

Biological Diversity

Lesson 13

KEY CONCEPTS

■ Biopiracy ■ Genetic Resources ■ Germplasm ■ Biological resources ■ Research ■ Value added products ■ Biological resources ■ Bio-survey and Bio-utilisation ■ Commercial Utilisation ■ Sustainable Use ■ Benefit Claimer ■ Ex-situ Conservation ■ In-situ Conservation ■ Landrace ■ National Biodiversity Authority ■ State Biodiversity Board

Learning Objectives

To understand:

- The legal frame work provided for regulating the intellectual property right vested in biological diversity.
- Interconnection between IPR and Bio-diversity.
- Interrelationship between Bio Diversity and Traditional Knowledge.
- The international treaties and conventions to protect bio-diversity.

Lesson Outline

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| ➤ Introduction | ➤ People's Biodiversity Registers (PBR) |
| ➤ Bio-Diversity and its Significance | ➤ Ecological Diversity |
| ➤ IPR and Bio-Diversity | ➤ Genetic Diversity and Resources |
| ➤ Bio Diversity and Traditional Knowledge – Interrelation | ➤ Species Diversity |
| ➤ Bio Piracy | ➤ Impact on human beings (Access and Benefit-Sharing) |
| ➤ Biological Diversity Act, 2002 | ➤ International Biodiversity Agreements/ Instruments |
| ➤ National Biodiversity Authority | ➤ Case Studies/CaseLaws |
| ➤ State Biodiversity Board | ➤ Lesson Round-Up |
| ➤ Funds | ➤ Glossary |
| ➤ Duties of the Central and the State Governments | ➤ Test Yourself |
| ➤ Biodiversity Management Committees | ➤ List of Further Readings |
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| ➤ Processing of Application | |

INTRODUCTION

Intellectual Property Rights (IPR) encompass legal protections for data related to novel inventions. These rights grant owners the authority to prevent unauthorized commercialization of innovations or processes for a specified duration, in return for disclosing the underlying formula or strategy. Meanwhile, “biodiversity” denotes the variety of living organisms originating from various sources, along with their associated ecological components. This includes ecosystem diversity, genetic diversity, and species diversity, all of which contribute to enriching human lives and achieving developmental objectives. The relationship between these concepts is evident, as inventions and products often stem from resources found in biodiversity.

Biological diversity plays a vital role in supporting sustainable development. Given the irreversible nature of biodiversity loss, its conservation becomes imperative, especially considering the potential for global extinctions resulting from the loss of a single species in one region. The significance of biodiversity is underscored by its crucial role in food production and medicine development. Presently, 82% of plant species contribute to 90% of the country’s per capita food plant resources, and traditional medical systems are utilized by approximately 80% of the global population. Hence, safeguarding biodiversity is paramount.

Sustainable Development Goals

The Sustainable Development Goals, developed by United Nation Organisation are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. Preserving biodiversity is the need of the hour and have been made a part of its 17 Sustainable Development Goals.

Goal 13: Climate Action- Take urgent action to combat Climate Change and its impacts.

To limit global warming to 1.5°C above pre- industrial levels, emissions must already be decreasing and need to be cut by almost half by 2030

Goal 14: Conserve and sustainably use the oceans, seas and marine resources.

Marine pollution is reaching extreme levels, with over 17 million metric tons clogging the ocean in 2021, a figure set to double or triple by 2040. Plastic is the most harmful type of ocean pollution. Ocean act as the planet’s greatest carbon sink.

Goal 15: Life on Land- Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

BIO-DIVERSITY AND ITS SIGNIFICANCE

“From the air we breathe and the food we eat, to the energy that fuels us and the medicines that heal us, our lives are wholly dependent on healthy ecosystems,” UN Secretary-General António Guterres said in his message for International Day for Biological Diversity, concluding that we must end this war on nature.

The term “biodiversity” refers to the variety among living things that come from all sources and the ecological frameworks to which they belong. It also includes ecosystem diversity as well as inter- and intra-species diversity. Human life benefits from biodiversity, which also offers a viable route to accomplishing developmental objectives. Intellectual property rights are the means through which creators and the originals of inventions, ideas, goods, etc. are protected from being used for profit. Given that innovations and goods are created from the resources found in biodiversity, both of these ideas are highly interdependent. Biodiversity, short for biological diversity, encompasses the vast array of living organisms found on Earth, including plants, animals, microorganisms, and their interactions within ecosystems. It’s a cornerstone of life, providing essential ecosystem services that sustain human well-being and support all forms of life on our planet.

The significance of biodiversity cannot be overstated. Biodiversity is crucial because

- It ensures ecosystem stability and resilience. Diverse ecosystems are better able to adapt to environmental changes, thereby reducing the risk of collapse and promoting overall ecological health.
- It provides food security and agriculture. Many crops rely on diverse ecosystems for pollination, pest control, and soil fertility, all of which contribute to higher yields and healthier crops.
- Wild relatives of domesticated plants often contain valuable genetic traits that can be used to improve crop varieties, making them more resistant to pests, diseases, and changing environmental conditions.

In simple terms, the diversity among various life forms within the Biosphere refers to biodiversity. Biodiversity is the foundation of life on Earth. It is crucial for the functioning of ecosystems which provide us with products and services without which we cannot live. By changing biodiversity, we strongly affect human well-being and the well-being of every other living creature. Biodiversity is normally classified under 3 major categories:

- a) Ecosystem diversity, representing the principal bio geographic regions and habitats;
- b) Species diversity, representing variability at the level of families, genera and species; and
- c) Genetic diversity, representing the large amount of variability occurring within a species.

Many indigenous cultures have deep connections to the natural world and rely on biodiversity for their cultural identity and traditional knowledge systems.

Biological- Diversity Act, 2002 defines “biological diversity or biodiversity” 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. [Section 2(b)]

IPR AND BIODIVERSITY

IPR protects products made with specific raw materials found in the biodiversity system, like the expensive decor made with Kashmiri wood from a particular species of teak tree found in the Kashmir region, as well as products that are directly derived from traditional wisdom, like the use of Malabar Pepper as medicine. IPR serves these two purposes in relation to biodiversity. The geographical indicators system established by intellectual property law protects the latter. The growing demand for herbal and organic products in urban communities around the world today demonstrates the significance of goods generated either directly or indirectly from biodiversity outside of rural, tribal, and indigenous sectors.

In order to use high-quality seeds for agricultural production, the United Kingdom was the first nation to develop the use of biodiversity as a commodity. This eventually led to the sale of registered seeds as a company. As a result, Plant Breeder's Rights (PBR) were established, advancing the commercialization of genetic resources. Plant varieties or breeders' rights (PVRs/PBRs) give the holder of the right limited regulatory powers over the marketing of 'their' varieties. However, a 1991 amendment to the UPOV has tightened the monopolistic nature of PVRs/PBRs, and some countries have virtually eliminated the exemptions for farmers and breeders.

In 1930, the US Plant Patent Act was passed, which accorded IPRs to asexually reproduced plant varieties. Until in 1961, an International Convention for the Protection of New Varieties of Plants was signed. In 1972, the US Supreme Court recognized microbiologist Ananda Chakrabarty's patent claim for a genetically engineered bacterial strain. This legitimized the view that anything made by humans and not found in nature was patentable. Genetically altered animals, such as the infamous 'onco-mouse' of Harvard University (bred for cancer research), were also soon accorded patents. Finally, several patent claims have been made, and some granted, on human genetic material, including material that has hardly been altered from its natural state.

Until very recently, these plant rights were only recognized in some countries, and they could not enforce these rights in other nations. However, this has changed with the signing of the TRIPs Agreement. TRIPs requires that all signatory countries accord

Impacts of IPRs on biodiversity

Impacts of IPRs on biodiversity are hard to assess. However, the following must be considered:

- Current IPR regimes have allowed industrial and commercial interests to appropriate the resources and knowledge of resource-rich but economically poor countries and communities, further impoverishing them and denying them the benefits of technological innovation;
- IPRs are likely to greatly intensify the trend of homogenization of agricultural production and medicinal plant use systems. In agriculture, for instance, any corporation that has spent enormous amounts of money obtaining an IPR would want to market its varieties in as large an area as possible. The result could be serious displacement of local diversity of crops (though of course IPRs would not be the only factor);
- Increasingly, species-wide IPRs (such as those for transgenic cotton and soybeans) could stifle even public sector and small-scale private sector crop variety development;
- Having to pay substantial royalties to industrial countries and corporations could greatly increase the debt burdens of many countries. This could further intensify the environmental and social disruption that is often caused when debt repayment measures are taken up, such as the export of natural products;
- Farmers who innovate on seeds through re-use, exchange with other farmers, and other means, would be increasingly discouraged from doing so if the tighter regimes that UPOV 1991 sanctions are imposed on their countries; these regimes would also increase the economic burden on farmers, further discouraging innovation;
- The ethical aspects of IPRs are serious, and to many communities and people the most important reasons for opposing current IPR regimes. The patenting of life forms is abhorrent to many traditional societies and modern conservationists because of the underlying assumption that nature exists apart from, and solely for the use of, humans. The privatisation of knowledge is also repugnant to many societies that hold knowledge to be largely, though by no means solely, in the public domain.

Facts-

India is listed as one of the world's 12 "mega diversity centres." India is regarded as the centre of origin for a variety of plant and animal species, with 167 crop species, 320 wild crop species, relatives, and numerous kinds of domesticated animals.

BIO DIVERSITY AND TRADITIONAL KNOWLEDGE – INTERRELATION

Biological resources and related traditional knowledge are often of great commercial value to business corporations in developing commercial products. Corporations often want to acquire IPRs related to biological resources and traditional knowledge as a way of maximizing their income generation.

What can be defined as biological resources?

According to Bio- Diversity Act, 2002 defines "biological resources". It include plants, animals, micro-organisms or parts of their genetic material and derivatives (excluding value added products), with actual or potential use or value for humanity, but does not include human genetic material; [Section 2(c)]

Value added products means products which may contain portions or extracts of plants and animals in unrecognizable and physically inseparable form. [Section 2(p)]

Traditional communities is a broad term that refers to communities whose way of life is largely shaped by generations of their ancestors. They are distinct from urban or fast-changing societies and lifestyles, maintaining

a shared body of cultural, environmental, economic and family customs that are based on traditional occupations, knowledge, values and social hierarchies. Traditional community livelihoods are usually based on natural resources. Traditional communities could include farming or fishing communities, forest-dwelling communities, indigenous people, nomadic communities, etc.

Traditional knowledge (TK) associated with biological resources is an intangible component of the resource itself. TK has the potential of being translated into commercial benefits by providing leads for development of useful products and processes. The valuable leads provided by TK save time, money and investment of modern biotech industry into any research and product development. Hence, a share of benefits must accrue to creators and holders of TK. Only new knowledge can be patented. Patents only apply to inventions, not to existing knowledge. But if knowledge is held only in oral form, then many IPR regimes, do not consider oral knowledge as proof of previous documentation and therefore such knowledge is in danger of being patented.

Significance of Traditional Knowledge

Traditional knowledge encompasses the wisdom, customs, and beliefs transmitted orally from one generation to another within specific communities. Typically associated with indigenous groups, it holds intrinsic value as a cornerstone of cultural identity. Several key facets underline its importance:

- (a) *Cultural Heritage Preservation:* Traditional knowledge forms an integral part of a community's cultural legacy, fostering a sense of identity and continuity. Its preservation ensures the safeguarding of cultural traditions for future generations.
- (b) *Sustainable Resource Management:* Embedded within traditional knowledge are practices and beliefs promoting the sustainable utilization of natural resources. Integrating such wisdom into contemporary resource management strategies can help ensure responsible resource use.
- (c) *Scientific Contributions:* Traditional knowledge has significantly enriched various scientific disciplines, including medicine, agriculture, and ecology. Many modern advancements in these fields draw upon traditional practices and insights.
- (d) *Diversity and Inclusivity Promotion:* Acknowledging the diverse contributions of different communities and cultures, traditional knowledge advocates for inclusivity. By honoring and embracing traditional wisdom, greater mutual understanding and respect among cultures can be fostered.

By recognizing the multifaceted significance of traditional knowledge and integrating it into contemporary practices, societies can cultivate a more sustainable, inclusive, and culturally enriched future.

Traditional knowledge plays an important role in the conservation of biodiversity and its traditional uses:

- Indian Systems of Medicine (Ayurveda, Siddha, Unani) are part of the official healthcare system in India, and depend on a diversity of biological resources and traditional knowledge.
- Farmers and livestock keepers have improved and nurtured diverse varieties of crops and domesticated animals over generations. This has been invaluable for food security and in providing clothing, healthcare and shelter.
- All over India local communities have independently conserved wild areas, including natural ecosystems, sometimes deemed to be sacred e.g. 'sacred groves', some thousands of years old, dedicated to a local deity.

BIOPIRACY

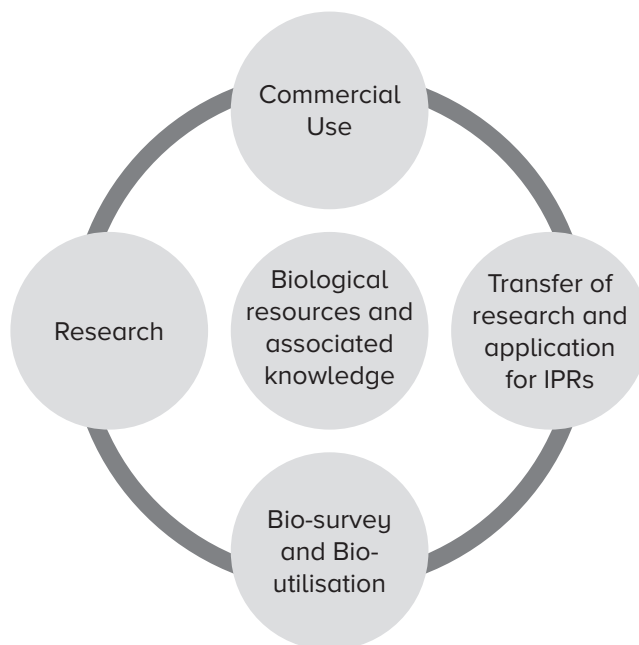
Biopiracy is a violation of the rights of traditional communities over their biological resources and related knowledge. The implications of biopiracy are economic as well as ethical: Obtaining IPRs usually patents or Plant Breeders Rights to gain monopoly control over biological resources, related traditional knowledge, or commercial products based on these resources or knowledge, without the consent of, or any benefits going to, the original holders of the resources/knowledge.

Bio-piracy poses significant and enduring adverse effects on biodiversity, with several noteworthy repercussions. They are:

- (a) *Loss of Biodiversity:* Bio-piracy often triggers the excessive exploitation of natural resources and the degradation of habitats, culminating in a decline in biodiversity. Such degradation profoundly affects ecosystems and the dependent species, leading to dire consequences.
- (b) *Disruption of Traditional Knowledge Systems:* The illicit appropriation of traditional knowledge from indigenous communities disrupts their cultural heritage and ecological wisdom. This disruption not only undermines their way of life but also erodes invaluable traditional knowledge crucial for sustainable coexistence with nature.
- (c) *Genetic Erosion:* Bio-piracy exacerbates genetic erosion by favoring the selective utilization of genetic resources beneficial for commercial ventures. This selective exploitation diminishes genetic diversity, compromising ecosystem resilience and rendering them susceptible to various threats like pests, diseases, and climatic fluctuations.
- (d) *Inequitable Distribution of Benefits:* Bio-piracy entails the unjust exploitation of genetic materials and associated traditional knowledge, devoid of consent or compensation to the source communities. Such exploitation fosters social injustices and economic disparities, further marginalizing vulnerable communities.
- (e) *Lack of Sustainability:* Biopiracy disregards the imperative of long-term sustainability, leading to the unchecked depletion of environmental resources. This shortsighted exploitation precipitates resource exhaustion and ecosystem collapse, engendering severe repercussions for both biodiversity and human welfare.

BIOLOGICAL DIVERSITY ACT, 2002

The Act covers conservation, use of biological resources and associated knowledge occurring in India for commercial or research purposes or for the purposes of bio-survey and bio-utilisation. It provides a framework for access to biological resources and sharing the benefits arising out of such access and use. The Act also includes in its ambit the transfer of research results and application for intellectual property rights (IPRs) relating to Indian biological resources.



