to the Constitution has made significant changes in the rural local governance scenario. The administrative set up of PRIs in the States generally consists of three tier viz., Gram Panchayats, Intermediate Panchayats (Block Panchayats) and District Panchayats (Zilla Panchayats). North Eastern states have special systems of governance covered under sixth schedule of the constitutions. Within the broad constitutional framework, States have enacted laws and formulated rules that define their structure and functions. Article 243G of the constitution (11th Schedule), stipulates that the respective state government is required to devolve such powers and authority to the Panchayati Raj Institutions (PRIs) so as to enable them to function as institutions of self-government.

India is land of biological and cultural diversity. It is one of the mega bio diverse countries of the world. It also is the home for a large number of tribal groups, pursing different kinds of nature based livelihoods. In addition, a large number of farming and fishing communities and nomadic groups posses traditional knowledge of varying degrees. The development of modern science like biotechnology and information science have increased the value of biodiversity and associated knowledge including traditional knowledge. The Convention on Biological Diversity (CBD) signed by 150 government leaders including India at the 1992 Rio Earth Summit has, key three objectives, the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources It is therefore very important to understand the growing importance of biodiversity, bio-resources and associated knowledge for sustainable development and the role of Panchayats, the local self-government, in conservation of biological diversity.

13.2 Panchayati Raj System

In India, the Local Governments are the third tier of Governments, the first two being the Central and State Governments. The local governments include both Rural Local Governments (Panchayati Raj Institutions) and Urban Local Governments (Municipalities). The term "Local Government" literally means management of the local affairs by the people of the locality. It is based on the principle that the local problems and needs can be solved by the people of the locality better than by central or state governments.

The 73rd Amendment to the Constitution has made significant changes in the rural local governance scenario. Article 243G of the constitution, read with the Eleventh Schedule, stipulates that the respective state government is required to devolve such powers and authority to the Panchayati Raj Institutions (PRIs) so as to enable them to function as institutions of self-government. The administrative set up of PRIs in the States generally consists of three tier viz., Gram Panchayats, Intermediate Panchayats (Block Panchayats) and District Panchayats (Zilla Panchayats).



(Source: Ministry of Panchayati Raj, Government of India, September 2018)

Fig 1. Panchayati Raj System – At a glance

In North East India, six States /Areas out of eight states are fully or partially exempted from the provisions of part IX of the Constitution of India and have their own form of District/ Territory level government and village level government. These are special systems of governance known as Autonomous District/Territorial Councils under the Sixth Schedule of the Constitution of India for 'Tribal Areas', Autonomous District Councils under the State act of Manipur for 'Hill Areas', Village Council and Village Development Boards in the State of Nagaland, Village Councils in the State of Mizoram in the other than the Sixth Schedule areas. The village level government under the Sixth Schedule areas is run by the statutorily constituted Village Councils/ Village Committee and non-statuary (traditional) village Councils/ VCDC. However, except for non-statutory village councils, all the institutions of government are empowered to carry out development planning on the subject assigned to them. The subjects assigned to the Councils/ Committee (District/ Village) are by and large same as listed in the eleventh schedule for the PRIs.

13.2.1 Powers and functions of Panchayati Raj Institutions (PRIs)

The jurisdiction of each institution is limited to a specific area. Within the broad constitutional framework, States have enacted laws and formulated rules that define their structure and functions. A PRI functions within the provisions of the statute which has created it. Majority of the state's Panchayati Raj Laws give diverse functions to PRIs. These functions of the PRIs can be broadly classified as Mandatory functions, General Functions and Sectoral Functions.

a) **Mandatory Functions:** Provision for operation and maintenance of civic facilities have traditionally been the key functions of local governments. The mandatory functions are those core or basic functions which a Gram Panchayats need to discharge as per the provisions of the Act. The mandatory functions are mostly Civic and regulatory functions. There is no other agency to perform these functions. The constitution mandates nodal role of Gram Panchayat to provide basic civil services at local level. These duties can be classified into (a) Public Health (b) Public Utilities. (c) Protection of Public Properties (d) Licenses & penults.

b) **General Functions:** In addition to civic and regulatory functions of the Gram Panchayats, the PRIs also carry out general functions planning, planning, execution and supervision of all developmental programmes. In case of Kerala State, 14 general functions even as boulders awareness against social evils, relief operations, responses mobilization, gathering of statistical data, creating legal awareness etc.

c) **Sectoral Functions:** The PRIs as democratically elected local governments have an important role in addressing the diverse socio economic needs of the rural community. Functions handled by various Govt. Line Departments in consultation approval of GP are known sectoral functions. These functions are usually known as agency function of GP as detailed under the schemes / programmes. The PRIs work for the holistic development of the villages in their jurisdiction. The Constitution envisages that Panchayats will plan and implement schemes for economic development and social justice in respect of 29 subjects listed in XI Schedule.

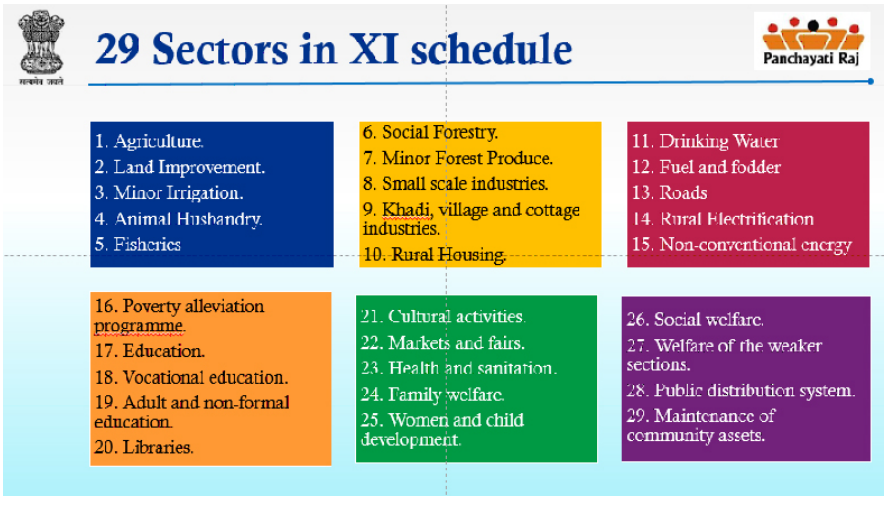


Fig 2. Subjects/sectors listed in the XIth Schedule

13.2.2 Standing Committees of Gram Panchayats

In every State a number of subjects have been devolved to the PRIs. It is not possible for the Panchayats to discuss all these subjects in the Gram Panchayat meetings. To give a focused attention to the subjects all the states, have formed subject-wise statutory committees of the Gram Panchayats. The meetings of the Gram Panchayat and its Statutory Committees are important for decision making. All the Elected Representatives of the Gram Panchayat with the help of its functionaries, collectively deal with various aspects of local development through such statutory committees. The meetings of these committees are required to be conducted in a participatory and democratic manner, so that views of all the members are heard and collective decisions are made in the interest of village. As per the draft Model Panchayat and Gram Swaraj Act (2009), every PRI has to constitute the following Standing Committees to perform its various functions:

1. Standing Committee for Finance
2. Standing Committee for Economic Development and Planning
3. Standing Committee for Welfare and Social Justice.
4. Standing Committee for Health, Nutrition, Sanitation and Drinking water.
5. Standing Committee for Education and Skill Development.
6. Standing Committee for Agriculture, Forestry, Watershed and Allied Activities

The PR Acts in different states have provision for constitution of standing committees. However, number and nomenclature of these committees vary across states. For example, in Andhra Pradesh, there are seven standing committees, while in Karnataka, there are only three committees at Block and Gram Panchayat levels and five committees at ZP level. The PRI Act in Bihar makes provision of six committees at Gram Panchayat level and seven Committees at block and district levels. Thus, there is no uniformity

in constitution among the states. However, these committees cover all the subjects entrusted to PRIs by the State governments.

13.2.3 The Biological Diversity (BD) Act, 2002

To conserve biological diversity, Government of India enacted "The Biological Diversity (BD) Act, 2002". (No. 18 of 2003). The Act extends to the whole of India and reaffirms the sovereign rights of the state over its biological resources. Biodiversity has been defined under Section 2(b) of the Act as "the variability among living organisms from all sources and the ecological complexes of which they are part, and includes diversity within species or between species and of eco-systems". The Act also defines Biological resources as "plants, animals and micro-organisms or parts thereof, their genetic material and by-products (excluding value added products) with actual or potential use or value, but does not include human genetic material.

The Biodiversity Act primarily addresses the issues related to access to genetic resources and associated knowledge and fair and equitable sharing of benefits arising from utilization of biological resources. The Act and the Rules are implemented in India through a decentralized three tier structure at the national, state and local levels as shown below. All of these institutions are statutory, autonomous bodies under the Biological Diversity Act.

13.3.1 Role of Panchayats in implementing Biodiversity Act

1) As per the provisions of the BD Act and Rules Biodiversity Management Committees (BMC) are constituted at Zilla Parishad, Block Panchayat and Gram Panchayat level. The BMCs are statutory bodies at local level and are responsible for promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity. The Panchayats have to ensure that the Biodiversity Management Committees BMCs are to be integrated with the functioning of Panchayats by regular coordination meetings, and other such measures as determined by the local bodies. The following are the roles and responsibilities of BMCs of Panchayats – Prepare People's Biodiversity Register (PBR)
2. Take steps for conservation and sustainable utilization of biological resources and Eco-restoration of the local biodiversity.
3. Provide feedback to the SBB and NBA in the matter of local biodiversity issues
4. Manage Biodiversity Heritage Sites including heritage trees, animals/ microorganisms, sacred groves and sacred water bodies.
5. Conserve traditional varieties/breeds of economically important plants/animals.
6. Build awareness on Biodiversity among the community.

13.3.2 Preparation of People's Biodiversity Register (PBR)

Documentation of knowledge of individuals with regard to biodiversity and its uses is an important part of PBR. Every effort should be made to identify the persons with proven knowledge of local biodiversity; special attention should be given to the elderly persons who can also provide information

on the biodiversity which was available in the past but no longer seen at present. In some cases focus group discussion may be held for the purpose of documentation. The PBR is a participatory process requiring intensive and extensive consultation with the people. The objectives and purpose is to be explained in a group meeting in the presence of all sections of people in the Panchayat, members of the BMC, students, knowledgeable individuals and all those interested in the effort. Documentation includes photographs (including digital images), drawings, audio and video recordings and other records like printed material.

The detailed process in PBR preparation, involving community in PBR preparation and its benefits have been discussed in Chapter 5.

13.4 Maintaining local Bio-diversity and Gram Panchayat Development Plan (GPDP)

Planning is the process of systematically finding the best ways to solve problems, or achieve some desired goals matching resources and needs. Article 243G of the Constitution of India provides for devolution of powers and functions to Panchayats, to enable them to function as institutions of self-governments. The Gram Panchayat Development Plan (GPDP) is the development plan of the Gram Panchayat which is prepared through a participatory process involving all stake holders matching peoples' needs and priorities with available resources.

The plan is prepared through a village wide survey using participatory Rural Appraisal (PRA) techniques done by the villagers themselves. Conscious efforts should be made so that activities taken up under GPDP should be environment friendly and bio-diversity enhancing. The Gram Panchayat therefore should necessarily take up maintenance and up-gradation of various ecosystems like water bodies, pastures, grass lands etc. The Gram Panchayat should plan towards conservation of biological resources. Considering the possible impact of climate change, the Gram Panchayat should strive to assess the impact and make ameliorative measures as part of GPDP. Additionally, actions related to environmental sustainability should capture the contributions of natural resources, including ecosystems and biodiversity to both economic and social securities of local communities. Formal mainstreaming of economic benefits of conservation and management of biodiversity will enhance the ability of Gram Panchayat to achieve sustainable development that is economically and socially viable.

The revised Guidelines for preparation of GPDP, released by MoPR in October 2018 with the guidance of NIRDPR, strongly emphasise on the inclusion of bio-diversity conservation related activities in the GPDP.

The key points suggested in the guidelines include -

1. Gram Panchayat Planning Facilitation Team (GPPFT) formed in every Gram Panchayat to facilitate GPDP preparation, may constitute 5 working groups (Human Development, Women & Child Development, Livelihoods Development, Social Justice & Social Security, Infrastructure & Miscellaneous). The Livelihoods Development working group will deal with agriculture and allied sectors, small medium and cottage industries, entrepreneurship, natural resource management including soil and water conservation, green cover and bio-diversity related issues.