It may be noted that-

“access” means collecting, procuring or possessing any biological resource occurring in or obtained from India or traditional knowledge associated thereto, for the purposes of research or bio-survey or commercial utilisation; [Section 2(a)]

“bio-survey and bio-utilisation” means survey or collection of species, subspecies, genes, components and extracts of biological resource for any purpose and includes characterisation, inventorisation and bioassay; [Section 2(d)]

“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; [Section 2(m)]

Certain persons not to undertake Biodiversity related activities without approval of National Biodiversity Authority

Section 3 of the Act states that 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 utilisation or for bio-survey and bio-utilisation.

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 (43 of 1961);
- c. a body corporate, association or organisation--
 - i. not incorporated or registered in India; or
 - ii. incorporated or registered in India under any law for the time being in force, which is controlled by a foreigner within the meaning of clause (27) of section 2 of the Companies Act, 2013.

It may be noted that-

“commercial utilisation” means end uses of biological resources for commercial utilisation 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; [Section 2(f)]

Results of research not to be transferred to certain persons without approval of National Biodiversity Authority

According to section 4, no person or entity shall share or transfer any result of the research on any biological resource occurring in, or obtained or accessed from, India or traditional knowledge associated thereto, for monetary consideration or otherwise, to a person or body corporate referred to in sub-section (2) of section 3, without the prior written approval of the National Biodiversity Authority, except the codified traditional knowledge which is only for Indians:

Provided that the provisions of this section shall not apply if publication of research papers or dissemination of knowledge in any seminar or workshop involving financial benefit is as per the guidelines issued by the Central Government:

Provided further that where the results of research are used for further research, then, the registration with the National Biodiversity Authority shall be necessary: Provided also that if the results of research are used for

commercial utilisation or for obtaining any intellectual property rights, within or outside India, prior approval of the National Biodiversity Authority shall be required to be taken in accordance with the provisions of this Act.”.

It may be noted that-

“codified traditional knowledge” means the knowledge derived from authoritative books specified in the First Schedule to the Drugs and Cosmetics Act, 1940; [Section 2(ea)]

Certain provisions not to apply to certain collaborative research projects of the principal Act

Section 5 provides that the provisions of section 3 shall not apply to collaborative research projects involving transfer or exchange of biological resource or traditional knowledge associated thereto between institutions, including Government sponsored institutions of India, and such institutions in other countries, if such collaborative research projects satisfy the conditions specified in sub-section (3).

All collaborative research projects, other than those referred to in sub-section (1) which are based on agreements concluded before the commencement of this Act and in force shall, to the extent the provisions of agreement are inconsistent with the provisions of this Act or any guidelines issued under clause (a) of sub-section (3), be void.

It also states that for the purposes of sub-section (1), collaborative research projects shall-

- a) conform to the policy guidelines issued by the Central Government in this behalf;
- b) be approved by the Central Government.

Application for intellectual property rights not to be made without approval of National Biodiversity Authority

Any person or entity covered under sub-section (2) of section 3 applying for an intellectual property right, by whatever name called, in or outside India, for any invention based on any research or information on a biological resource which is accessed from India, including those deposited in repositories outside India, or traditional knowledge associated thereto, shall obtain prior approval of the National Biodiversity Authority before grant of such intellectual property rights.

Any person covered under section 7 applying 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 which is accessed from India, including those deposited in repositories outside India, or traditional knowledge associated thereto, shall register with the National Biodiversity Authority before grant of such intellectual property rights.

Any person covered under section 7 who has obtained intellectual property right, by whatever name called, in or outside India, for any invention based on any research or information on a biological resource which is accessed from India, including those deposited in repositories outside India, or traditional knowledge associated thereto, shall obtain prior approval of the National Biodiversity Authority at the time of commercialisation.

The National Biodiversity Authority may, while granting the approval under this section, impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the commercial utilisation of such rights. 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.

Where any right is granted under law referred to in sub-section (3), the concerned authority granting such right shall endorse a copy of such document granting the right to the National Biodiversity Authority. (Section 6)

Prior intimation to State Biodiversity Board for obtaining biological resource for certain purposes.

As per section 7 of the Act, no person, other than the person covered under sub-section (2) of section 3, shall access any biological resource and its associated knowledge for commercial utilisation, without giving prior

intimation to the concerned State Biodiversity Board, but such access shall be subject to the provisions of clause (b) of section 23 and sub-section (2) of section 24:

Provided that the provisions of this section shall not apply to the codified traditional knowledge, cultivated medicinal plants and its products, local people and communities of the area, including growers and cultivators of biodiversity and to vaid, hakims and registered AYUSH practitioners only who have been practicing indigenous medicines, including Indian systems of medicine as profession for sustenance and livelihood.

In the case of cultivated medicinal plants, the exemption under sub-section (1) shall be available only if a certificate of origin is obtained from the Biodiversity Management Committee in such manner as may be prescribed.

The Biodiversity Management Committee shall, on the basis of entries made in such books, maintained in such manner, issue the certificate of origin under subsection (2) in such manner as may be prescribed.

NATIONAL BIODIVERSITY AUTHORITY

Establishment of National Biodiversity Authority

Section 8 states that with effect from such date as the Central Government may, by notification in the Official Gazette, appoint, there shall be established by the Central Government for the purposes of this Act, a body to be called the National Biodiversity Authority.

The National Biodiversity Authority shall be a body corporate by the name aforesaid, having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to contract, and shall by the said name sue and be sued.

The Head office of the National Biodiversity Authority shall be at Chennai and the Central Government may, by notification in the Official Gazette, establish regional offices in other places in India.

The National Biodiversity Authority shall consist of the following members, namely:--

- a) a Chairperson, who shall be an eminent person having adequate knowledge, expertise and experience in the conservation and sustainable use of biological diversity and in matters relating to fair and equitable sharing of benefits, to be appointed by the Central Government;
- b) sixteen ex officio members to be appointed by the Central Government, representing the Ministries dealing with—
 - i. Agricultural Research and Education;
 - ii. Agriculture and Farmers Welfare;
 - iii. Ayurveda, Unani, Siddha, Sowa Rigpa, Yoga and Naturopathy and Homoeopathy;
 - iv. Biotechnology;
 - v. Environment and Climate Change;
 - vi. Forests and Wildlife;
 - vii. Indian Council of Forestry Research and Education;
 - viii. Earth Sciences;
 - ix. Pachayati Raj;
 - x. Science and Technology;
 - xi. Scientific and Industrial Research;
 - xii. Tribal Affairs;

- c) four representatives from State Biodiversity Boards on rotational basis;
- d) five non-official members to be appointed from amongst experts including legal experts and scientists having special knowledge of, or experience in, matters relating to conservation of biological diversity, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources, representatives of industry, conservers, creators and knowledge-holders of biological resources.
- e) a Member-Secretary, who shall have experience in matters relating to biodiversity conservation, to be appointed by the Central Government.

It may be noted that-

“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; [Section 2(o)]

Chairperson to be Chief Executive of National Biodiversity Authority

The Chairperson shall be the Chief Executive of the National Biodiversity Authority and shall exercise such powers and perform such duties, as may be prescribed.

Member-Secretary

Section 10A states that the Member-Secretary shall be the chief coordinating officer and the convener of the National Biodiversity Authority and shall assist that Authority in the discharge of its functions under this Act. The Member-Secretary shall perform such other functions as may be prescribed.

Committees of National Biodiversity Authority

Section 13 states that the National Biodiversity Authority may constitute a committee to deal with agro-biodiversity. It also states that for the purposes of this sub-section, “agro-biodiversity” means biological diversity of agriculture related species and their wild relatives.

The National Biodiversity Authority may also constitute such number of committees as it deems fit for the efficient discharge of its duties and performance of its functions under this Act.

A committee constituted under this section shall co-opt such number of persons, who are not the members of the National Biodiversity Authority, as it may think fit and the persons so co-opted shall have the right to attend the meetings of the committee and take part in its proceedings but shall not have the right to vote.

The persons appointed as members of the committee under sub-section (2) shall be entitled to receive such allowances or fees for attending the meetings of the committee as may be fixed by the Central Government.

Authentication of orders and decisions of National Biodiversity Authority

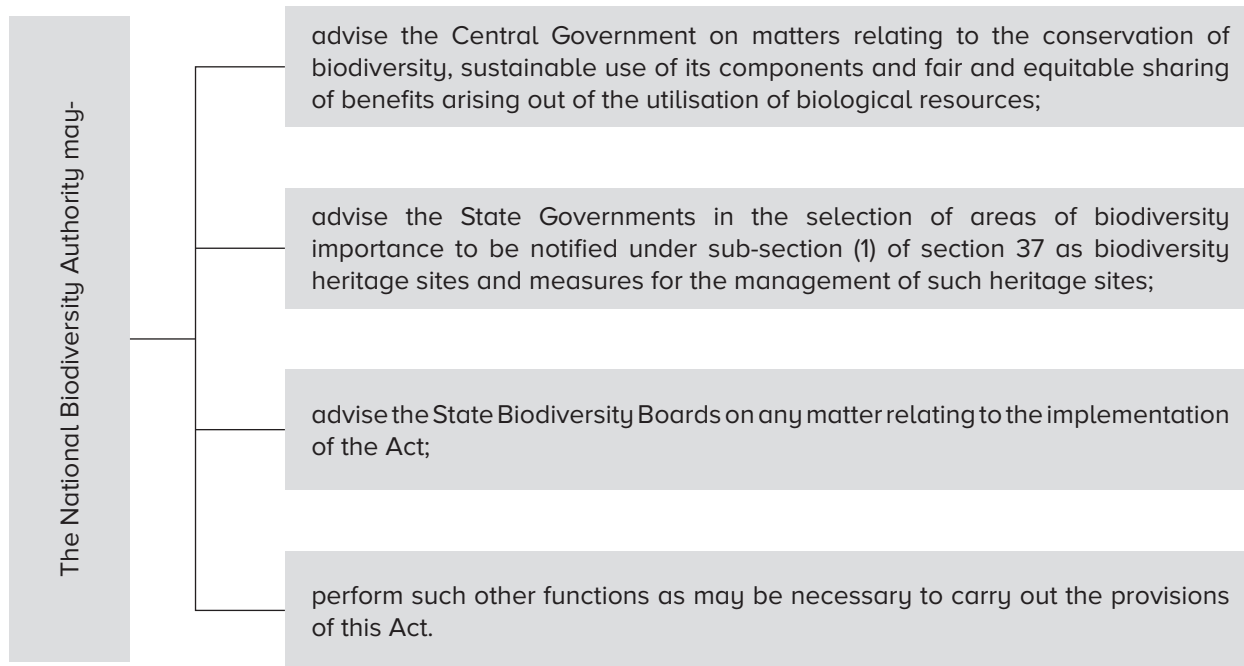
As per section 15, all orders and decisions of the National Biodiversity Authority shall be authenticated by the signature of the Chairperson or Member-Secretary or any other member authorised by the National Biodiversity Authority in this behalf and all other instruments executed by the National Biodiversity Authority shall be authenticated by the signature of Member-Secretary or an officer of the National Biodiversity Authority authorised by it in this behalf.

Delegation of powers

The National Biodiversity Authority may, by general or special order in writing, delegate to any member or Member-Secretary, officer of the National Biodiversity Authority or any other person subject to such conditions, if any, as may be specified in the order, such of the powers and functions under this Act (except the power

to prefer an appeal under section 50 and the power to make regulations under section 64) as it may deem necessary. (Section 16)

Functions and powers of National Biodiversity Authority



The National Biodiversity Authority shall, with the approval of the Central Government, make regulations to provide for access to biological resources and traditional knowledge associated thereto, and for determination of fair and equitable sharing of benefits.

It shall be the duty of the National Biodiversity Authority to regulate any activity referred to in sections 3, 4 and 6 by granting or rejecting approvals.;

The National Biodiversity Authority 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 resource which is found in or brought from India, including those deposited in repositories outside India, or traditional knowledge associated thereto accessed. (Section 18)

Approval by National Biodiversity Authority for undertaking certain activities.

As per section 19, any person referred to in sub-section (2) of section 3 who intends to obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilisation or for bio-survey and bio-utilisation or transfer the results of any research relating to biological resources occurring in, or obtained from, India, shall make application in such form and payment of such fees as may be prescribed, to the National Biodiversity Authority.

Any person referred to in sub-section (2) of section 3 who intends to apply for a patent or any other form of intellectual property rights, whether in India or outside India, referred to in sub-section (1) of section 6, may make an application to the National Biodiversity Authority in such form, on payment of such fee, and in such manner, as may be prescribed.

Any person referred to in sub-section (1A) of section 6 shall register with the National Biodiversity Authority at the time of making application under sub-section (2), and persons referred to in sub-section (1B) of section 6 shall obtain prior approval from the National Biodiversity Authority at the time of commercialisation.

On receipt of an application under sub-section (1) or sub-section (2), the National Biodiversity Authority may, after making such enquiries as it may deem fit and if necessary after consulting an expert committee constituted for this purpose, by order, grant approval subject to any regulations made in this behalf and subject to such terms and conditions as it may deem fit, including the imposition of charges by way of royalty or for reasons to be recorded in writing, reject the application:

Provided that no such order for rejection shall be made without giving an opportunity of being heard to the person affected.

The National Biodiversity Authority shall, while granting approval under this section, determine the benefit sharing in such manner as may be specified by regulations made in this behalf:

Provided that if the National Biodiversity Authority is of the opinion that such an activity is detrimental or contrary to the objectives of conservation and sustainable use of biodiversity or fair and equitable sharing of benefits arising out of such activity, it may, by order, for reasons to be recorded in writing, prohibit or restrict any such activity:

Provided further that no such order for rejection shall be made without giving an opportunity of being heard to the person concerned.

The National Biodiversity Authority shall place in public domain details of every approval granted or rejected under this section.

Transfer of results of research

According to Section 20, any person or entity who intends to transfer the results of any research on biological resources, which are found in or brought from India, including those deposited in repositories outside India or traditional knowledge associated thereto, to persons referred to under sub-section (2) of section 3 for monetary consideration or otherwise, he shall make an application to the National Biodiversity Authority in such form, and on payment of such fee, as may be prescribed.

Any person who intends to transfer the results of research 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.

On receipt of an application under sub-section (2), the National Biodiversity Authority may, after making such enquiries, as it deems fit, by order, grant approval, subject to such terms and conditions, as it may deem fit, including benefit sharing or otherwise, as per the guidelines or for reasons to be recorded in writing, or reject the application:

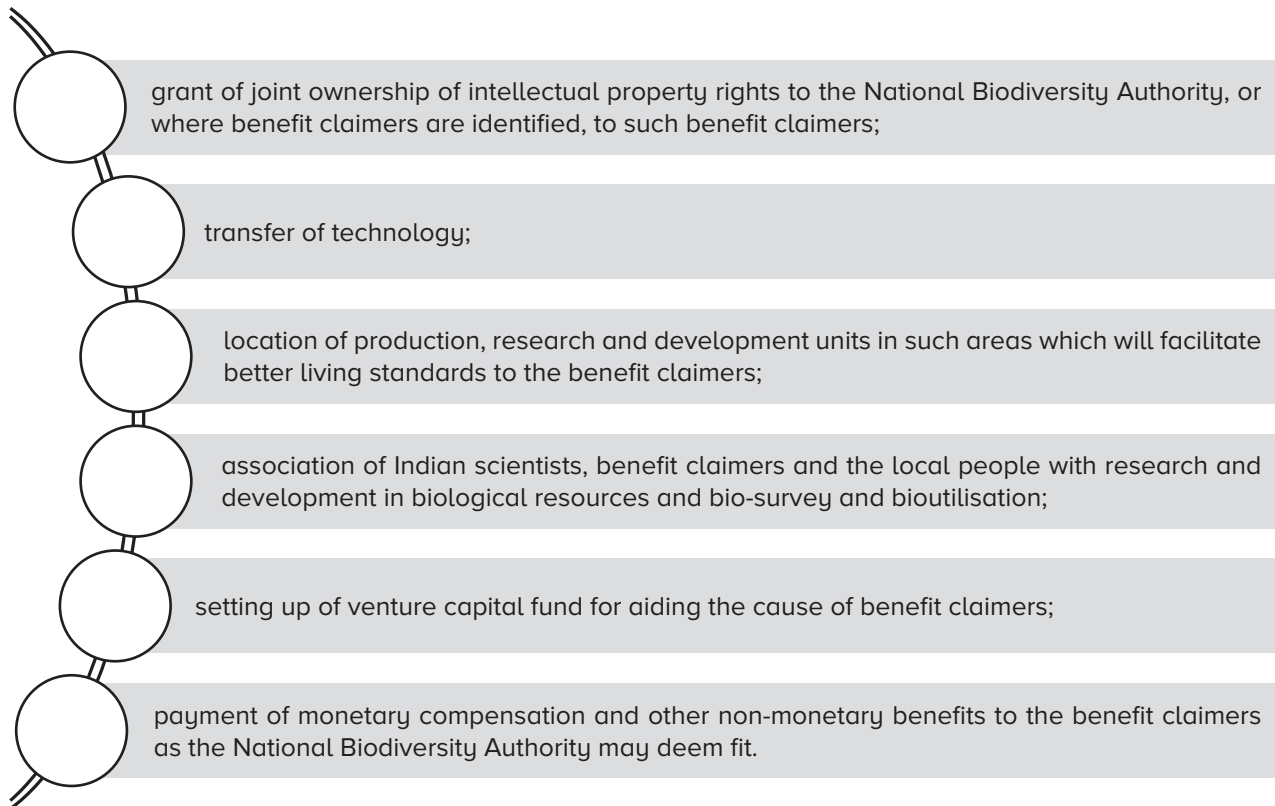
Provided that no such order for rejection shall be made without giving an opportunity of being heard to the person concerned.