2. Awareness camp on preservation of extinct varieties in agriculture for maintaining bio-diversity; Preparation and management of local bio-diversity registers by GPs

The PBR will help the Panchayats in proper management, conservation and sustainable use of biodiversity so that the future generation is also able to benefit from it. While planning for eco-restoration and management as part of formulating GPDP the Gram panchayat shall give higher priority to environment friendly and bio-diversity enhancing activities. The Gram Panchayat should focus on:

a) Protection of water bodies, aquifer management, water budgeting, water auditing, increasing soil fertility and soil health management, forests from pollution, encroachment and indiscriminate usage
b) Conservation of forest, afforestation of degraded forest, slopes, barren lands, public lands, public institution's compounds, roads etc.
c) Halting biodiversity loss and protect /prevent the extinction of threatened species
d) Establish norms for Community-based management / conservation and utilization of natural resources
e) Arrange for alternate livelihoods for labour engaged in resource extraction, coordination and convergence of eco-restoration programs.

13.5 Biodiversity and Climate Change

Biodiversity, and associated ecosystem services are the cornerstone of sustainable development. But the climate change is threatening entire ecosystems. Biodiversity also has a very important role to play in climate change mitigation and adaptation. The good management of ecosystems such as wetlands and forests etc. is an effective mitigation option. The conservation and sustainable use of biodiversity and the equitable sharing of the benefits from the use of genetic resources is critical for sustainable development and human wellbeing. The Panchayats have a role to play protect the ecosystems and keep the species healthy to allow natural adaptation so as to minimize the effect of climate change. The issues of climate change and biodiversity are interconnected, not only through climate change effects on biodiversity, but also through changes in biodiversity that affect climate change. Conservation and management strategies that maintain and restore biodiversity can be expected to reduce some of the negative impacts from climate change It is therefore important for the Panchayats from planning perspective to identify the :

1 Relevant tools, methodologies and best practices for assessing the impacts and vulnerabilities of biodiversity as a result of climate change
2 Potential biodiversity-related impacts and benefits of adaptation activities, in the vulnerable regions
3 Economic benefits of using ecosystem services for climate change adaptation and y minimizing adverse impacts ofclimate change on biodiversity.

13.5.1 What Panchayat can do to preserve and manage bio-diversity?

The following are the illustrative list of activities as to what a Gram Panchayat can do for protection and conservation of biological resources as part of planning process

Medicinal Plants

1 Create awareness regarding medicinal plants among people by listing the endangered and threatened plants and placing the name boards over the trees/ plants with uses.

2 Develop projects for storage and preservation of the seeds and other parts of the plant at one center.

3 Encourage work on cultivation and hybridization of these medicinal plants.

4 Develop gene banks to protect endangered plants on the brink of extinction.

5 Prepare an action plan regarding cultivation of endangered and threatened medicinal plants in restricted, protected lands.

6 Create a park exclusively of medicinal plants close to the village and educate people who visit that park.

Crop fields and Orchards

1 Identity the pests and diseases of crops and orchards and plan for effective and environment friendly control measures for sustainability of agriculture.

2 Gather information on nutrient/ micronutrient status of soils and promote composting/ permaculture to reduce chemical input.

3 Promote on-field conservation measures and maintain indigenous crops and varieties

4 Promote positive role of non-cultivated plants and animals associated with agro-ecosystem e.g. weeds serving as leafy vegetables; fish and crabs etc

5 Take action for protection of crops against pollution e.g. from Cement factories by generating good evidence.

6 Develop a database on pests and diseases to fulfill requirements of international conventions pertaining to export of agricultural commodities.

7 Explore possibilities of introducing / reintroducing multiple cropping systems.

Tree plantations

1 Information may be generated to suggest alternative sets of species of fuel, fodder, fencing, fruits, mulch, nectar source, bio-cosmetic, structural material or other values.

2 Monitor market prices available at various major markets for future planning.

3 Monitor and generate information on pollution threats such as from spraying of Endosulfon on cashew plantations.

4 Maintain, restore and add value to trees associated with Agriculture such as Neem, Bamboo etc

5 Plan Agro-forestry activities

6 Promote planting of a variety of indigenous evergreen trees along roads and highways

7 Establish nurseries consisting of local species and wide spread planning of native trees for food, fodder and manure

8 Establish buffer zones by planting drought resistant trees along the deserts, leafy trees on hill tops for wind breaks and along the banks of water bodies, streams and rivers

Forest and Minor Forest Produce

1 Ensure conservation of forest, afforestation of degraded forest

2 Promote provision of goods and services from forest lands to rural economy, encourage maintenance of watershed services

3 Work out methods and schedules of sustainable

harvests of minor forest produce.

4 Promote value addition to minor forest produce.

5 Record and check destructive harvests by community members as well as outsiders and establish proper links to Joint Forest Management

6 Promote traditional conservation practices like protection to sacred groves, trees and animals.

Promote measures to control forest fires.

Grasslands

1 Promote maintenance of grasslands and devise methods and schedules of sustainable use of grazing resources.

2 Promote planting of fodder trees, control of weeds on grassland.

3 Record and appropriately regulate grazing pressure by outsiders and nomadic herders.

4 Organize grazing regimes so as not to exceed the carrying capacity of grasslands

5 Promote conservation measures for birds and other wildlife of grassland ecosystems.

Ponds, lakes, streams and rivers

1. Promote maintenance of natural biological communities in water bodies.

2. Promote maintenance of ponds, lakes, streams and rivers supporting natural communities in urban areas for their recreational value.

3. Protect water-bodies from encroachments, reduction of water inflow from catchments.

4 Promote eradication of alien invasive species like water hyacinth and African catfish from water-bodies.

5 Organize effective pollution monitoring using more accessible bio-indicators such as chironomids.

6 Promote traditional conservation practices like protection to sacred ponds, fish and heronries.

7 Promote sustainable fishing practices such as protection to fish migrating upstream for spawning.

8 Promote traditional conservation practices like protection to sacred stretches of rivers, fish and dolphins.

9 Document and regulate destructive fishing practices such as use of dynamite and pesticides.

10 Construction of check-dams and contour bunds in catchments and forge proper links to Watershed programmes.

11 Identify polluting sources with respect to water bodies and develop remedial measures

Drinking Water

1 Facilitating planning and appropriate implementation of water supply schemes

2 Ensuring compliance with local Environmental Safeguard Measures

3 Surveillance of water bodies

4 Safeguarding water bodies and monitoring of water quality

5 Promoting water use efficiency by rationalization of water use

6 Promoting water use rationalization by selecting appropriate cropping pattern and irrigation methods

7 Regulating water extraction based on demand-yield match

8 Promoting modern agriculture and water use technologies

Habitation

1 Create awareness about the concept of sustainable eco systems

2 Develop understanding about need for eco restoration in the village

3 Plan for sustainable eco systems by mainstreaming by mapping to relevant SDG Goals

4 Promote traditional conservation practices like protection to sacred trees and animals.

5 Promote biodiversity rich natural communities in parks and open spaces around habitations.

6 Promote cultivation of nutritious plants such as leafy vegetables and kitchen gardens.

7 Promote technique of roof-top gardening in urban areas.

8 Make resource-sharing (sand and water) arrangements with scientific water-use pattern

9 Plan alternate livelihoods for labour engaged in resource extraction

10 Coordinate for convergence of eco-restoration programmes

11 Develop of wild corridors/buffer zones, appropriate fencing etc. to minimize man animal conflicts

Public health

1 Monitor populations of vectors of human diseases and devise newer methods of control as the older chemical methods are proving ineffective.

2 Monitor microbial pollution of water sources and devise ways of provision of safer drinking water.

Animal husbandry

1. Promote on-field conservation measures for land races of domesticated animals, e.g. ducks, fowls, livestock, donkeys, pigs, camel, yak, mithun etc.
2. Conserve the knowledge of traditional remedies for livestock diseases and promote their continued application where appropriate.
3. Halt biodiversity loss, protect and prevent the extinction of threatened species.

13.6 Success stories

13.6.1 Hiware Bazar Gram Panchayat, Ahmednagar, Maharashtra

Hiware Bazar Gram Panchayat in Ahmednagar District of Maharashtra receives very low annual rainfall ranging from 300 to 500 mm. Despite low rainfall and no external source of irrigation, the GP is now a prosperous village with agriculture and animal husbandry being the main source of livelihoods. The GP used a collaborative and community driven approach involving the elected representatives including Sarpanch, government officials and community members to find solutions to the water crisis and other issues and concerns of the village. Active community participation and interdepartmental convergence helped the GP to overcome hindrances to achieve its goal. The GP through its various interventions aimed at water budgeting and focused on changing cropping pattern as crucial as water conservation. Understanding the context and physical features of the topography is crucial to address the water situation of a particular region. In Hiware Bazar, initially basalt soil was a hindrance to recharging underground water. Water conservation work started with contour trenching. Further, Gram Sabha passed a resolution in 1994 on banning tube well for irrigation and banned cropping of banana and sugarcane as they were water intensive crops. According to the resolution tube well

water can only be used for drinking purposes and not for irrigation of the land. The emphasis was not only on water conservation but also on water budgeting. Since 1995 onwards, students of class five to eight undertook water budgeting every year and cropping is done as per availability of water. The choice of plantation and crop harvesting is dependent upon the water received annually. The village cultivates a mix of Kharif, Rabi and seasonal crop in each year in accordance with the availability of water. GP also passed resolution on banning open grazing in reserved green cover area and all villagers follow this. Due to this there is good green cover near the village. As a result, currently in Hiware Bazar is showing prosperity. There is no family below poverty line in this GP area. Forty families who had migrated out of village later returned and are now living happily in the village as a result of the development of the village. This has been on account of the agreement in the community that the whole community will follow the decisions and resolution passed in the Gram Sabha. Hiware Bazar experience shows that as an institution of decentralised governance, the role of the GP is crucial in water conservation and it is their responsibility to ensure providing safe drinking water to its citizen.

(Source: Guidelines for preparation of GPDP 2018-MoPR)

13.6.2 Karnataka Biodiversity Strategy and Action Plan exercise

An exercise by the Karnataka Planning Board showed that of the 300 species of medicinal plants used commercially in Karnataka, some limited information on status was available for only 27 of the most common species such as amla (Phyllanthus emblica) and shikekai (Acacia concina). This led to an experiment of involving high school students at looking at medicinal plant resources in their own localities as a part of the Karnataka Biodiversity Strategy and Action Plan exercise. The outcome was that students from 42 high schools collected data on the levels and recent trends in local abundance for 172 out of these 300 medicinal plant species. Such information, collected through PBR exercises would be of value at the state and national level in deciding on conservation and sustainable use strategies. At the same time, information on countrywide status, various products derived, pertinent technologies and prevalent market prices, would help local BMCs decide on total protection to certain species, devise sustainable harvest regimes for others, fix appropriate collection charges, organize value addition activities and work out good marketing strategies

(Source: Ecology is for the People: A Methodology Manual for People's Biodiversity Register_ Centre for Ecological Sciences IIS Bangalore and Agharkar Research Institute, Pune)

13.6.3 Tripura Biodiversity Board – Convergence approach leading to success

Some of the innovative initiatives undertaken by Tripuru Biodiversity Board, in their state have shown visible impacts in recent years, which include- linking village Development Plans with PBRs, dovetailing PBR and Conservation Education programmes with IGDC based Community Conserve Areas, strengthening management at local levels, promoting eco-tourism, restoring wetlands & riparian areas, collaborating with State Medicinal Plants Board for traditional knowledge documentation on local

healers/vaidyas etc., converging with Tripura Science & Technology and State Pollution Control Board for engaging Eco-clubs for PBRs and completion of BMCs in all the Blocks. Other innovative initiatives to create awareness among community include - short documentary on PBR, Eco-Tourism, painting competition in schools, preparation of Coffee table books on the species identified during inventorization of BD component. Creation of Butterfly Park at Trishna Wildlife Sanctuary etc.. The BMC and Gram Panchayats/Village Committees in the ADC areas have been interlinked by making Chairperson of GP/VC as the Chairperson of all the BMCs and Panchayat Secretary of the GP/VC as member secretary of all the BMCs constituted so far. This has helped in mainstreaming GP/VC based development planning with the needs and requirements towards biodiversity conservation to fulfil mandate of the BMCs.

Annex 1

Guidelines for selection and management of the Biodiversity Heritage Sites

1. Introduction

Under Section 37 of Biological Diversity Act, 2002 (BDA) the State Government in consultation with local bodies may notify in the official gazette, areas of biodiversity importance as Biodiversity Heritage Sites (BHS).

Under sub section (2) of Section 37, the State Government in consultation with the Central Government may frame rules for the management and conservation of BHS.