The National Biodiversity Authority shall place in public domain the details of every approval granted or rejected under this section.

Determination of fair and equitable benefit sharing by National Biodiversity Authority

Section 21 states that the National Biodiversity Authority shall, while determining benefit sharing for the approval granted under this Act, ensure that the terms and conditions subject to which the approval is granted secures fair and equitable sharing of benefits arising out of the use of accessed biological resources, their derivatives, 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, and the Biodiversity Management Committee represented by the National Biodiversity Authority.

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:--



Where any amount of money is ordered by way of benefit sharing, the National Biodiversity Authority may direct the amount to be deposited in the National Biodiversity Fund:

Provided that where biological resource or associated knowledge was a result of access from an individual or group of individuals or organisations, the National Biodiversity Authority may direct that the amount shall be paid directly to such benefit claimer or organisation in accordance with the terms of any agreement and in such manner as it deems fit.

For the purposes of this section, the National Biodiversity Authority shall, in consultation with the Central Government, by regulations, frame guidelines.

It may be noted that-

“fair and equitable benefit sharing” means sharing of benefits as determined by the National Biodiversity Authority under section 21; [Section 2(g)]

STATE BIODIVERSITY BOARD

Establishment of State Biodiversity Board

With effect from such date as the State Government may, by notification in the Official Gazette, appoint in this behalf, there shall be established by that Government for the purposes of this Act, a Board for the State to be known as the _____ (name of the State) Biodiversity Board.

Notwithstanding anything contained in this section, no State Biodiversity Board shall be constituted for a Union territory and in relation to a Union territory, the National Biodiversity Authority shall exercise the powers and perform the functions of a State Biodiversity Board for that Union territory:

Provided that in relation to any Union territory, the National Biodiversity Authority may delegate all or any of its powers or functions under this sub-section to such person or group of persons or body as the Central Government may specify.

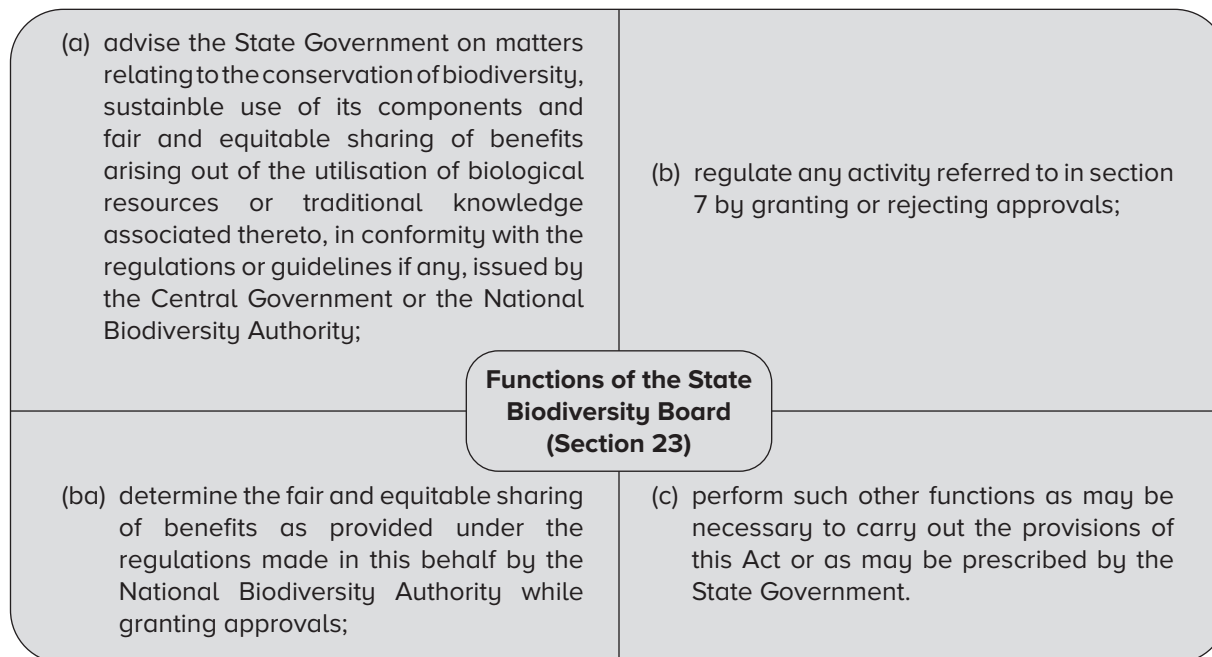
The Board shall be a body corporate by the name aforesaid, having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to contract, and shall by the said name sue and be sued.

The Board shall consist of the following members, namely:--

- a. a Chairperson, who shall be an eminent person having adequate knowledge, expertise and experience in the conservation and sustainable use of biological diversity and in matters relating to fair and equitable sharing of benefits, to be appointed by the State Government;
- b. not more than seven ex officio members to be appointed by the State Government to represent the concerned departments of the State Government, including departments dealing Panchayati Raj and tribal affairs;
- c. not more than five non-official members to be appointed from amongst experts, including legal experts, scientists having special knowledge, expertise and work experience in matters relating to conservation of biological diversity, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.

The head office of the State Biodiversity Board shall be at such place as the State Government may, by notification in the Official Gazette, specify. (Section 22)

Functions of State Biodiversity Board



Power of State Biodiversity Board to restrict certain activities violating the objectives of conservation, etc.

Any person other than the person referred to in sub-section (2) of section 3, intending to undertake any activity covered under section 7, shall give prior intimation to the State Biodiversity Board, in such form as may be prescribed by the State Government.

If the State Biodiversity Board is of the opinion that such activity is detrimental or contrary to the objectives of conservation and sustainable use of biodiversity or fair and equitable sharing of benefits arising out of such activity, it may by order, restrict or reject such activity:

Provided that no such order or rejection shall be made without giving an opportunity of being heard to the person concerned.

The State Biodiversity Board shall place in public domain the details of every approval granted or rejected under this section. (Section 24)

FUNDS

Constitution of National Biodiversity Fund

Section 27 provides for Constitution of National Biodiversity Fund. It states that there shall be constituted a Fund to be called the National Biodiversity Fund and there shall be credited thereto--

- a. any grants and loans made to the National Biodiversity Authority under section 26;
- b. all sums including charges and benefit sharing amount received by the National Biodiversity Authority;
- c. all sums received by the National Biodiversity Authority from such other sources as may be decided upon by the Central Government.

The Fund shall be utilised for--

- a. channeling benefits to the benefit claimers;
- b. conservation, promotion and sustainable use of biological resources;
- c. socio-economic development of areas from where such biological resources or traditional knowledge associated thereto have been accessed in consultation with the Biodiversity Management Committee: Provided that when it is not possible to identify the area from where the biological resources traditional knowledge associated thereto have been accessed, the fund shall be utilised for socio-economic development of the area where such biological resources occur;
- d. activities to meet the purposes of the Act.

It may be noted that-

“benefit claimers” means the conservers of biological resources, their by-products, creators or holders of traditional knowledge associated thereto (excluding codified traditional knowledge only for Indians) and information relating to the use of such biological resources, innovations and practices associated with such use and application; [Section 2(aa)]

Constitution of State Biodiversity Fund

(1) There shall be constituted a Fund to be called the State Biodiversity Fund and there shall be credited thereto --

- a) any grants and loans made to the State Biodiversity Board under section 31;
- b) any grants or loans made by the National Biodiversity Authority;
- c) all sums including charges and benefit sharing amount received by the State Biodiversity Board and from such other sources as may be decided by the State Government;

(2) The State Biodiversity Fund shall be utilised for--

- a. the management and conservation of heritage sites;
- aa. channelling benefits to the benefit claimers;

- b. compensating or rehabilitating any section of the people economically affected by notification under sub-section (1) of section 37;
- c. conservation, promotion and sustainable use of biological resources;
- d. socio-economic development of areas from where such biological resources or traditional knowledge associated thereto have been accessed in consultation with the Biodiversity Management Committee or local body concerned:
Provided that when it is not possible to identify the area from where the biological resources or associated knowledge have been accessed, the fund shall be utilised for socio-economic development of the area where such biological resources occur;
- e. making grants or loans to the Biodiversity Management Committees;
- f. the activities to meet the purposes of the Act.

DUTIES OF THE CENTRAL AND THE STATE GOVERNMENTS

Central Government to develop national strategies and plans for conservation, promotion and sustainable use of biological diversity.

Under section 36 of the Act, the Central Government shall in consultation with the State Government and Union territories develop national strategies, plans, programmes for the conservation and promotion and sustainable use of biological diversity including measures for identification and monitoring of areas rich in biological resources, promotion of *in situ*, and *ex situ*, conservation of biological resources, including cultivars, folk varieties and landraces, incentives, incentives for research, training and public education to increase awareness with respect to biodiversity.

Where the Central Government has reason to believe that any area rich in biological diversity, biological resources and their habitats is being threatened by overuse, abuse or neglect, it shall issue directives to the concerned State Government to take immediate ameliorative measures, offering such State Government any technical and other assistance that is possible to be provided or needed.

The Central Government shall, as far as practicable wherever it deems appropriate, integrate the conservation, promotion and sustainable use of biological diversity into relevant sectoral policies or cross-sectoral plans and programmes.

The Central Government shall undertake measure,--

- i. wherever necessary, for assessment of environmental impact of that project which is likely to have adverse effect on biological diversity, with a view to avoid or minimise such effects and where appropriate provide for public participation in such assessment;
- ii. to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology likely to have adverse impact on the conservation and sustainable use of biological diversity and human health.

The Central Government shall endeavour to respect and protect the knowledge of local people relating to biological diversity, as recommended by the National Biodiversity Authority through such measures, which may include registration of such knowledge at the local, State or national levels, and other measures for protection, including *sui generis* system.

The Central Government shall involve the National Biodiversity Authority or State Biodiversity Boards to undertake measures for conservation and sustainable use of biological diversity or traditional knowledge associated thereto.

Explanation. -- For the purposes of this section,--

- (a) “*ex situ* conservation” means the conservation of components of biological diversity outside their natural habitats;
- (b) “*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.

It may be noted that-

“landrace” means primitive cultivar that was grown by ancient farmers and their successors; [Section 2(gc)]

Measures to be taken by National Biodiversity Authority

The Central Government may authorise National Biodiversity Authority or any other organisation to take any measure necessary to monitor and regulate within the territory of India, the access and utilisation of biological resources obtained from a foreign country in order to meet the international obligations to which India is a signatory. (Section 36A)

State Government to develop strategies and plans for conservation and sustainable use of biological diversity

The State Government shall develop strategies, plans, programmes for the conservation and promotion and sustainable use of biological diversity, including measures for identification and monitoring of areas rich in biological resources, promotion of *in situ*, and *ex situ*, conservation of biological resources, including cultivars, folk varieties and landraces, incentives for research, training and public education to increase awareness with respect to biodiversity, in conformity with the national strategies, plans and programmes.

The State Government shall, as far as practicable, wherever it deems appropriate, integrate the conservation, promotion and sustainable use of biological diversity into relevant sectoral policies or cross-sectoral plans and programmes. (Section 36B)

Biodiversity heritage sites

Section 37 states that without prejudice to any other law for the time being in force, based on the recommendations of the State Biodiversity Board, the State Government may, from time to time, notify in the Official Gazette, areas of biodiversity importance as biodiversity heritage sites under this Act:

Provided that the State Biodiversity Board shall consult the local body and the Biodiversity Management Committee concerned before making such recommendations.

The State Government, in consultation with the Central Government, may frame rules for the management and conservation of all the biodiversity heritage sites.

The State Government shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.

Power of Central Government to notify threatened species

Without prejudice to the provisions of any other law for the time being in force, the Central Government, in consultation with the concerned State Government, may from time to time notify any species which is on the verge of extinction or likely to become extinct in the near future as a threatened species and prohibit or regulate collection thereof for any purpose and take appropriate steps to rehabilitate and preserve those species.

Provided that the Central Government may delegate such power to the State Government: Provided further that where such power is delegated to the State Government, it shall consult the National Biodiversity Authority before issuing any such notification. (Section 38)

Power of Central Government to designate repositories

According to section 39, the Central Government may, in consultation with the National Biodiversity Authority, designate institutions as repositories under this Act for different categories of biological resources. The repositories shall keep in safe custody the biological material including voucher specimens deposited with them.

Any new tax on discovered by any person shall be notified to the repositories or any institution designated for this purpose and he shall deposit the voucher specimens with such repository or institution.

Power of Central Government to exempt certain biological resources.

Section 40 states that, notwithstanding anything contained in this Act, the Central Government may, in consultation with the National Biodiversity Authority, by notification in the Official Gazette, declare that all or any of the provisions of this Act shall not apply to biological resources when normally traded as commodities or to the items derived from them, including agricultural wastes, as notified and cultivated medicinal plants and their products for entities covered under section 7, registered as per the regulations made or as prescribed:

Provided that no exemption shall be made for the activities referred to in sub-sections (1) and (2) of section 6.

BIODIVERSITY MANAGEMENT COMMITTEES

Constitutions of Biodiversity Management Committees.

Section 41 provides for constitution of bio-diversity management committee. It states that every local body at the Gram Panchayat level in the rural areas and at the Nagar Panchayat or Municipal Committee at Municipal Corporation level in the urban areas shall constitute a Biodiversity Management Committee (by whatever name called) within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of landraces, folk varieties, farmers' varieties, and cultivars, domesticated stocks and breeds of animals, living things in water bodies and microorganisms and chronicling of knowledge relating to biological diversity:

Provided that the State Government may constitute Biodiversity Management Committees at the intermediate or district Panchayat level for achieving the objectives of the Act.

The functions of Biodiversity Management Committee so constituted shall include conservation, sustainable use and documentation of biological diversity, including conservation of habitats, landraces, folk varieties, cultivars, domesticated breeds of animals, and microorganisms, and chronicling of traditional knowledge associated thereto relating to biological diversity.

The composition of the Biodiversity Management Committee shall be such as may be prescribed by the State Government: Provided that the number of members of the said Committee shall not be less than seven and not exceeding eleven.

The National Biodiversity Authority and the State Biodiversity Boards shall consult the Biodiversity Management Committees while taking any decision relating to the use of biological resources or traditional knowledge associated thereto occurring within the territorial jurisdiction of the Biodiversity Management Committee.

The Biodiversity Management Committees may levy charges by way of collection fees from any person for accessing or collecting any biological resource for commercial purposes from areas falling within its territorial jurisdiction.

Explanation.—For the purposes of this section—

- (a) “cultivar” means a variety of plant that has originated and persisted under cultivation or was specifically bred for the purpose of cultivation;
- (b) “folk variety” means a cultivated variety of plant that was developed, grown and exchanged informally among farmers;
- (c) “landrace” means primitive cultivar that was grown by ancient farmers and their successors;

(d) “farmers’ variety” means a variety which—

- i. has been traditionally cultivated and evolved by the farmers in their field; or
- ii. is a wild relative or landrace of a variety about which the farmers possess the common knowledge.’.

It may be noted that-

“folk variety” means a cultivated variety of plant that was developed, grown and exchanged informally among farmers; [Section 2(ga)]

LOCAL BIODIVERSITY FUND

Constitution of Local Biodiversity Fund

According to section 43, there shall be constituted a Fund to be called the Local Biodiversity Fund at every area notified by the State Government where any institution of self-government is functioning and there shall be credited thereto--

- a. any grants and loans made under section 42;
- b. any grants or loans made by the National Biodiversity Authority;
- c. any grants or loans made by the State Biodiversity Boards;
- d. fees referred to in sub-section (3) of section 41 received by the Biodiversity Management Committees;
- e. benefit sharing amount and all other sums received by the Local Biodiversity Fund from such other sources as may be decided by the State Government.