Under sub section (3) of Section 37, the State Governments shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.

Considering the above provisions of the Act, the National Biodiversity Authority (NBA) hereby issues the following guidelines for selection and management of the BHS.

2. Significance and objectives of Biodiversity Heritage sites

a. Biodiversity is closely linked to ecological security and therefore, human welfare. To strengthen the biodiversity conservation in traditionally managed areas and to stem the rapid loss of biodiversity in intensively managed areas, such areas need special attention.

b. Such areas also often represent a positive interface between nature, culture, society, and technologies, such that both conservation and livelihood security are or can be achieved, and positive links between wild and domesticated biodiversity are enhanced.

c. To have a BHS in or around a community should be a matter of pride and honour to such community and this virtuous act of community may work as an example to the entire nation apart from ensuring availability of the resources to their own future generation. The areas like existing sacred grooves in general and those existing in Western Ghats in particular can be straight away be declared and notified as BHS.

d. It is necessary to instil and nurture conservation ethics in all sections of the society. The creation of BHS will ensure bringing home these values in the society and thereby put an end to over-exploitation of natural resources and avoid environmental degradation.

e. The creation of BHS may not put any restriction on the prevailing practices and usages of the local communities, other than those voluntarily decided by them. The purpose is to enhance the quality of life of the local communities through this conservation measure.

3. Definitions

“Biodiversity Heritage Sites” (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or

more of the following components: richness of wild as well as domesticated species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/ cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

All other terms used are as defined in Section 2 of the Biological Diversity Act (2002)

4. The criteria for identification of BHS

The BHS may be identified in accordance with the definition in (2) above. Accordingly areas having any of the following characteristics may qualify for inclusion as BHS.

a. Areas that contain a mosaic of natural, semi-natural, and man-made habitats, which together contain a significant diversity of life forms.
b. Areas that contain significant domesticated biodiversity component and/orrepresentative agro-ecosystems with ongoing agricultural practices that sustain this diversity.
c. Areas that are significant from a biodiversity point of view as also are important cultural spaces such as sacred groves/trees and sites, or other large community conserved areas.
d. Areas including very small ones that offer refuge or corridors for threatened and endemic fauna and flora, such as community conserved areas or urban greens and wetlands.
e. All kinds of legal land uses whether government, community or private land could be considered under the above categories.
f. As far as possible those sites may be considered which are not covered under Protected Area network under the Wildlife Protection Act 1972 as amended.
g. Areas that provide habitats, aquatic or terrestrial, for seasonal migrant species for feeding and breeding.
h. Areas that are maintained as preservation plots by the research wing of Forest department.
i. Medicinal Plant Conservation Areas.

5. Identification and Declaration of Biodiversity Heritage Sites

State Biodiversity Boards (SBB) may invite suggestion (or consider those already coming from communities) for declaration of BHSs, through BMCs and other relevant community institutions including gram sabhas, panchayats, urban wards, forest protection committees, tribal councils. SBB may undertake widespread dissemination of information related to the proposed BHS among rural communities, NGOs, farmer/fishermen/adivasi associations, urban groups, research institutions, government agencies, and other organizations, regarding the provision of BHSs, through locally appropriate means. These could include local language newspapers, radio, holding meetings with the communities, letters to line departments, gram panchayats, local bodies and others. The process may further be achieved through the following:

a. NGOs and community institutions (including Panchayat Raj institutions, ii. One or more NGOs/ institutes focusing on ecology / conservation (including conservation biologists familiar with the flora and fauna of the particular BHS).

b. Consolidation of the suggestions, by the SBBs, to come up with a list of areas which can be designated as the Biodiversity Heritage Sites; even while such consolidation is ongoing, suggestions and applications for individual BHSs to be considered as and when they are made.

c. Public discussions amongst the local bodies, gram sabhas, urban ward committees, and other relevant local institutions, regarding concrete proposals for declaring BHSs, in their area, including the implications such as possible restrictions on resource use; a full attempt to be made to bring on board various sections of society with gender and social representation, in such discussions.

d. Once approved by the relevant gram sabhas or urban local bodies, SBB to move for issuing a preliminary notification specifying the boundaries of the BHS, which may require some prior surveying and mapping, and specifying also restrictions if any that may be required for management of the BHS, this to be published in the local media inviting suggestions and objections from the interested parties/ stakeholders, particularly in case of lands owned by communities and individuals.

e. Based on the suggestions and objections raised, a team may be constituted by the BMCs/other relevant local institutions/SBB in consultation with the local bodies for conducting studies to gain a clear understanding of the BHS. The team would include the following members (not exceeding 12 individuals) with one member preferably from the local community/ies selected to head the team:

   i. Knowledgeable or experienced women & men representing all socio-economic groups of the concerned communities, nominated by the relevant rural/urban local bodies.

   ii. One or more NGOs/institutes focusing on ecology / conservation (including conservation biologists familiar with the flora and fauna of the particular BHS).

   iii. One or more NGOs/institutes working on social (gender, livelihood, etc) issues.

   iv. One or more NGOs/institutes focusing on agriculture.

   v. Research wing of the agriculture, forest or other relevant department (where appropriate and possible).

   vi. Representatives of Botany and Zoology departments of nearest College/University.

f. The above team will conduct a study (over a period of 3 to 6 months) in consultation with the concerned community irrespective of occupation, gender or social strata. Such consultations should inevitably include groups such as forest dwellers, farmers, coastal and pastoral community(ies) and / or other relevant occupations. The study on the following aspects needs to be carried out with the use of community-based PBRs/ PRA, participatory mapping, and other possible tools that are considered appropriate by the concerned communities. All state departments are to ensure that they cooperate in this exercise through the provision of relevant information, maps, and other documents that would enhance the productivity of the exercise. The study may include:-

   I. History of land/waterbodies ownership/ rights, including Common Property Resources (CPRs), administrative control, andland and resource use.

II. Current status of land ownership, tenurial status of and access/rights to CPRs, disputed claims over land/ forests, if any, land and resource use pattern (including biodiversity-based livelihoods), legal and administrative control, rights and responsibilities.

III. Community composition, character, socio-economic and gender differentiated dependence on the resources, socio-economic and demographic profile.

IV. Existing institutions, their characteristics, rules and regulations governing natural resources, and access to decision making by marginalized sections including women.

V. Ecological profile of the area, critical wildlife and agricultural biodiversity values, and threats and pressures to the biological diversity, if any.