Application of Local Biodiversity Fund

The Local Biodiversity Fund shall be utilised in accordance with the regulations and the guidelines made in this behalf, for—

- (a) the conservation and promotion of biodiversity including restoration of areas falling within the jurisdiction of concerned local body;
- (b) the socio-economic development of the community without compromising the conservation concerns; and
- (c) the administrative expenses of the Biodiversity Management Committee.

The Fund shall be utilised in such manner as may be prescribed by the State Government.

The custodian of the Local Biodiversity Fund shall prepare, in such form and during each financial year at such time as may be prescribed by the State Government, its annual statement giving a full account of its activities during the previous financial year, and submit the same to the local body concerned with a copy to the State Biodiversity Board. (Section 45)

Settlement of disputes

Section 50 provides for the settlement of disputes. It states that-

If a dispute arises between the National Biodiversity Authority and a State Biodiversity Board, the said Authority or the Board, as the case may be, may prefer an appeal to the Central Government within such time as may be prescribed.

Every appeal made under sub-section (1) shall be in such form as may be prescribed by the Central Government.

The procedure for disposing of an appeal shall be such as may be prescribed by the Central Government:

Provided that before disposing of an appeal, the parties shall be given a reasonable opportunity of being heard. If a dispute arises between the State Biodiversity Boards, the Central Government shall refer the same to the National Biodiversity Authority.

While adjudicating any dispute under sub-section (4), the National Biodiversity Authority shall be guided by the principles of natural justice and shall follow such procedure as may be prescribed by the Central Government.

The National Biodiversity Authority shall have, for the purposes of discharging its functions under this section, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (5 of 1908) in respect of the following matters, namely:--

- a. summoning and enforcing the attendance of any person and examining him on oath;
- b. requiring the discovery and production of documents;
- c. receiving evidence on affidavits;
- d. issuing commissions for the examination of witnesses or documents;
- e. reviewing its decisions;
- f. dismissing an application for default or deciding it *ex parte*;
- g. setting aside any order of dismissal of any application for default or any order passed by it *ex parte*;
- h. any other matter which may be prescribed.

Every proceeding before the National Biodiversity Authority shall be deemed to be a judicial proceeding within the meaning of sections 193 and 228, and for the purpose of section 196, of the Indian Penal Code (45 of 1860) and the National Biodiversity Authority shall be deemed to be a civil court for all the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973 (2 of 1974).

Appeal

Any person, aggrieved by any determination of fair and equitable sharing of benefits or order or direction of the National Biodiversity Authority or a State Biodiversity Board under this Act, may file an appeal to the High Court within thirty days from the date of communication to him, of the determination or order of the National Biodiversity Authority or the State Biodiversity Board, as the case may be:

Provided that the High Court may, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal within the said period, allow it to be filed within a further period not exceeding sixty days.

Provided further that nothing contained in this section shall apply on and from the commencement of the National Green Tribunal Act, 2010 (19 of 2010):

Provided also that any appeal pending before the High Court, before the commencement of the National Green Tribunal Act, 2010 (19 of 2010), shall continue to be heard and disposed of by the High Court as if the National Green Tribunal had not been established under section 3 of the National Green Tribunal Act, 2010.

Appeal to National Green Tribunal

Section 52A states that any person aggrieved by any determination of benefit sharing or order of the National Biodiversity Authority or a State Biodiversity Board under this Act, on or after the commencement of the National Green Tribunal Act, 2010 (19 of 2010), may file an appeal to the National Green Tribunal establishment under section 3 of the National Green Tribunal Act, 2010, in accordance with the provisions of that Act.

Execution of determination or order

As per section 53, every determination of fair and equitable sharing of benefits or order made by the National Biodiversity Authority or a State Biodiversity Board under this Act or the order made by the High Court or the National Green Tribunal in any appeal against any determination or order of the National Biodiversity Authority or a State Biodiversity Board shall, on a certificate issued by any officer of the National Biodiversity Authority or a State

Biodiversity Board or the Registrar of the High Court or the Registrar of the National Green Tribunal, as the case may be, be deemed to be decree of the civil court and shall be executable in the same manner as a decree of that court.

Explanation.—For the purposes of this section and section 52, the expression “State Biodiversity Board” includes the person or group of persons or body to whom the powers or functions under sub-section (2) of section 22 have been delegated under the proviso to that sub-section and the certificate relating to such person or group of persons or body under this section shall be issued by such person or group of persons or body, as the case may be.

Penalties

If any person or entity covered under sub-section (2) of section 3 or section 7 contravenes or attempts to contravene or abets the contravention of the provisions of section 3 or section 4 or section 6 or section 7, such person shall be liable to pay penalty which shall not be less than one lakh rupees, but which may extend to fifty lakh rupees, but where the damage caused exceeds the amount of penalty, such penalty shall be commensurate with the damage caused, and in case, the failure or contravention continues, an additional penalty may be imposed, which shall not exceed one crore rupees and such penalty shall be decided by the adjudicating officer appointed under section 55A. (Section 55)

Adjudication of penalties

According to section 55B, for the purposes of determining the penalties under section 55, the Central Government may appoint an officer not below the rank of Joint Secretary to the Government of India or a Secretary to the State Government to be the adjudicating officer, to hold inquiry in the prescribed manner and to impose the penalty so determined:

Provided that the Central Government may appoint as many adjudicating officers as may be required.

While holding an inquiry, the adjudicating officer shall have power to summon and enforce the attendance of any person acquainted with the facts and circumstances of the case to give evidence or to produce any document, which in the opinion of the adjudicating officer, may be useful for, or relevant to, the subject-matter of the inquiry and if, on such inquiry, he is satisfied that the person concerned has failed to comply with the provisions of section 3 or section 4 or section 6 or section 7, he may impose such penalty as he thinks fit in accordance the provisions of section 55:

Provided that no such penalty shall be imposed without giving the person concerned an opportunity of being heard in the matter.

Any person aggrieved by the order made by the adjudicating officer under sub-section (2) may prefer an appeal to the National Green Tribunal established under section 3 of the National Green Tribunal Act, 2010.

Every appeal under sub-section (3) shall be filed within sixty days from the date on which the copy of the order made by the adjudicating officer is received by the aggrieved person.

The National Green Tribunal may, after giving the parties to the appeal an opportunity of being heard, pass such order as it thinks fit, confirming, modifying or setting aside the order appealed against.

Power to enter, inspect, survey, etc.

Section 55B states that, any authority or officer empowered by the Central Government may, for the purposes of carrying out inspection, survey or any such activity, have all or any of the following powers, namely:—

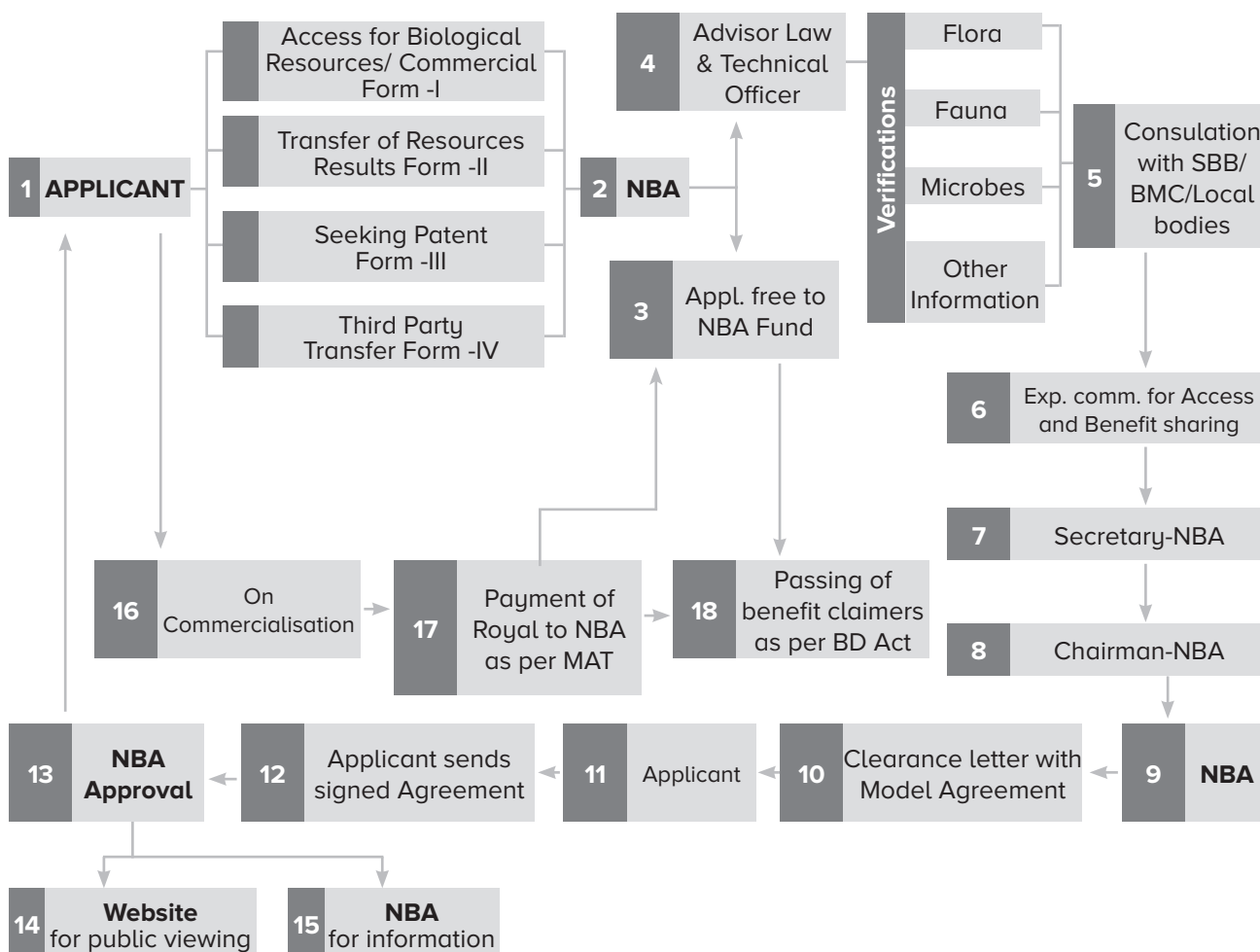
- (a) the power to enter upon any land, vehicle, or premises and to inspect, investigate, survey and collect information and make a map of the same and seize the materials and records;
- (b) the powers of a civil court to compel the attendance of anyone, including witnesses and production of documents and materials objects;
- (c) the power to issue a search-warrant;
- (d) the power to hold an inquiry and in the course of such inquiry, receive and record evidence;
- (e) such other power as may be prescribed.

Section 59A states that the provision of this Act shall not apply to any person who has been given any approval or granted any right under any law relating to protection of plant varieties enacted.

No Court shall take cognizance of any offence under this Act except on a written complaint made by-

- a) the Central Government or any authority or officer authorised in this behalf by that Government; or
- b) any person or a benefit claimer who has given notice of not less than thirty days in the prescribed manner, of such offence and of his intention to make a complaint, to the Central Government or the authority or officer authorised as aforesaid. (Section 61)

Schematic Presentation of Processing of Application under Biological Diversity Act, 2002 and 2004



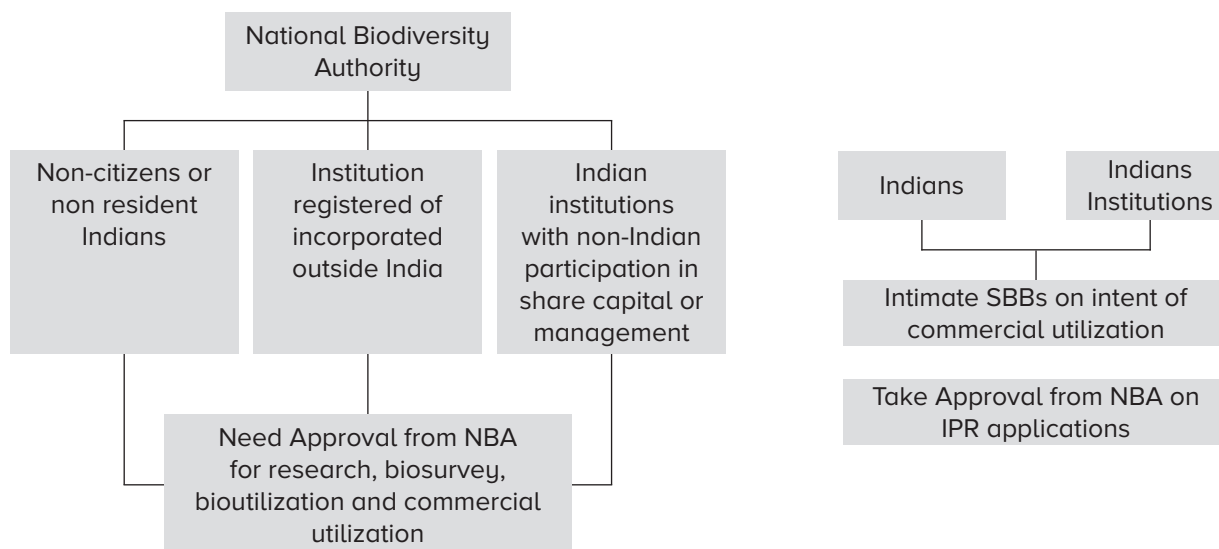
Source -<http://nbaindia.org/content/684/62/1/applicationprocess.html>

Who is covered by the Biological Diversity Act and what do they require?

The Act covers foreigners, non-resident Indians, body corporate, association or organization that is either not incorporated in India or incorporated in India with non-Indian participation in its share capital or management. These individuals or entities require the approval of the National Biodiversity Authority when they access/ use biological resources and associated knowledge occurring in India for commercial or research purposes or for the purposes of bio-survey or bio-utilisation.

Indians and Indian institutions do not require the approval of the National Biodiversity Authority when they engage in the above mentioned activities. However they would need to inform the State Biodiversity Boards prior to undertaking any research with the intent of commercialisation. Any application for IPR based on biological resources should be approved by NBA.

Approval Process



Source: http://nbaindia.org/uploaded/pdf/know_your_biodiversity.pdf

PEOPLE'S BIODIVERSITY REGISTERS (PBR)

People's Biodiversity Registers (PBR) document folk knowledge of status, uses, history, ongoing changes and forces driving changes in biodiversity resources, gainers and losers in these processes and people's perceptions of how these resources should be managed. The documents bring together important locality specific information on biodiversity resources and ecological processes affecting them.

The People's Biodiversity Register serves as a comprehensive record of various aspects of biodiversity, including the conservation of habitats, preservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals, micro-organisms, and the accumulation of knowledge related to the area's biological diversity.

As per Section 41 of the Biological Diversity Act 2002, Biodiversity Management Committees (BMC) are created for "promoting conservation, sustainable use and documentation of biological diversity" by local bodies across the country. BMCs have been constituted by the local bodies in the States and Union Territories and are entrusted with preparation of the People's Biodiversity Registers (PBRs), in consultation with local communities.

Under Rule 22 (6) of Biological Diversity Rules, 2004, the main function of The main function of the BMC is to prepare People's Biodiversity Register in consultation with 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.

Rule 22(7) states that other functions of the BMC are to advise on any matter referred to it by the State Biodiversity Board or Authority for granting approval, to maintain data about the local voids and practitioners using the biological resources. 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.

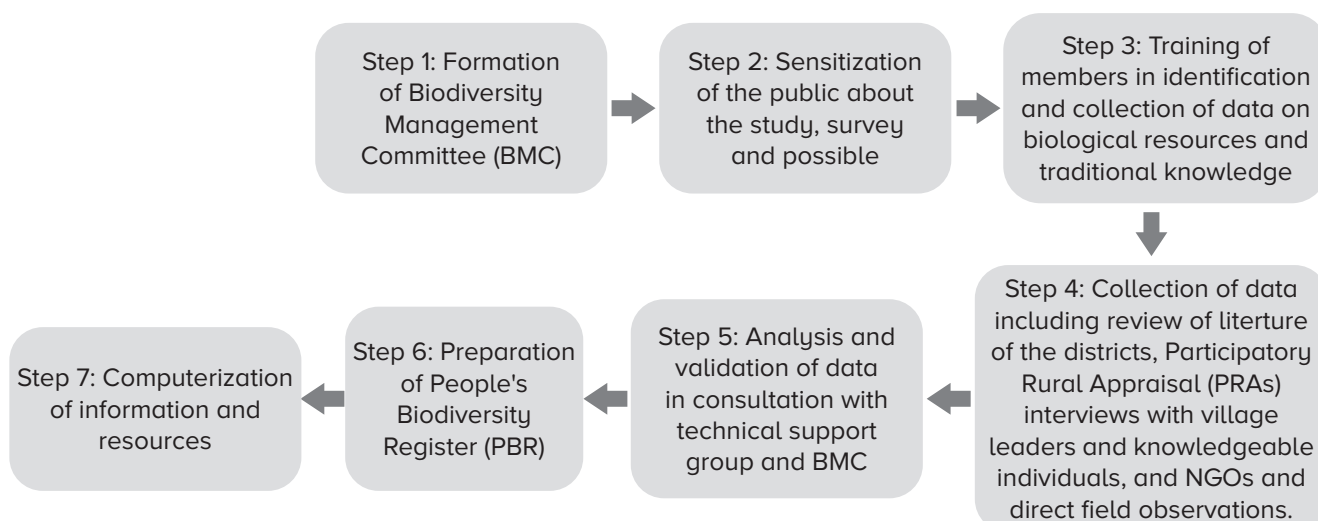
The Authority shall take steps to specify the form of the People's Biodiversity Registers, and the particulars it shall contain and the format for electronic database.

The Authority and the State Biodiversity Boards shall provide guidance and technical support to the Biodiversity Management Committees for preparing People's Biodiversity Registers.

The People's Biodiversity Registers shall be maintained and validated by the Biodiversity Management Committees. The Committee 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.

All this information is critical for conservation, sustainably monitoring of biological resources at local level. A PBR also helps in identification of a beneficiary with whom benefits can be shared when an ABS agreement becomes operational. It contains comprehensive information on locally available Bio-resources including landscape and demography of a particular area or village.

Process in PBR Preparation



ECOLOGICAL DIVERSITY

Ecological diversity, within the context of biodiversity, refers to the variety and richness of ecosystems, habitats, and ecological processes within a given area or region. It encompasses the diversity of landscapes, biomes, and the interactions between different organisms and their environments. Ecological diversity includes species diversity, genetic diversity, and the ecosystem diversity. They are collectively considered as the Biodiversity

Ecological diversity includes the following components:

- **Ecosystem Diversity:** This refers to the variety of ecosystems present in a particular area, such as forests, grasslands, wetlands, deserts, rivers, lakes, and oceans. It represents the inter-relation between the living (plants and animals) and non-living components (climate, soil, chemicals) of the environment. A drop of water represents the smallest ecosystem. Tree, ponds, ocean, well, etc. all are examples of ecosystems.

- *Species Diversity*: Species is the basic structural and functional unit of any taxonomic classification. Species diversity refers to the variety of species living in a common habitat. The rainforests and corals show high species diversity. Species diversity is the variety and abundance of different species present in ecosystems. It includes both the number of species (species richness) and their distribution (species evenness).
- *Genetic Diversity*: Genetic diversity refers to the variety of genetic characteristics within species. It includes the diversity of genes, alleles, and genetic traits present within populations of organisms. It is defined as the variation present in the genes of the organisms of a species. The more closely related are the organisms, the more is the similarity between them. It also takes into account the effect of environmental factors on an organism.
- *Functional Diversity*: Functional diversity relates to the variety of ecological functions performed by different species and the diversity of ecological processes within ecosystems.
- *Habitat Diversity*: Habitat diversity pertains to the range of habitats within ecosystems that provide specific environmental conditions necessary for various organisms to thrive.

Ecological diversity is essential for maintaining ecosystem resilience, stability, and productivity. It supports various ecosystem services, such as nutrient cycling, pollination, water purification, and climate regulation. Additionally, ecological diversity provides habitats and resources for numerous species, contributing to overall biodiversity and ecosystem health. Conservation efforts aimed at preserving ecological diversity are crucial for sustaining ecosystems and their associated benefits for present and future generations.

GENETIC DIVERSITY AND RESOURCES

Crop, livestock, forest and aquatic genetic resources for food and agriculture are conserved in situ through a variety of approaches, including the promotion of management strategies that involve the sustainable use of these resources and the establishment of protected areas. Although efforts are reported to be increasing, coverage is often incomplete.

Ex situ conservation efforts for genetic resources for food and agriculture are increasing, in particular for plant genetic resources, although many gaps remain. Technical challenges persist with respect to the ex situ conservation of some species. Conservation programmes need to become more comprehensive and research into conservation strategies and techniques needs to be strengthened.

The Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning (FAO, 2015g) were prepared under the guidance of the Commission on Genetic Resources for Food and Agriculture and adopted at its Fifteenth Regular Session, in 2015.

The guidelines seek to enable countries to ensure the relevance of genetic resources for food and agriculture to overall national adaptation planning processes by identifying clear goals and maximizing stakeholder involvement. They follow the structure and approach of the technical guidelines for the national adaptation plan process prepared by the Least Developed Countries Expert Group of the United Nations Framework Convention on Climate Change. The process outlined in the guidelines involves four main elements:

- lay the groundwork and address gaps;
- develop the preparatory framework;
- develop the implementation strategy; and
- monitor, review, report and communicate progress.

A number of steps are proposed for the implementation of each element.

Article 2 of the *Convention on Biological Diversity* (1992) defines “genetic resources” as “genetic material of actual or potential value.”

The Food and Agriculture Organization (FAO) Glossary for Fisheries defines the term as “germplasm of plants, animals or other organisms containing useful characters of actual or potential value. In a domesticated species it is the sum of all the genetic combinations produced in the process of evolution.”

Other legal instruments make reference to genetic resources using different terms:

Article 2 of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (2001) defines “plant genetic resources” as “any material of plant origin, including reproductive and vegetative propagating material, containing functional units of heredity.”

Article 2 of the FAO International Code of Conduct for Plant Germplasm Collecting and Transfer (1993) defines plant genetic resources as “the reproductive or vegetative propagating materials of plants.”

Article 2.1 (a) of the FAO *International Undertaking on Plant Genetic Resources* (1983) defines the term as “the reproductive or vegetative propagating material of the following categories of plants:

- (i) cultivated varieties (cultivars) in current use and newly developed varieties;
- (ii) obsolete cultivars;
- (iii) primitive cultivars (land races);
- (iv) wild and weed species, near relatives of cultivated varieties; and
- (v) special genetic stocks (including elite and current breeders’ line and mutants).

The International Undertaking does not refer to “functional units of heredity.”

Genetic resources (GRs) are defined in the Convention on Biological Diversity (CBD). In short, they are parts of biological materials that:

- contain genetic information of value; and
- are capable of reproducing or being reproduced.

Examples include material of plant, animal, or microbial origin, such as medicinal plants, agricultural crops and animal breeds.

Biological resources include GRs, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

GRs themselves are not IP (they are not creations of the human mind) and thus cannot be directly protected as such. However, inventions based on or developed using GRs (associated with TK or not) may be patentable or protected by plant breeders’ rights.

In considering IP aspects of use of GRs, WIPO’s work complements the international legal and policy framework defined by the CBD and its Nagoya Protocol, and the International Treaty on Genetic Resources for Food and Agriculture of the United Nations Food and Agriculture Organization.

SPECIES DIVERSITY

Earth contains millions of different species that all look different from one another. While some species look more similar to each other than others, like lions and tigers, they will still have differences between them. Even within each species, individuals look similar to each other but they are not identical. These differences and similarities are because of many small differences between individuals’ genes. A section of DNA that contains the instructions for a trait. All organisms have DNA and each individual’s DNA is organised into genes. These contain the instructions to build our bodies. This is similar to the way that letters are combined to make words that then make a story. DNA can be seen as the letters, genes the words, and their instructions are the story. The combined differences in the DNA of all individuals in a species make up the genetic diversity of that species.

Species diversity, within the context of biodiversity, refers to the variety and abundance of different species within a particular ecosystem, habitat, or geographic area. It is one of the key components of biodiversity and is often used as a measure of the richness and complexity of an ecosystem.

Species diversity encompasses two main aspects:

- *Species Richness*: This refers to the total number of different species present in a given area. Areas with high species richness have a greater number of distinct species coexisting within them.
- *Species Evenness*: Species evenness refers to the relative abundance or distribution of different species within a community. In a community with high evenness, the abundance of each species is more balanced, whereas in a community with low evenness, one or a few species may dominate while others are less common.

Species diversity is crucial for ecosystem health and functioning. It provides resilience to ecosystems, as diverse communities are often better able to adapt to environmental changes and disturbances. Additionally, species diversity contributes to various ecosystem services, such as nutrient cycling, pollination, pest control, and maintenance of ecosystem stability.

Significance

Each species in a healthy ecosystem contributes to the ecosystem's function, hence both species diversity and ecosystem diversity are crucial to maintaining ecosystem services. Species diversity plays an important role in maintaining the balance in ecosystem. It also help us to-

- *Ecosystem Stability*: A greater variety of species tends to make ecosystems more resilient to environmental changes, disease, and disturbances. Different species play unique roles, ensuring that vital ecosystem functions continue even if one or a few species decline.
- *Food Webs and Interactions*: Species diversity creates complex food webs and interactions. Each species fills a particular niche, contributing to pollination, nutrient cycling, energy transfer, and more.
- *Evolutionary Potential*: Diverse species populations hold greater genetic diversity. This provides raw material for natural selection and allows species to adapt to change, enhancing the long-term survival of populations.
- *Potential Benefits to Humans*: Diverse ecosystems provide us with countless resources like food, medicines, and raw materials. They also offer inspiration for innovation and technological development. For instance, numerous plants develop substances that are intended to defend the plant against insects and other creatures that consume them. Some of these substances are also effective human medications.

IMPACT ON HUMAN BEINGS (ACCESS AND BENEFIT SHARING)

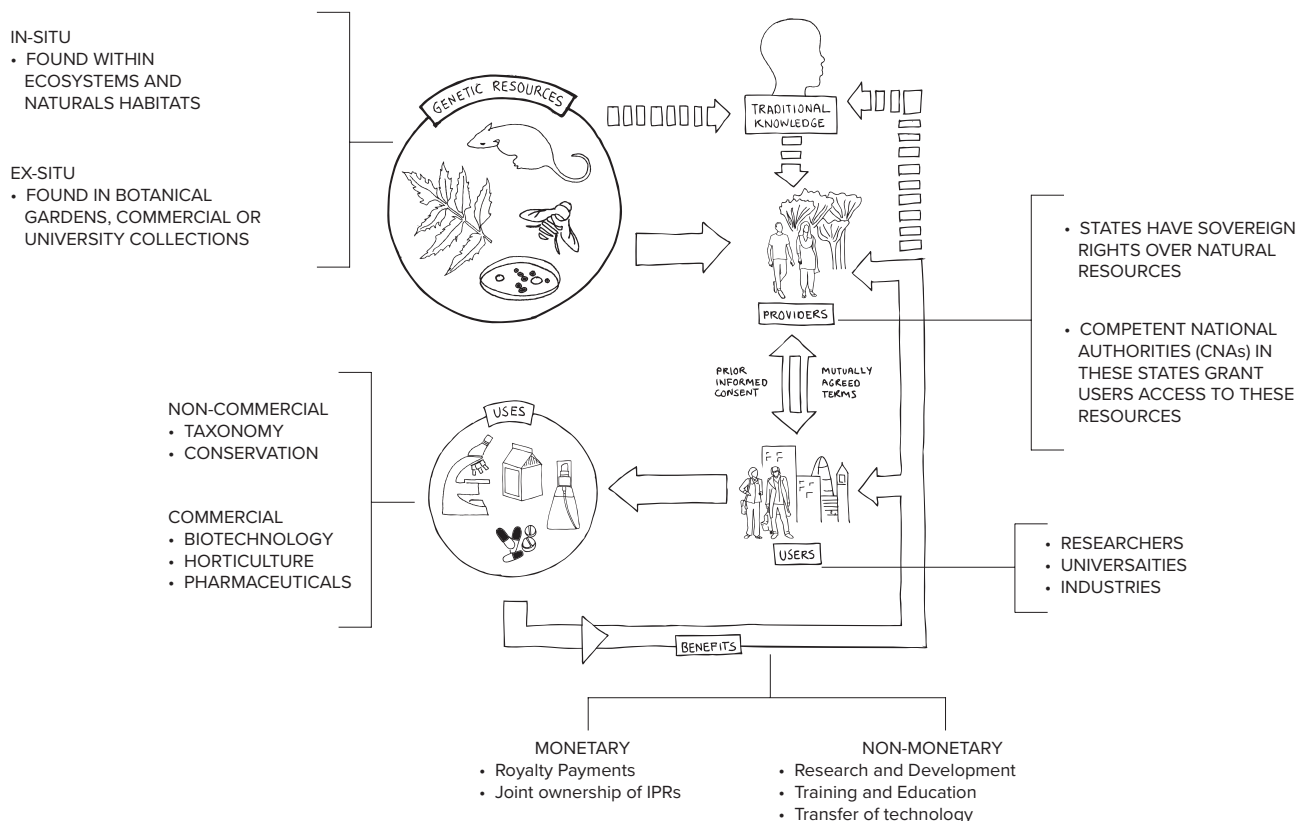
Access and Benefit Sharing usually refers to the ways in which genetic resources may be accessed and how benefits that result from specific uses of genetic resources are shared between providers and users. In line with the Nagoya Protocol, ABS measures often specify that PIC and MAT are required for access to genetic resources for research and development on their genetic and/or biochemical composition, including through the application of biotechnology.

ABS is based on prior informed consent (PIC) being granted by a provider to a user and negotiations between both parties to develop mutually agreed terms (MAT) to ensure the fair and equitable sharing of genetic resources and associated benefits.

- *Prior informed consent (PIC)*: is the permission given by the competent national authority of a provider country to a user prior to accessing genetic resources, in line with an appropriate national legal and institutional framework.

- *Mutually agreed terms (MAT)*: is an agreement reached between the providers of genetic resources and users on the conditions of access and use of the resources, and the benefits to be shared between both parties.

These conditions are required under Article 15 of the CBD, which was adopted in 1992 and provides a global set of principles for access to genetic resources, as well as the fair and equitable distribution of the benefits that result from their use.



Source -<https://www.cbd.int/abs/infokit/brochure-en.pdf>

Significance

- The availability of genetic resources can be advantageous to both users and suppliers.
- The utilisation of genetic resources must maximise benefits for users, producers, and the environment. Access and benefit sharing assures this.
- Whenever possible, assist the local communities.
- Provide a variety of advantages, from basic scientific research—like taxonomy—through the creation of commercial goods that improve human wellbeing, like medications.

The Bonn Guidelines

The Bonn Guidelines are intended to assist governments in the adoption of measures to govern access and benefit-sharing in their countries. They were adopted by the Conference of the Parties to the Convention on Biological Diversity (CBD) in 2002.

Their purpose is to help countries, as providers and users of genetic resources, to implement access and benefit-sharing (ABS) procedures effectively. Despite being voluntary, the Guidelines are recognized as an important first step for the implementation of the ABS provisions of the CBD.

The Guidelines have two main aims:

1. To guide countries as providers in setting up their own national legislative, administrative or policy measures for access and benefit-sharing, such as recommending the elements that should make up a prior informed consent (PIC) procedure.
2. To assist providers and users in the negotiation of mutually agreed terms (MAT), by providing examples of what elements should be included in these agreements.

In pursuance of 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, the National Biodiversity Authority of India made the Guidelines on Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations, 2014

Procedure for obtaining Intellectual Property Rights (IPR)

Regulation 8 provides for Procedure for obtaining Intellectual Property Rights (IPR)- It states that any person who intends to obtain any intellectual property right by whatever name called, in or outside India, for any invention based on any research or information on any biological resources obtained from India, shall make an application to the NBA in Form III of the Biological Diversity Rules, 2004:

Provided that if the applicant is a person referred to under sub-section (2) of section 3 of the Act, he shall provide evidence of approval of NBA for access to the biological resources and/or associated knowledge used in the research leading to the invention:

Provided further that any person applying for any right under the Protection of Plant Varieties and Farmers' Rights Act, 2001 (53 of 2001) shall be exempted from this sub-regulation.

The NBA shall, on being satisfied with the application under sub-regulation (1), enter into a benefit sharing agreement with the applicant which shall be deemed as grant of approval for obtaining IPR.