VI. Use of the area as the corridor or refugia for the wild animals or any other use for the wildlife.

VII. Cultural (including agricultural) practices followed by the communities affecting the biodiversity (whether positively or negatively).

VIII. Scope of livelihood generation (including from resource use, community-based ecotourism, etc) in the area.

IX. impacts of restrictions, if any, on people and on the biodiversity

g) Report of the study may be submitted by the team to the BMCs or other relevant local institutions linked to the local bodies in case BMC does not exist, which before submitting it to the SBB may disseminate the findings of the team (in local languages), along with the proposal for declaring the BHS, to the concerned communities and to all stakeholders.

h) SBB shall review the document submitted by BHS survey group or BMCs or other relevant local institutions linked to the local bodies in case BMC does not exist within a period of 3 months, including feedback if any to the relevant community.

i) Final decision on the proposal may be made by the SBB in a joint sitting of all stakeholders, at the proposed site.

j) Draft notification and announcement for declaring the BHS may be made at the state level in an appropriate manner giving it wide media coverage particularly in the local language.

k) After 30 days of the draft notification of the BHS, the BMC or other relevant local institutions linked to the local bodies in case BMC does not exist along with the Local bodies may conduct a Public Hearing where all details about the BHS should be placed and the comments received from the public recorded and, attempts made to remove aspersions, if any, that they may have on the consequences of declaring the area as BHS. The local community should be taken to confidence assuring that by declaring the BHS their traditional rights and privileges will not be affected.

l) On declaration of the BHS, the SBB may write to all the concerned Government departments announcing the establishment of the BHS.

m) While the above process is desirable in all situations, it should be noted that in many situations communities may not be in a position to follow them in view of the urgency for declaration as a BHS to ward off a threat, or for

other reasons. In some cases proposals may be coming from a community that has already a proven track record of conservation, and urgently requires the BHS status to consolidate its position. In such situations, the requirement for these detailed studies may be waived for the purpose of the notification, but should be applied subsequent to the notification and no relocations and restrictions to access will be declared till then other than what the community is already imposing upon itself.

6. Management of BHS

a. The Biodiversity Management Committee or other appropriate institution as determined by relevant local body in the absence of BMCs, which in addition to their duties defined in the Act, may also take care of the management of each BHS. Wherever the BHS extends to more than one local bodies, the management of the BHS shall be the responsibility of the Biodiversity Heritage Site Management Committee constituted by the BMC or other relevant local institutions linked to the local bodies in case BMC does not exist, and approved by the SBB.

b. The committee responsible for the management of the BHS may include representatives of all sections of local communities, and in particular those most dependent on the natural resources as also those who have been traditionally conserving the area.

c. It may be the responsibility of the BMC/ BHS Management Committee to prepare and implement a management plan for the BHS which should cover a period of five to ten years.

d. SBBs will then recognize and facilitate the implementation of the final management plan. Such facilitation may include directions to all relevant government departments to assist the communities in implementation, including through appropriate changes in their plans and schemes, to eliminate biodiversity-damaging practices and to fully enable and empower the communities in conserving biodiversity. Where necessary orientation programmes may be organized for such departments and NGOs.

e. SBBs and concerned government departments will also facilitate the regeneration or revival of degraded or lost ecosystems and taxa, including the reintroduction of threatened/locally extinct wildlife where feasible, and the repatriation of lost/declining domesticated biodiversity from ex-situ collections.

f. Wherever there are existing conservation related management practices serving the purpose of the BHS may be documented and considered as the BHS Management Plan.

g. Any project/activity to be implemented by government or any other agency, which is likely to have adverse impact on the BHS may be avoided.

h. Generally no restriction is likely to be placed on the community on the existing utilization of resources from the proposed BHS.

i. Restriction in form of regulating the use of the resources may be warranted in some cases and such restriction may be totally voluntary on the part of community.

j. The management structure and utilization of resources for BHS notified on Government forest areas and other government owned areas will be determined by the concerned departments of the State Government.

7. Components of the management plan of BHS

a) A map of the BHS with clear administrative boundaries as notified.

b) The status of ownership

c) The current land-use pattern, conservation related practices and beliefs, and the dependence of local communities

d) Major biodiversity in the area and their status as endemic, threatened, endangered or vulnerable

e) Whether a waterfowl refuge during winter, breeding place for water birds or corridor for any wild animals

f) The type and quantum of resources being used by the local community and their role/ importance in the domestic economy as also the average income from them in situations where they are marketed.

g) Any shift in the pattern of utilisation during the past 10 years. If so the reason for the same.

h) Authentic data on the flora, fauna and natural resources in the area

i) Details of projects, if any, in the area under any government/ international schemes.

j) The suggestions, if any, from the local communities for the improved conservation of biodiversity, and the betterment of the livelihood by using natural resources.

k) Threats, present and potential if any, to the BHS.

l) Management prescription separately for conservation and, sustainable use of bio-resources to enhance the livelihood of the local community

m) A rough projection of the expected outcomes of setting up the BHS, including ecological and social/economic (including, where relevant)

n) Estimate of the income expected of on completion of the project).

o) Estimated time frame for completion of each component of the plan, and rough indicators to judge success of each component.

p) The above process of management planning must not be one that constrains the wide variety of ways in which communities conserve and manage natural resources. It should also not be considered absolutely necessary to formulate a management plan, if the community has other adequate means of sustaining the effort and if thereby, conservation and sustainable management is taking place. In many situations also, communities may not be in a position to immediately or quickly formulate such a plan, which should not be a reason for not accepting their site as a BHS.

q) The SBB on receipt of the Management Plan may constitute an expert committee to evaluate the same, if necessary visit the BHS and hold consultations with the local communities and the local bodies and obtain their approval of the Management Plan. The Management Plan may also be integrated into the district level planning process, to enable optimum facilitation and funding by relevant government agencies.

r) On receipt of approved plan, the SBB may accept the same.

s) Management plan may be periodically reviewed and modified appropriately by the expert committee constituted by the SBB, based on the recommendations of the BMC or other relevant local institutions linked to the local bodies in case BMC does not exist, and accepted by the SBB. Such modifications shall be brought to the notice of all stakeholders before implementing the same.