Mode of benefit sharing in IPR

- In case of commercializing the IPR obtained, the applicant shall pay to the NBA such monetary and/or nonmonetary benefit, as agreed between the applicant and the NBA.
- Where the applicant himself commercialises the process/ product/ innovation, the monetary sharing shall be in the range of 0.2 to 1.0% based on sectoral approach, which shall be worked out on the annual gross ex-factory sale minus government taxes.
- Where the applicant assigns / licenses the process / product / innovation to a third party for commercialisation, the applicant shall pay to NBA 3.0 to 5.0% of the fee received (in any form including the license / assignee fee) and 2.0 to 5.0% of the royalty amount received annually from the assignee / licensee, based on sectoral approach. (Regulation 9)

Obligations of applicant in the event of commercialisation of IPR

An applicant, granted IPR, who is a citizen of India or a body corporate, association or organisation which is registered in India and not having any non-Indian participation in its share capital or management, shall give prior intimation to the concerned SBB for access to biological resources, in the form prescribed by the SBB,

and shall comply with such terms and conditions, if any, imposed by the SBB in the interest of promoting conservation and sustainable use.

An applicant, granted IPR, who is a person or a body corporate or an association or an organization referred to under sub-section (2) of section 3 of the Act shall apply in Form I of the Biological Diversity Rules, 2004 to the NBA for access to biological resources. (Regulation 10)

It is imperative for resource users and providers to comprehend and adhere to institutional frameworks, such as those delineated by the CBD and the Bonn Guidelines. These frameworks aid governments in crafting national policies that guarantee access and benefit-sharing occurs in an equitable and just manner.

INTERNATIONAL BIODIVERSITY AGREEMENTS / INSTRUMENTS

Biodiversity Beyond National Jurisdiction Agreement (BBNJ)

After nearly two decades of negotiations, countries convened at UN Headquarters in New York on 19 June 2023 to adopt a historic agreement to advance conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. The UN agreement on Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ) focuses on the conservation and sustainable use of marine life in international waters, which lie outside the exclusive economic zones (EEZs) of individual countries. These international waters encompass roughly two-thirds of the global ocean and harbor a staggering diversity of life, much of which remains undiscovered.

The main objective of this Agreement is to ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, for the present and in the long term, through effective implementation of the relevant provisions of the Convention and further international cooperation and coordination. It applies to areas beyond national jurisdiction.

The agreement aims to:

- Provide a set of rules and regulations for the conservation and sustainable use of marine biodiversity in BBNJ.
- Environmental impact assessments (EIAs) before undertaking activities that could harm the marine environment.
- Area-based management tools, such as marine protected areas (MPAs), to conserve vulnerable ecosystems and species.
- Capacity building and technology transfer to developing countries to help them participate in the implementation of the agreement.
- Encourage collaboration between countries and other stakeholders to effectively manage and conserve marine biodiversity in BBNJ.

The agreement is a significant step towards protecting the vast and valuable ecosystems of the open ocean, which are crucial for the health of the planet and the well-being of humanity.

It emphasizes on-

- (a) The fair and equitable sharing of benefits arising from activities with respect to marine genetic resources and digital sequence information on marine genetic resources of areas beyond national jurisdiction for the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction;
- (b) The building and development of the capacity of Parties, particularly developing States Parties, in particular the least developed countries, landlocked developing countries, geographically disadvantaged States, small island developing States, coastal African States, archipelagic States and

developing middle-income countries, to carry out activities with respect to marine genetic resources and digital sequence information on marine genetic resources of areas beyond national jurisdiction;

- (c) The generation of knowledge, scientific understanding and technological innovation, including through the development and conduct of marine scientific research, as fundamental contributions to the implementation of this Agreement;
- (d) The development and transfer of marine technology in accordance with this Agreement. (Article 9).

The BBNJ treaty addresses, among other things:

- The conservation and sustainable use of marine BBNJ;
- Marine Genetic Resources, including questions on benefit-sharing (MGR);
- Area Based Management Tools (ABMT), including marine protected areas;
- Environmental Impact Assessments (EIA); and
- Capacity-Building and the Transfer of Marine Technology (CB&TMT).

After nearly two decades of negotiations, countries convened at UN Headquarters in New York on 19 June 2023 to adopt a historic agreement to advance conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

The Agreement will be open for signature at UN Headquarters in New York for two years from 20 September 2023 and will enter into force after ratification by sixty States.

Kunming-Montreal Global Biodiversity Framework/COP 15

The United Nations Biodiversity Conference (COP15) ended in Montreal, Canada, on 19 December 2022 with a landmark agreement to guide global action on nature through to 2030. Representatives from 188 governments gathered in Montreal.

Chaired by China and hosted by Canada, COP 15 resulted in the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) on the last day of negotiations. The GBF aims to address biodiversity loss, restore ecosystems and protect indigenous rights. The plan includes concrete measures to halt and reverse nature loss, including putting 30 per cent of the planet and 30 per cent of degraded ecosystems under protection by 2030.

Governments committed to protect 30% of land and water considered important for biodiversity by 2030. Currently, only 17% of terrestrial and 10% of marine areas are protected.

The framework contains four overarching global goals. They are-

1. **Goal A** - It aims to ensure the integrity, connectivity, and resilience of ecosystems by 2050, notably expanding natural habitats. It seeks to cease human-induced extinctions of endangered species and decrease species extinction rates tenfold, while bolstering the abundance of native wildlife to healthy levels. Additionally, it stresses the preservation of genetic diversity within wild and domestic populations to maintain their adaptability.
2. **Goal B** - It emphasizes the sustainable utilization and management of biodiversity, valuing and enhancing nature's benefits to humanity, including ecosystem functions and services. It focuses on restoring declining ecosystem functions and services to support sustainable development for present and future generations.
3. **Goal C** - It underscores fair and equitable sharing of both monetary and non-monetary benefits derived from genetic resources, digital sequence information, and traditional knowledge. It aims to substantially increase these benefits by 2050, ensuring protection for traditional knowledge associated with genetic resources, thereby contributing to biodiversity conservation.

4. **Goal D-** It aims to secure adequate means of implementation, including financial resources, capacity-building, and technology transfer to implement the global biodiversity framework. It particularly emphasizes equitable access for developing countries, least developed countries, small island developing states, and countries with transitioning economies. The goal seeks to close the biodiversity finance gap and align financial flows with the global biodiversity framework and the 2050 vision for biodiversity.

The GBF also features 23 targets to achieve by 2030, including:

- Effective conservation and management of at least 30 per cent of the world's land, coastal areas and oceans. Currently, 17 percent of land and 8 per cent of marine areas are under protection
- Restoration of 30 per cent of terrestrial and marine ecosystems
- Reduce to near zero the loss of areas of high biodiversity importance and high ecological integrity
- Halving global food waste
- Phasing out or reforming subsidies that harm biodiversity by at least \$500 billion per year, while scaling up positive incentives for biodiversity conservation and sustainable use
- Mobilizing at least \$200 billion per year from public and private sources for biodiversity-related funding
- Raising international financial flows from developed to developing countries to at least US\$ 30 billion per year
- Requiring transnational companies and financial institutions to monitor, assess, and transparently disclose risks and impacts on biodiversity through their operations, portfolios, supply and value chains.

The next UN biodiversity summit will take place in 2024 and is expected to see countries strengthen financial commitments towards halting biodiversity loss.

Convention on Biological Diversity (CBD)

Signed by 150 government leaders at the 1992 Rio Earth Summit, the Convention on Biological Diversity is dedicated to promoting sustainable development. Conceived as a practical tool for translating the principles of Agenda 21 into reality, the Convention recognizes that biological diversity is about more than plants, animals and micro organisms and their ecosystems – it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live.

The Convention on Biological Diversity, as an international treaty, identifies a common problem, sets overall goals and policies and general obligations, and organizes technical and financial cooperation. However, the responsibility for achieving its goals rests largely with the countries themselves.

The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives:

- The conservation of biological diversity
- The sustainable use of the components of biological diversity
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Other treaty commitments include:

- Identifying and monitoring the important components of biological diversity that need to be conserved and used sustainably.
- Establishing protected areas to conserve biological diversity while promoting environmentally sound development around these areas.

- Rehabilitating and restoring degraded ecosystems and promoting the recovery of threatened species in collaboration with local residents.
- Respecting, preserving and maintaining traditional knowledge of the sustainable use of biological diversity with the involvement of indigenous peoples and local communities.
- Preventing the introduction of, controlling, and eradicating alien species that could threaten ecosystems, habitats or species.
- Controlling the risks posed by organisms modified by biotechnology.
- Promoting public participation, particularly when it comes to assessing the environmental impacts of development projects that threaten biological diversity.
- Educating people and raising awareness about the importance of biological diversity and the need to conserve it.
- Reporting on how each country is meeting its biodiversity goals.

CBD principles most relevant to the debate over biological resources and IPRs can be summarised as:

- (a) states have sovereign control over the biological resources within their borders and shall ensure conservation and sustainable use of their same;
- (b) although states shall have the authority to control access to their biological resources, they shall endeavour to create conditions that facilitate such access;
- (c) such access shall be granted on mutually agreed terms and subject to the prior informed consent of the party providing such access;
- (d) the benefits of commercial or other utilisation of genetic resources shall be shared in a fair and equitable way with the party providing such access;
- (e) the wider application of the knowledge, innovations and practices of indigenous and other local communities shall be conducted with the approval and involvement of the holders of such knowledge.

Ramsar Convention on Wetlands (Ramsar)

The Convention on Wetlands is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. Since then, almost 90% of UN member states, from all the world's geographic regions, have acceded to become "Contracting Parties".

The Ramsar Convention is the only global Convention focused specifically on wetland biodiversity and ecosystems. "Wetlands" encompass a broader range of ecosystems than is often realised. Some are forested, some are agricultural land, some human-made, and some even underground. Wetlands occur in all biomes and are potentially influenced by all sectoral activities.

The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

What are Wetlands?

The definition of the word 'wetland', under the Convention, is any land area that is saturated or flooded with water, either seasonally or permanently. Inland wetlands include aquifers, lakes, rivers, streams, marshes, peatlands, ponds, flood plains and swamps. Coastal wetlands include all coastlines, mangroves, saltmarshes, estuaries, lagoons, seagrass meadows and coral reefs.

Under the three pillars of the Convention, the Contracting Parties commit to:

- work towards the wise use of all their wetlands through national plans, policies and legislation, management actions and public education;
- designate suitable wetlands for the list of Wetlands of International Importance (the “Ramsar List”) and ensure their effective management;
- cooperate internationally on trans boundary wetlands, shared wetland systems, shared species, and development projects that may affect wetlands.

Significance of wetlands-

Wetlands are vital for humanity for a number of reasons:

- Wetlands provide fresh water for basic drinking, cooking and washing needs and for irrigation.
- Wetlands feed humanity - Rice, grown in wetland paddies, is the staple diet of nearly three billion people, and accounts for 20% of the world’s food.
- Wetlands are nature’s shock absorbers- The wetlands within river basins act as natural sponges, absorbing rainfall, reducing flood impact and this same storage capacity also helps safeguard against drought. Mangroves and coral reefs reduce the speed and height of storm surges and impact of tsunamis and hurricanes.
- Wetlands are critical for biodiversity- Wetlands are home to more than 100,000 known freshwater species, and this number is growing all the time.
- Wetlands are also essential for many amphibians, as well as for bird breeding and migration. Wetlands create sustainable products and livelihoods More than 660 million people depend on fishing and aquaculture for their livelihoods.
- Wetlands also provide timber for building, vegetable oil, medicinal plants, raw material for weaving and fodder for animals.

Facts-

India is currently home to 80 Ramsar Sites with Chilika Lake in Odisha and Keoladeo National Park in Rajasthan as first recognized Ramsar Sites of India in 1981.

Tamil Nadu boasts 16 Ramsar sites, one of the highest numbers in India. It includes recently added sites Karaivetti Bird Sanctuary, Longwood Shola Reserve Forest, added in January 2024.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

The CMS convention refers to the Convention on the Conservation of Migratory Species of Wild Animals, also known as the Bonn Convention. It is an international treaty aimed at conserving migratory species and their habitats on a global scale. The convention was adopted in 1979 and entered into force in 1983. It is administered by the United Nations Environment Programme (UNEP).

The primary objective of the CMS convention is to facilitate the conservation of migratory species throughout their range. It does so by promoting coordinated conservation measures among countries that are parties to the convention. The CMS provides a framework for countries to work together to address threats to migratory species and their habitats, including habitat loss, pollution, climate change, and unsustainable harvesting.

The CMS convention is an important tool for international cooperation in biodiversity conservation, particularly for species that cross national borders during their annual migrations.

As an intergovernmental treaty under the aegis of the United Nations Environment Programme (UNEP), CMS brings together the governments of the countries through which migratory species pass - the Range States; it lays the legal foundation to conduct conservation measures on a global scale. The legal instruments under CMS may range from legally binding Agreements to less formal Memoranda of Understanding and can be adapted to fit the requirements of each region.

One of the key features of the CMS convention is the development of species-specific agreements, known as Memoranda of Understanding (MoUs), which focus on the conservation and management of particular migratory species or groups of species. These MoUs are negotiated and implemented by countries that share the range of the species covered by the agreement.

In this respect, CMS acts as a framework Convention. The agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions. The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity to CMS.

Nagoya Protocol

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity is a supplementary agreement to the Convention on Biological Diversity. It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

The Nagoya Protocol on ABS was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014, 90 days after the deposit of the fiftieth instrument of ratification. Its objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

The Nagoya Protocol create greater legal certainty and transparency for both providers and users of genetic resources by:

- Establishing more predictable conditions for access to genetic resources.
- Helping to ensure benefit-sharing when genetic resources leave the country providing the genetic resources

By helping to ensure benefit-sharing, the Nagoya Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being.

The Nagoya Protocol applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization. The Nagoya Protocol also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization.

The Nagoya Protocol sets out core obligations for its contracting Parties to take measures in relation to access to genetic resources, benefit-sharing and compliance.

Access obligations

Domestic-level access measures are to:

- Create legal certainty, clarity and transparency
- Provide fair and non-arbitrary rules and procedures
- Establish clear rules and procedures for prior informed consent and mutually agreed terms
- Provide for issuance of a permit or equivalent when access is granted

- Create conditions to promote and encourage research contributing to biodiversity conservation and sustainable use
- Pay due regard to cases of present or imminent emergencies that threaten human, animal or plant health
- Consider the importance of genetic resources for food and agriculture for food security

Benefit-sharing obligations

Domestic-level benefit-sharing measures are to provide for the fair and equitable sharing of benefits arising from the utilization of genetic resources with the contracting party providing genetic resources. Utilization includes research and development on the genetic or biochemical composition of genetic resources, as well as subsequent applications and commercialization. Sharing is subject to mutually agreed terms. Benefits may be monetary or non-monetary such as royalties and the sharing of research results.

Compliance obligations

Specific obligations to support compliance with the domestic legislation or regulatory requirements of the contracting party providing genetic resources, and contractual obligations reflected in mutually agreed terms, are a significant innovation of the Nagoya Protocol. Contracting Parties are to:

- Take measures providing that genetic resources utilized within their jurisdiction have been accessed in accordance with prior informed consent, and that mutually agreed terms have been established, as required by another contracting party
- Cooperate in cases of alleged violation of another contracting party's requirements
- Encourage contractual provisions on dispute resolution in mutually agreed terms
- Ensure an opportunity is available to seek recourse under their legal systems when disputes arise from mutually agreed terms
- Take measures regarding access to justice
- Take measures to monitor the utilization of genetic resources after they leave a country including by designating effective checkpoints at any stage of the value-chain: research, development, innovation, pre-commercialization or commercialization.

The Nagoya Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance. It also addresses genetic resources where indigenous and local communities have the established right to grant access to them. Contracting Parties are to take measures to ensure these communities' prior informed consent, and fair and equitable benefit-sharing, keeping in mind community laws and procedures as well as customary use and exchange.

The preamble of Nagoya Protocol, inter alia, recognised the "importance of promoting equity and fairness in negotiations and mutually agreed terms between providers and users of genetic resources". It also recognised "the vital role that women play in access and benefit-sharing and affirming the need for the full participation of women at all levels of policy-making and implementation for biodiversity conservation."

Cartagena Protocol

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of Living Modified Organisms (LMOs) resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the Convention on Biological Diversity and entered into force on 11 September 2003.

On 29 January 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern

biotechnology. It establishes an Advance Informed Agreement (AIA) procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory. The Protocol contains reference to a precautionary approach and reaffirms the precaution language in Principle 15 of the Rio Declaration on Environment and Development. The Protocol also establishes a Biosafety Clearing-House to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol.

The Cartagena Protocol on Biodiversity aims to safeguard biodiversity from any hazards posed by LMOs developed as a result of contemporary technology. Due to the rapid breakthroughs in biotechnology and the resulting worries regarding its application and safety in relation to biodiversity, the protocol was adopted. In order to assure the secure application of contemporary biotechnology, it attempts to develop an internationally standardised biosafety system. A mechanism for advance informed agreement (AIA) is outlined in the Protocol. Before consenting to accept LMO imports, governments must be provided with sufficient information to enable them to make an educated decision.

The AIA is made up of four parts:

- Notification from the exporter (This is a thorough written account of the LMO by the exporter, written well before the first shipment)
- acknowledging importer's receipt of notification
- Making a decision (approve/prohibit/ask for more details, etc.)
- Review of judgements

A Biosafety Clearing-House (BCH) is also established by the Cartagena Protocol to facilitate international information sharing on LMOs. It also aims to aid nations in carrying out the Cartagena Protocol.

A system for exchanging pertinent technological, scientific, and legal information is the BCH. The Protocol provides a preventative approach to the problem of LMO transfer from one nation to another.

India ratified Cartagena Protocol in 2003. The Ministry of Environment, Forest and Climate Change (MOEF&CC), Government of India, is the nodal agency (Competent National Authority-CNA) in the nation for the Protocol's implementation.

CASE STUDIES/ CASE LAWS

Centre for Environment Law, WWF-I vs. Union of India & Others, IA No.3452 in WP(C) No.202 of 1995, Supreme Court dated April 15, 2013

Facts:

The petition was filed to decide the necessity of a second home for Asiatic Lion (*Panthera leo persica*), an endangered species, for its long term survival and to protect the species from extinction. The Wildlife Institute of India (for short 'WII'), an autonomous institution under the Ministry of Environment and Forests (for short 'MoEF'), Government of India identified the Asiatic lions as a prime candidate for a re-introduction project to ensure its long term survival.

Three alternative sites for re-introduction of Asiatic lions were suggested for an intensive survey, the details of which are given below: 1. Darrah-Jawaharsagar Wildlife Sanctuary (Rajasthan) 2. Sitamata Wildlife Sanctuary (Rajasthan) 3. Kuno Wildlife Sanctuary (Madhya Pradesh). Upon Impact assessment of the three sites surveyed, Kuno Wildlife Sanctuary (for short 'Kuno') was found to be the most suitable site for reintroduction in establishing a free ranging population of Asiatic lions. Due deliberations ranging about Rs 1545 lakhs were undertaken regarding the rehabilitation of villages and residents falling in and around Kuno in accordance with the approval of MoEF.

However, the Chief Wildlife Warden of Gujarat opined that there was no commitment on the part of the State of Gujarat for providing lions and the State Government had not agreed for the same. They also stated Kuno does not have sufficient prey base and Lions are known to prefer grasslands and Gir provides the same.

Issue:

1. The fundamental issue is whether the Asiatic lions should have a second home?
2. Can State exercise its ownership and possession over wild animals found within the state?

Judgement:

The Hon'ble Supreme Court while examining the necessity of a second home for Asiatic lions, relied on the following relevant matters: –

- Anthropocentric v. eco-centric approaches;
- Kuno historical habitat re-introduction;
- Prey Density at Kuno

Article 21 of the Constitution of India protects not only the human rights but also casts an obligation on human beings to protect and preserve a species becoming extinct, conservation and protection of environment is an inseparable part of right to life. Reference was also made to the conservatism in Bio-Diversity Act, 2002 since its main objective is the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Bio-diversity and biological diversity includes all the organisms found on our planet i.e. plants, animals and micro-organisms, the genes they contain and the different eco-systems of which they form a part.

To ensure better protection of wildlife outside the protected areas and initiating recovery programmes a comprehensive Centrally Sponsored Scheme was formulated. It lays emphasis on the recovery programmes for saving critically endangered species and habitats like Snow leopard, Great Indian Bustard, marine turtles, etc. The scheme also referred the Asiatic lions as a critically endangered species and highlighted the necessity for a recovery programme to ensure the long term conservation of lions.

Anthropocentric v. Eco-Centric Approaches

Court stated that the approach should be eco-centric and not anthropocentric i.e it should be nature-centred where human are part of nature but not human centered and we must apply the “species best interest standard”, that is the best interest of the Asiatic lions. Approach made by SWBL and the State of Gujarat is an anthropocentric approach, not eco-centric though the State of Gujarat can be justifiably proud of the fact that it has preserved an endangered species becoming extinct. Court relied doctrine of “public trust” as enunciated in *M. C. Mehta v. Kamal Nath and Others (1997) 1 SCC 388*, stating that certain common properties such as rivers, seashores, forests and the air are held by the Government in trusteeship for the free and unimpeded use of the general public and that it would be totally unjustified to make them a subject of private ownership.

Kuno re-introduction

The Wildlife Biologists of WII, noticed the necessity for long term conservation and a second natural habitat for Asiatic lion of Gir. Court opined that the various decisions taken by NBWL to have a second home for Asiatic lion due to catastrophes like epidemic, large forest fire etc, is justified. It was necessary to avoid a situation like that of Tanzania's in 1994 wherein 30% of the lion population was killed due to canine distemper outbreak.

Court also stated that that there is uniformity in the views expressed by the Bio-Scientists of WII, NBWL(National Board for Wild Life), MoEF and other experts that to have a second home for the endangered species like Asiatic lion is of vital importance and Kuno Wildlife Sanctuary in Madhya Pradesh is the most suitable habitat for its re-introduction. A draft report prepared by eminent Scientists on behalf of WII published on 31.1.1995 also revealed that the Kuno was a historical distribution range of Asiatic lions.

Prey density

All possible steps have been taken by the State of Madhya Pradesh, MoEF and the Union of India making Kuno fit for re-introduction of Asiatic lion, with the approval of NWLB. Reports submitted has reiterated that the prey base in Kuno is more than the existing prey base in Gir.

Held:

Court also stated that the views of NBWL constituted under Section 5A of the Wildlife Protection Act, have to prevail over the views expressed by SBWL (State Board for Wild Life), Gujarat. Court also highlight the necessity of an exclusive parliamentary legislation for the preservation and protection of endangered species so as to carry out the recovery programmes before many of the species become extinct.

The Supreme Court ruled that, in order to save the Asiatic lion species from extinction, its restoration into Kuno was an urgent matter that could not be postponed. The Asiatic lion had previously resided in the wild in Kuno, and there was now enough prey density there to justify the Court's directive for reintroduction. The Asiatic lion was to be reintroduced in Kuno within six months, according to an order issued by the Ministry of Environment and Forest by the Supreme Court.

Anthropocentric vs. Eco-Centric

No species can survive on the brink of extinction indefinitely and the probabilities associated with a critically endangered species make their extinction a matter of time. Anthropocentrism is always human interest focussed thinking that non-human has only instrumental value to humans, in other words, humans take precedence and human responsibilities to non-human are based benefits to humans. Eco-centrism is nature-centred, where humans are part of nature and non-humans have intrinsic value. In other words, human interest does not take automatic precedence and humans have obligations to non-humans independently of human interest. Eco-centrism is, therefore, life-centred, nature-centred where nature includes both humans and non-humans.

Eco-system approach to protecting endangered species emphasises on recovery, and complement and support eco-system based conservation approach. Reintroduction of an animal or plant into the habitat from where it has become extinct is also known as ex-situ conservation. India has successfully achieved certain re-introduction programmes, for example, the Rhino from Kaziranga, re-introduction of Gangetic gharial in the rivers of Uttar Pradesh, Rajasthan etc.

Can any State, person or organisation claim their ownership and possession of any wild animal?

No state, organisation or person can claim ownership or possession over wild animals in the forest. Wild Animal is defined under the Wild Life (Protection) Act, 1972 under Section 2(36) to mean any animal specified in schedules I to IV and found wild in nature. 'Wild Life' has been defined under Section 2(37) to include any animal, bees, butterflies, crustacean, fish and moths, and or land vegetation which forms part of any habitat. Section 42 deals with the issue of certificates and confers, no ownership of the wild animals to a particular state or others. Animals in the wild are properties of the nation for which no state can claim ownership and the state's duty is to protect the wild life and conserve it, for ensuring the ecological and environmental security of the country.

Several migratory birds, mammals, and animals in wild cross national and international borders created by man and every nation have a duty and obligation to ensure their protection. No nation or organisation can claim ownership or possession over them, the Convention on the conservation of migratory species of wild animals held at Bonn, 1979, supports this principle and the convention recognises that wild animals in their innumerable forms are irreplaceable part of the earth; natural system and must be conserved for the good of the mankind and require the concerted action of all states within the national jurisdictional boundaries of which such species spend any part of their life cycle. India is also a signatory to that convention.

Future Generations vs. Ministry of Environment and Others, Supreme Court of Justice of Colombia dated April 05, 2018

Facts:

In Colombia, individuals facing threats to their fundamental rights have the option to file a "tutela," which is a constitutional case against the government aimed at protecting individual rights, with any court in the country.

Article 86 of Colombia's Constitution ensures that every individual can seek legal protection from a judge when the actions or inactions of a public authority could jeopardize or infringe upon their fundamental rights.

In 2018, a group of twenty-five individuals aged between 7 and 25 lodged a collective tutela with a district court. The petitioners argued in their tutela that their right to a healthy environment and a future life was being violated. They contended that climate change would adversely affect the quality of life in their hometowns and cities in the coming years. They cited the Paris Agreement and Colombian Law 1753 of 2015, which committed the government to achieving zero net deforestation in the Amazon by 2020 and reducing greenhouse gas emissions.

They brought legal action against Colombian governmental bodies, municipalities, and three autonomous regional corporations operating in the Amazon Rainforest for their alleged role in increased deforestation in the Amazon. The petitioners asserted that the Colombian government was complicit in climate change by failing to control deforestation in the country's Amazon region, which had increased by over 40% annually since 2015.

However, the district court rejected the tutela, deeming it an inappropriate method to address the claim due to its collective nature, thereby ruling against the plaintiffs.

Subsequently, the plaintiffs appealed the decision to the Supreme Court of Colombia.

Issues:

1. Were the criteria for the acción de tutela met? Did the actions of the government and corporations pose a threat to the fundamental rights of the plaintiffs and future generations?
2. Was there a legal obligation for the government to decrease the net rate of deforestation and lower GHG emissions?
3. Is the Colombian Amazon Rainforest a subject of rights?

Judgement:

Validity of Tutela-

The Court stated that the fundamental rights of life, health, the minimum subsistence, freedom, and human dignity are substantially linked and determined by the environment and the ecosystem. The increasing deterioration of the environment is a serious attack on current and future life and on other fundamental rights; it gradually depletes life and all its related rights. Therefore, in this case, the exceptional proceeding of the tutela is sufficiently demonstrated to resolve in depth the problems raised, because the jurisprudential assumptions for this purpose are met, given the connectedness of the environment with fundamental rights.

The protection of fundamental rights not only involves the individual, but implicates the "other." The neighbor is otherness; its essence, the other people that inhabit the planet, also include other animal and plant species. But in addition, this includes the unborn, who also deserve to enjoy the same environmental conditions that we have.

Mitigating Environmental Crises for Future Generation: An Ecocentric- Anthropic Approach

The environmental rights of future generations are based on the (i) ethical duty of the solidarity of the species and (ii) on the intrinsic value of nature.

The first states that natural resources are shared by all inhabitants of Planet Earth, and by their descendants or future generations who do not yet have a physical hold of them, Thus, without an equitable and prudent approach to consumption, the future of humankind may be compromised due to the scarcity of essential life resources. In this way, solidarity and environmentalism are "related until they become the same.

The second transcends the anthropocentric perspective, and focuses on "ecocentric- anthropic" criteria, which places the human being on par with the environmental ecosystem, whose purpose is to avoid arrogant, dismissive, and irresponsible treatment of the environmental resources, and its entire context, to satisfy materialistic ends, without any protectionist or conservationist respect.

Humanity is the main actor responsible for this scenario, as its global hegemonic position led to the adoption of an anthropocentric and selfish model, whose characteristic features are harmful to environmental stability, namely: i) the excessive demographic growth; ii) the adoption of a rapid development system guided by consumerism and the current political-economic systems; and iii) the excessive exploitation of natural resources.

Colombian Amazon Rainforest a subject of rights?

Constitute of Colombia, 1999 postulates from a “green” perspective, cataloging the Political Charter as an “Ecological Constitution” and elevating the environment to the category of fundamental rights. The conservation of the Amazon is a national and global obligation, as it is the main environmental axis of the planet, and as such has been called the “lung of the world...”

The international community has generated various commitments to achieve its conservation; the Amazonian Cooperation Treaty (TCA), its main objective is the “...promotion of the harmonious development of the Amazon, and the incorporation of its territories to the respective national economies, which is fundamental for maintaining the balance between economic growth and environmental preservation...”

Likewise, in the aforementioned Framework Convention on Climate Change in Paris of 2015, where Colombia, among other responsibilities, agreed to reducing “deforestation in the Colombian Amazon”; and with this purpose promoted the “Sustainable Colombia Initiative” and the “Vision Amazon” Fund, for which the following pillars were agreed upon.

The Court issued five mandatory orders:

- Ordered to formulate a short, medium, and long term action plan within 4 months from notice, to counteract the deforestation rate in the Amazon, tackling climate change impacts.
- Ordered to formulate within 5 months from notice, an “intergenerational pact for the life of the Colombian Amazon - PIVAC,” to adopt measures aimed at reducing deforestation to zero and greenhouse gas emissions, and has national, regional and local implementation strategies of a preventative, mandatory, corrective, and pedagogical nature, directed towards climate change adaptation.
- Ordered all municipalities in the Colombian Amazon, within 5 months from notice, to update and implement Land Management Plans, and include an action plan to reduce deforestation to zero in its territory, which should encompass preventative, mandatory, corrective, and pedagogical measurable strategies, oriented towards climate change adaptation.
- Ordered the Corpoamazonia, CDA and Cormacarena, within the next five (5) months from notice and regarding its jurisdiction, to create an action plan that counteracts through police, judicial or administrative measures, the deforestation problems reported by the IDEAM.
- In addition, within their duties, the defendants will have to, in the forty-eight hours following the completion of this ruling, increase actions tending to mitigate deforestation while carrying out the modifications contained in the aforementioned mandate.

Arogyapacha , Kani and Jawaharlal Nehru Tropical Botanical Garden and Research Institute – Benefit Sharing Model.

Background/Facts:

In the tropical forests of the Agasthyamalai hills in Kerala, India, dwells the indigenous Kani tribe, a community of nearly 25,000 traditionally nomadic people. In December 1987, Dr. Palpu Pushpangadan, then heading the Jawaharlal Nehru Tropical Botanical Garden and Research Institute (JNTBGRI), led an ethnobotanical expedition with the All India Coordinated Research Project on Ethnobiology (AICRPE) in the Western Ghats. Recognizing the Kani’s unparalleled knowledge of the area, Dr. Pushpangadan enlisted them as guides. Despite traversing rough terrain for hours, the Kani guides remained unfazed, sustained by black fruits they continuously consumed. Witnessing their vitality, the team tried the fruit and felt instantly rejuvenated.

The Kani possess a rich tradition of utilizing local flora for health, guarded by tribal physicians known as Plathi. According to Kani customs, only the Plathi can share this medicinal knowledge. Initially hesitant, the Kani eventually revealed the source of the fruit, “arogyapacha” (*Trichopus zeylanicus* ssp. *Travancoricus*), after persistent inquiry from the AICRPE team.

Dr. Pushpangadan, recognizing arogyapacha’s medicinal potential, led research at JNTBGRI. Over eight years, they found the plant’s berries to possess anti-stress, immune-boosting, and tumor-controlling properties. Crushed leaves proved the most effective. After isolating twelve active compounds, JNTBGRI created a herbal formulation named “Jeevani,” meaning “giver of life.” Jeevani, a granular product, is mixed with hot water or milk.

Research and Development

JNTBGRI continued its research and development (R&D) program on Jeevani, particularly through clinical trials in which it was administered orally to one hundred human subjects in studies involving either healthy or unhealthy individuals. Results of the clinical trials were very successful and Jeevani was found to exert favorable effects in a number of situations.