8. Monitoring of BHS

a. There may be a State-level Monitoring Committee constituted by the SBB.

b. The State level Monitoring Committee may comprise the following chosen out of knowledgeable individuals in the field of conservation of wild and domesticated biodiversity, and related socio-economic aspects, from the following categories:

   i) The Member Secretary of the SBB, may act as Chairman of the monitoring committee and CEO, Zilla Parishad may act as Co-Chairman.

   ii) One representative of local community,

   iii) An expert having knowledge and experience in the field of forestry/wildlife/agro-biodiversity/ aquaculture management or in the area relevant to the particular BHS,

   iv) a member of the BMC/BHS management committee concerned or other relevant local institutions linked to the local bodies in case BMC does not exist

   v) a nominee of the Local body/Panchayat concerned vi) a representative from Revenue Department.

c. The State-level Monitoring Committee shall monitor the implementation of management plan periodically and submit a report to the SBB indicating clearly the extent (in qualitative and where possible Quantitative terms) of achievement under each component of the Management Plan and recommendations for improvement. This committee shall monitor the implementation of management plan periodically.

d. The tenure of the Monitoring Committee may be three years.

9. Budget

a. Once the BHS is notified by the State Government, the NBA may support the initial establishment of BHS financially by allocating adequate funding support as seed money through SBB. Simultaneously, the financial requirement of BHS may be included in the annual budget of the local body (ies). The State Government may also allocate adequate seed money to each BHS on its notification through SBB. The BMC or other institution which is managing BHS would be recognized as an authorized body to avail the financial assistance under all government schemes and other funding sources as legally permissible. The existing/new interest accruing saving account of BMC or other institution maintained in a nationalized bank or post office is authorized to receive all such amounts. The accounts maintained by the aforesaid institutions managing BHS shall be audited annually as per the rules and as done in case of Local bodies.

b. The SBBs shall keep the NBA informed of notification of creation/declaration of BHS in their states. The NBA through its expert committees may get the performance audit of the management of BHS done by BMCs/ other institutions/SBBs.

10. Miscellaneous

a. The SBBs may ensure adequate and sensitive public visibility of the BHSs through popular media, workshops, brochures etc., to ensure consideration of their importance and status.

The NBA may allocate fund as required to SBB only for undertaking aforesaid activities.

b. The NBA may organize one National level review meeting of all BHSs involving NGOs, BMCs/ other institutions managing, SBBs, officials of line departments, academic institutions, experts etc., annually and may submit the proceedings of the minutes to the Ministry of Environment and Forests, Government of India.

c. These are only model guidelines framed after consulting various experts to act as precursor for framing rules under the biodiversity Act by various State Governments with suitable modifications but are within the spirit and frame work of BD Act 2002.

d. The State Governments may notify the rules after consulting the Central Government through National Biodiversity Authority.

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पर्यावरण एवं वन मंत्रालय

अधिसूचना

नई दिल्ली, 17 नवम्बर, 2008

का.आ. 2708(अ).—केन्द्रीय सरकार, जैव विविधिता अधिनियम, 2002 (2003 का 18) की धारा 61 के खंड (क) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए नीचे दी गई सारणी के स्तम्भ (2) में विनिर्दिष्ट अधिकारियों को इस शर्त के अधीन उक्त स्तम्भ (3) की तत्स्थानी प्रविष्टि में प्रत्येक के सम्बंध में विनिर्दिष्ट अधिकारिता क्षेत्रों के भीतर उक्त अधिनियम के अधीन दंडनीय अपराधों के सम्बंध में शिकायत फाइल करने के लिए प्राधिकृत करती है कि केन्द्रीय सरकार ऐसे प्राधिकार का प्रतिसंहरण कर सके या उक्त धारा के अधीन शक्तियों का स्वयं प्रयोग कर सके, यदि उसकी राय में ऐसी कार्रवाई करना लोकहित में आवश्यक है, अर्थात् :–

सारणी

क्र. सं.	जैव विविधिता अधिनियम, 2002 की धारा 61 (क) के अधीन शिकायत फाइल करने के लिए प्राधिकृत अधिकारी	अधिकारिता क्षेत्र
(1)	(2)	(3)
1.	राष्ट्रीय जैव विविधिता प्राधिकरण के अधिकारी, जो वैज्ञानिक 'ग' के रैंक से नीचे न हो	सम्पूर्ण भारत
2.	राज्य जैव विविधिता प्राधिकरण के अधिकारी जो वैज्ञानिक 'ग' रैंक से नीचे न हो	सम्पूर्ण सम्बंधित राज्य
3.	पर्यावरण और वन मंत्रालय, भारत सरकार के क्षेत्रीय कार्यालयों के अधिकारी जो वैज्ञानिक 'ग' रैंक से नीचे न हो	सम्बंधित क्षेत्रीय कार्यालयों की क्षेत्राधिकारिता के अधीन सम्पूर्ण राज्य

[फा. सं. 28-14/2008-सीएस-III (एनबीए)]

ए. के. गोयल, संयुक्त सचिव

4617 GI/2008

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 17th November, 2008

S.O. 2708(E).—In exercise of the powers conferred by clause (a) of Section 61 of the Biological Diversity Act, 2002 (18 of 2003), the Central Government hereby authorises the officers specified in column (2) of the Table below, to file complaints with regard to offences punishable under the said Act, within the areas of jurisdiction specified against each in the corresponding entry in column (3) of the Table aforesaid, subject to the condition that the Central Government may revoke such authorisation or may itself exercise the powers under the said section, if in its opinion such a course of action is necessary in the public interest, namely :—

TABLE

Sl. No.	Officers authorised to file complaints under Section 61(a) of the Biological Diversity Act, 2002	Area of Jurisdiction
(1)	(2)	(3)
1.	Officers of the National Biodiversity Authority, not below the rank of Scientist 'C'	Whole of India
2.	Officers of the State Biodiversity Boards, not below the rank of Scientist 'C'	Whole of the concerned State
3.	Officers of the Regional Offices of the Ministry of Environment and Forests, Government of India, not below the rank of Scientist 'C'.	Whole of the States under the jurisdiction of the respective Regional Offices.

[F. No. 28-14/2008-CS-III (NBA)]

A. K. GOYAL, Jt. Secy.

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रजिस्ट्री सं० डी० एल०-33004/99

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भारत का राजपत्र
The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)

PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 68] नई दिल्ली, सोमवार, जनवरी 12, 2009/पौष 22, 1930

No. 68] NEW DELHI, MONDAY, JANUARY 12, 2009/PAUSA 22, 1930

पर्यावरण एवं वन मंत्रालय

अधिसूचना

नई दिल्ली, 7 जनवरी, 2009

का.आ. 120(अ).—जैव-विविधता अधिनियम, 2002 (2003 का 18) की धारा 61 के खण्ड (क) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केन्द्र सरकार एतद्द्वारा दिनांक 17 नवम्बर, 2008 की अधिसूचना संख्या का.आ. 2708 (अ) में आगे निम्नलिखित संशोधन करती है, नामतः :—

उपर्युक्त अधिसूचना में :—

तालिका में क्रम सं. 3, क्रम सं. 4 और उनके कॉलम सं. 2 और 3 में की गई अनुरूपी-प्रविष्टियों के बाद निम्नलिखित को अन्तः स्थापित किया जाएगा, नामतः :—

क्रम सं.	जैव विविधता अधिनियम, 2002 की धारा 61 (क) के अंतर्गत शिकायत दर्ज करने के लिए प्राधिकृत अधिकारी	अधिकार क्षेत्र
(1)	(2)	(3)
4.	वन अधिकारी जो रेंज ऑफिसर के रैंक से कम न हों	उनके अपने-अपने अधिकार क्षेत्र में

[फा. सं. 28-14/2008-सीएस-III (एन बी ए)]

ए. के गोयल, संयुक्त सचिव

टिप्पणी : मूल अधिसूचना दिनांक 17 नवम्बर, 2008 की अधिसूचना सं. का.आ. 2708(अ) के तहत भारत के राजपत्र, असाधारण में प्रकाशित की गई थी ।

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 7th January, 2009

S.O. 120(E).—In exercise of the powers conferred by clause (a) of Section 61 of the Biological Diversity Act, 2002 (18 of 2003), the Central Government hereby make the following further amendments in the Notification No.S.O. 2708 (E), dated 17th November, 2008 namely :—

In the said Notification :—

In the TABLE, after Sl.No. 3, Sl.No. 4 and the corresponding entries in column No. 2 & 3 thereof, shall be inserted, namely :—

Sl.No.	Officer authorised to file complaints under Section 61 (a) of the Biological Diversity Act, 2002	Area of jurisdiction
(1)	(2)	(3)
4.	Forest Officers not below the rank of Range Officers	In their respective jurisdictions

[F. No. 28-14/2008-CS-III (NBA)]

A. K. GOYAL, Jt. Secy.

Note : The Principal Notification was published in the Gazette of India, Extraordinary *vide* Notification No. S.O. 2708 (E), dated 17th November, 2008.

155 GI/2009

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भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 1275] नई दिल्ली, बृहस्पतिवार, जून 18, 2015/ज्येष्ठ 28, 1937
No. 1275] NEW DELHI, THURSDAY, JUNE 18, 2015/JYAISTHA 28, 1937

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 10 जून, 2015

का.आ. 1633(अ).—केन्द्रीय सरकार, जैव विविधता अधिनियम, 2002 (2003 का 18) की धारा 61 के खंड (क) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (ii) में संख्यांक का.आ. 2708 (अ) तारीख 17 नवंबर, 2008 द्वारा प्रकाशित अधिसूचना का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :–

"क्रम सं.	जैव विविधता अधिनियम, 2002 की धारा 61(क) के अधीन परिवाद फाइल करने के लिए प्राधिकृत अधिकारी	अधिकारिता क्षेत्र
(1)	(2)	(3)
5.	सलाहकार (विधि), राष्ट्रीय जैव विविधता प्राधिकरण, चेन्नै	संपूर्ण भारत में,"।

[फा.सं. 28-14/2008-सीएस-III(एनबीए)]

अनिल संत, संयुक्त सचिव

टिप्पण : मूल अधिसूचना भारत के राजपत्र, असाधारण में अधिसूचना संख्यांक का.आ. 2708(अ), तारीख 17 नवंबर, 2008 द्वारा प्रकाशित की गई थी और संख्यांक का.आ. 120(अ) तारीख 7 जनवरी, 2009 द्वारा उसमें पश्चातवर्ती संशोधन किया गया था।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 10th June, 2015

S.O. 1633(E).—In exercise of the powers conferred by clause (a) of section 61 of the Biological Diversity Act, 2002 (18 of 2003), the Central Government hereby make the following further amendments in the Notification of the Government of India, Ministry of Environment, Forests & Climate Change, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii), vide number S.O. 2708 (E), dated the 17th November, 2008, namely:—

In the said Notification, in the TABLE, after serial number 4 and the corresponding entries relating thereto the following, shall be inserted, namely:—

Sl.No.	**Officer authorised to file complaints under Section 61(a) of the Biological Diversity Act, 2002**	**Area of Jurisdiction**
(1)	(2)	(3)
5.	Advisor (Law), National Biodiversity Authority, Chennai	Whole of India

[F. No. 28-14/2008-CS-III(NBA)]

ANIL SANT, Jt. Secy.

Note: The Principal Notification was published in the Gazette of India, Extraordinary vide Notification number S.O. 2708(E), dated the 17th November, 2008 and subsequently amended vide S.O. number 120(E), dated the 7th January, 2009.

About CEBPOL

Government of India in collaboration with the Norwegian Government has established "Centre for Biodiversity Policy and Law (CEBPOL)" at the National Biodiversity Authority (NBA), an autonomous and statutory body of the Ministry of Environment Forest and Climate Change towards strengthening of expertise in Biodiversity Policy and Law in India. This programme is executed by the NBA in collaboration with Norwegian Environment Agency through the Royal Norwegian Embassy, New Delhi, India.

The Centre aims to provide advice and support to the Government of India and Norway on Biodiversity Policy and Law related issues including complex negotiations on Access and Benefit Sharing and Traditional knowledge as well as governance issues relating to biodiversity at the National and International level. The Centre proposes to help NBA in the effective implementation of International agreements on conservation, sustainable use and the associated access and benefit sharing components of it.

CEBPOL is set up as a specialized Centre of Excellence in Biodiversity Policy and Law to network, organize and consolidate expertise on issues of Biodiversity Policy and Law in India and Norway. The Centre, located at NBA, would function as an independent think tank on Biodiversity Policy and Law. In addition, CEBPOL aims to contribute to the effective implementation of the Biological Diversity Act 2002 and Rules 2004.

Contact:

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Ministry of Environment
Forest and Climate Change
Government of India

Norwegian Embassy

NORWEGIAN ENVIRONMENT AGENCY