IP and Benefit Sharing agreement

Dr. Pushpangadan and his research team realized that without intellectual property (IP) protection, they would not be able to generate much revenue from Jeevani. With an interest in also helping the Kani people through a benefit sharing agreement, Dr. Pushpangadan also knew that no IP protection also meant there would be no financial gains for the Kani people. IP protection was thus essential.

Therefore, after successfully finishing R&D, JNTBGRI decided to make a patent application in 1994 with the Office of the Controller General of Patents, Designs & Trademarks of India (IP India) for the manufacturing process of an herbal sports medicine based on the compounds isolated from arogyapacha.

Although the patents do not expressly link Jeevani to the Kani tribe, Dr. Pushpangadan and his team never took for granted the role the traditional knowledge of the Kani people played in their discovery of the invigorative effects of arogyapacha. They knew the importance of the Plathis in Kani culture and their role of passing down traditional knowledge and medicine through generations, and they had no desire to take advantage of them. JNTBGRI decided to enter into a benefit-sharing agreement with the Kani people and shortly thereafter the Kani received the first payment of US\$ 12,500 from the benefit sharing agreement.

Recognizing the rights of traditional knowledge holders can make a significant impact on economic and social development. IP protection is one of the most important tools through which this recognition can come. Even before the patent applications based on arogyapacha were granted, they yielded strong financial gains, half of which was shared with the Kani people.

Licensing and Commercialization

Since JNTBGRI is a research institute, it does not have the capacity to commercialize any products resulting from its Jeevani invention. Therefore it authorized the licensing of the technology for manufacturing Jeevani to Arya Vaidya Pharmacy Ltd. (AVP) of Coimbatore, to be the primary manufacturer, and in 1995 AVP signed a seven year licensing agreement with JNTBGRI and paid a US\$50,000 licensing fee.

Under the terms of the agreement, JNTBGRI would receive two percent royalties on any sales of Jeevani products. The licensing agreement with AVP was primarily to establish a market for Jeevani products, after which JNTBGRI maintained the right to license its manufacturing technology to other companies if it so desired. The license agreement between JNTBGRI and AVP proved to be successful and therefore has been consistently renewed thereafter.

In October 1997, a proposal was made to the Forest Department and the Integrated Tribal Development Program (ITDP), an initiative run by the Directorate for Tribal Welfare of the government of Kerala, stipulating that JNTBGRI was willing to pay the Kani people money for the seeds necessary for the cultivation of the plant

and would subsequently buy the leaves harvested. This was not only a sustainable solution, but the sale of the leaves would give the Kani an additional, stable source of income.

Fifty families were given approximately US\$ 40 each for cultivating the plant. JNTBGRI was to buy five tons of the leaves per month and supply them to AVP for the production of Jeevani. This scheme was a resounding success, through which many Kani people secured employment and training in cultivation and harvesting, which provided them with stable income and new skills they could use for sustainable cultivation of other natural resources in the region.

Divya Pharmacy vs. Union of India, Writ Petition (M/S) No. 3437 of 2016

Facts:

“Divya Yog Mandir”, is a Trust, registered under the Registration Act, 1908, and “Divya Pharmacy”, which is the sole petitioner before this Court is a business undertaking of this Trust. The Pharmacy manufactures Ayurvedic medicines and Nutraceutical products, at its manufacturing unit at Haridwar, Uttarakhand. The Trust and the Pharmacy were founded by Swami Ramdev and Acharya Balkrishna, according to the averments of the writ petition.

Petitioner’s case is simple. Uttarakhand Biodiversity Board (from hereinafter referred to as UBB) cannot raise a demand, under the Head of “Fair and Equitable Benefit Sharing” (FEBS), as the Board neither has the powers nor the jurisdiction to do that and, secondly, the petitioner in any case is not liable to pay any amount or make any kind of contribution under the head of “FEBS”.

As the petitioner does not fall in any of the categories as defined under sub-section (2) of Section 3, there is no question of a prior approval from NBA by the petitioner, and logically therefore there is no question of any contribution under FEBS, as a contribution under FEBS only comes from those who require a prior approval from NBA.

The petitioner would also argue that the State Biodiversity Board (SBB) has no power to impose FBES in respect of persons referred in Section 7 of the Act of 2002, i.e. in respect of “Indian entities”. Even NBA does not have the powers under the Act, to delegate these powers to SBB, as the NBA itself is not authorised to impose FEBS on an “Indian entity”. In short the petitioner would argue that there is no provision in the Act where a contribution in the form of “fee”/monetary compensation, or a contribution in any manner is required to be given by an Indian entity. FEBS is only for foreigners! The statute is clear about it. Sri Parthasarthy would finally submit that the elementary principle of statutory interpretation is to give plain meaning to the words used. Reliance is placed on a decision of the Hon’ble Apex Court in the case of State of Jharkhand and another v. Govind Singh reported in (2005) 10 SCC 437.

Defendants argued that FEBS is one of the three major objectives sought to be achieved by the Act of 2002, and this has always to be seen as a continuation of the long history of international conventions and treaties, which preceded the parliamentary legislation. The Act and the Regulations framed therein are a result of our international commitments. Reference here is to the Rio de Janeiro Convention and Johannesburg Declaration, and most importantly Nagoya Protocol. The learned counsel for the SBB would argue that there is no distinction between a “foreign entity” and an “Indian entity”, as far as FEBS is concerned, and if a distinction is made between a foreign entity and Indian entity in this respect, it would defeat the very purpose of the Act, and would also be against the international treaties and conventions to which India is a signatory. The learned counsel would submit that whereas a foreign entity under Section 3 has to take prior approval of NBA before venturing into this area, an Indian entity has to give “prior intimation” to SBB before venturing into this area, under Section 7 of the Act. The regulation and control, as far as Indian entity is concerned, is given to SBB under the Act, and therefore it is the SBB which is the regulatory authority in case of an Indian entity, such as the petitioner, and FEBS is being imposed by SBB as one of its regulatory functions.

Issue:

The petitioner is an Indian company, without any element of foreign participation, either in its share capital or management, and therefore has challenged the imposition of an amount by the SBB, under the head of “fair

and equitable benefit sharing”, precisely on the ground that an Indian entity cannot be subjected to this burden. The entire argument of the petitioner rests on a textual and legalistic interpretation, particularly of the term “Fair and Equitable Benefit Sharing”.

Judgement:

Court stated that regulating an activity in form of demand of a fee is an accepted practice recognised in law. Therefore, in case the SBB as a regulator, demands a fee in the form of FEBS from the petitioner when the petitioner is admittedly using the biological resources for commercial purposes, it cannot be said that it has no powers to do so. As far as vesting of this power through a Regulation by NBA is concerned, we must take resort to Section 21(2) (f) and sub-section (4) of Section 21, already referred above. Under sub-section (2) of Section 21, NBA, has powers, subject to any regulation, to “determine the benefit sharing”.

What is Fair and Equitable Benefit Sharing cannot be looked through the narrow confines of the definition clause alone. The concept of FEBS has to be appreciated from the broad parameters of the scheme of the Act and the long history of the movement for conservation, together with our international commitments in the form of international treaties to which India is a signatory. Once we do that, we find that Under Section 2(f) and sub-section (4) of Section 21, the NBA has got powers to frame regulations in order to give payment of monetary compensation and other nonmonetary benefits to the benefit claimers as the National Biodiversity Authority may deem fit, in form of Regulations and the State Biodiversity Board in turn has powers and duties to collect FEBS under the regulatory power it has under Section 7 read with Section 23 (b) of the Act.

In view of the above, this Court is of the opinion that SBB has got powers to demand Fair and Equitable Benefit Sharing from the petitioner, in view of its statutory function given under Section 7 read with Section 23 of the Act and the NBA has got powers to frame necessary regulations in view of Section 21 of the Act. The challenge of the petitioner to the validity of the Regulations fails. This Court holds that the Regulations 2, 3 and 4 of the Guidelines on Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations, 2014 only clarifies and follows what is there in the Act and it is intra vires the Act.

Chandra Bhal Singh vs. Union of India & Others (O.A. No. 347 of 2016)

One of the most recent cases related to the BD Act is a matter, which seeks the intervention of the NGT to expedite the overall implementation of the BD Act. Original Application No. 347 of 2016 was heard before the Principal Bench of the NGT on 8th July 2016. The petitioner in this case raised concerns about the slow implementation of the BD Act, 2002. The petition also raises concerns about how the BMCs have not been set up at the local level and the preparation of people’s biodiversity registers has not been completed amongst other issues with the overall implementation with the law (Phadnis, 2016).

On 8th July 2016 notices were issued to the central government as well as all state governments to respond and the case was to be heard on 17th August 2016. During this hearing the Principal Bench of the

NGT issued bailable warrants against key respondents, as they had not filed their responses in the case. This was recalled through another order of 23th August 2016, following affidavits being filed before the NGT.

Orders demanding the BMCs to follow the necessary compliance measures were passed in 2018, and the Ministry of Environment, Forest and Climate Change, along with the NBA, were obligated to oversee the order’s progress. The improvement in effective Act implementation that followed the ruling prompted the Tribunal to direct complete compliance by the BMCs through the end of January 2020. The Tribunal set a monthly fine of INR 10 lakhs for any violation of the Act’s provisions beginning in February 2020 in an effort to convey severity.

Case in Madras High Court on Constitutional Validity and implementation of the Act (Writ Petition No. 15663 of 2014 judgment dated 11 March 2015)

A Writ Petition was filed by petitioner *R. Muralidharan* under Article 226 of the Constitution of India before the High Court of Madras. This petition sought to declare that the BD Act is unconstitutional, as it violates Article 14 and India’s obligation under the Convention on Biological Diversity (CBD). It also sought directions to delink the Indian Patent Act formalities with the access approvals that need to be taken by the NBA.

On 11 March 2015 the two-judge bench in the Madras High Court that all the petitioner persists with seems to be *qua the implementational* difficulties rather than any worth-while challenge to the constitutional validity of the Act. The judgment added that there were no satisfactory answers by the petitioner on both these aspects. On the same date this case was dismissed with the finding that “the petition is completely misconceived and accordingly dismissed”.

M/s Som Distilleries Pvt. Ltd. vs. M.P. State Bio Diversity Board & Ors. (O.A. 62/2013, CZ)

Brief Facts:

In order to control the biological resource collection by Indian corporations, the Madhya Pradesh State Biodiversity Board (MP SBB) asked the National Biodiversity Authority (NBA) in March and April of 2013 to provide consistent Access and Benefit Sharing (ABS) rules for the State Biodiversity Boards (SBBs). This was done to make sure businesses using biological resources gave benefit sharing to the Biodiversity Management Committees (BMCs) and the SBB. However, the MP SBB acted after receiving no clear response from the NBA and sent notices to a number of businesses that were under its jurisdiction: Sugar Mills, Distilleries, Food Processing Industries, Soya Industries, Spinning/Ginning/Textile Mills, Other Agro and Bio-based Industries, Coal Mining Industries (Government, Semi-Government, and Private), Herbal Industries, Forest/Minor Forest Produce based industries, and Industries using Coal Bio-resources (e.g., Cement and Steel Industries).

The Biological Diversity Act defined “obtaining biological resources for commercial utilization,” and these notices advised the corporations that their extraction of raw materials qualified as such. Companies were obliged to notify the MP SBB using FORM 1, as specified in the MP Biological Diversity Rules, 2004, and pay a charge of Rs. 1000 in accordance with Section 7 read with Section 24(1) of the Act. Significantly, the notifications also mandated that businesses pay 2% of their gross income or gross sales into the state’s Biodiversity Fund for benefit-sharing throughout the course of the fiscal year. Without official rules, the MP SBB applied a technique that had been embraced by the NBA in 2009 accords.

After the Madhya Pradesh State Biodiversity Board (MP SBB) issued notifications, thirteen entities lodged a complaint with the National Green Tribunal (NGT), Central Zone, contesting these notices. The Tribunal directed the Ministry of Environment, Forest and Climate Change (MOEF&CC) and the National Biodiversity Authority (NBA) to establish standardized guidelines for Access and Benefit Sharing (ABS). The primary point of contention was that the SBB had issued the notifications without the issuance of guidelines by the Central Government or NBA.

Issues:

Legitimacy of notice issued by SBB without the ABS Guidelines being issued by the Central Government/NBA?

Judgement:

In response to the Tribunal’s directive, the Ministry of Environment, Forest and Climate Change (MOEF&CC) and the National Biodiversity Authority (NBA) formulated standardized guidelines for Access and Benefit Sharing (ABS). Consequently, the Guidelines on Access to Biological Resources and Associated Knowledge and Benefit Sharing Regulations, 2014 were enacted and came into force on 21st November 2014. This step aimed to regulate the utilization of biological resources and ensure fair benefit-sharing practices in accordance with the directive of the NGT.

The National Green Tribunal (NGT) decided to overturn the earlier notices issued by the Madhya Pradesh State Biodiversity Board (MP SBB) in its final order dated 17.12.2014, subsequent to the release of the Guidelines dated 21.11.2014 by the Ministry of Environment, Forest and Climate Change (MOEF&CC) and the National Biodiversity Authority (NBA). Under Section 64 of the Act of 2002, the NGT authorized the MP SBB to re-examine each applicant’s or appellant’s case, taking into consideration the requirements of the Biological Diversity Act and the Rules and Regulations published by the National Biodiversity Authority.

Bio Diversity Management Committee vs. Western Coalfields Ltd. & Ors. (O.A. 28/2013, CZ)**Facts:**

The applicant in this matter were of the opinion that coal is a biological resource as it is formed from plant material and contains carbon, which is the main element giving coal its energy. They claim that the Western Coalfields Ltd. fall within the ambit of the BD Act, 2002. Viewing coal as a “biological resource,” the applicant demanded a 2% royalty from Western Coalfields Ltd. (the Respondent), citing the Rs 1,470 crore in earnings from the commercial extraction of coal from their region. Respondents to the petition included the National Biodiversity Authority (NBA) and the Ministry of Environment, Forests, and Climate Change (Environment Ministry).

The Western Coalfields Ltd. argued that neither the Biodiversity Convention nor the Biological Diversity Act (BDA) includes provisions to regulate minerals or fossil fuels. They emphasized that the primary focus of these regulations is on genetic materials, traditional knowledge, and information related to biological resources. Furthermore, they contended that the definition of “biological resource” provided in Section 2(c) of the BDA is comprehensive and encompasses only plants, animals, microorganisms, and their genetic material, as well as their by-products. Since coal does not fall within any of these categories, it cannot be classified as a biological resource. Coal is a sedimentary, fossil rock formed over approximately 300 million years and cannot be equated with living organisms, thus not meeting the criteria to be considered a biological resource under the BDA.

The Western Coalfields Ltd. also highlighted that the Biodiversity Convention defines “genetic material” as material from plant, animal, microbial, or other sources containing functional hereditary units. DNA, as the functional unit of heredity, has an estimated half-life of 521 years under optimal conditions, such as being dried, vacuum-packed, and frozen at around -80°C. Contrary to these conditions, coal, which dates back 63 to 300 million years, is formed under high temperatures and pressures, resulting in its transformation into a fossil. Therefore, the contention that coal contains genetic material from plants is invalidated. Additionally, since value-added products are explicitly excluded from the definition of biological resources under Section 2(c), coal cannot be classified as such. These arguments were supported by a study published in the Proceedings of the Royal Society of Biology in 2012 by a New Zealand scientist.

They further contended that the power to levy collection fees lies with the Central Government under the MMDR Act, and even if the Applicant has the power, they cannot exercise the powers in the current situation.

Issues:

1. Whether coal is a biological resource under the BD Act, 2002?
2. Whether the Secretary of MoEF & CC has the authority to interpret the provisions of the BD Act, 2002 and issue instructions to exclude any biological resources?
3. Whether the Applicant has the right to levy collection fees on the Respondents for accessing and collecting coal?

Judgement:

The Tribunal landed on the conclusion that coal cannot be categorized as a biological resource under the BD Act, 2002. The purpose and object of the Act is to provide for the conservation of living organisms and their genetic material. Coal, being a non-renewable fossil fuel, does not qualify as a biological resource.

The Tribunal also held that the Secretary of the MoEF & CC has the authority to interpret the provisions of the BD Act, 2002 and issue instructions, and there has been no breach of the Act by the Respondent No.3.

Furthermore, the Tribunal also ruled that the Applicant does not have the right to levy collection fees on the Respondents for accessing or collecting coal.

Thereby the Tribunal dismissed the petition altogether.

M/s Chembra Peak Estates Limited vs. State of Kerala & Others W P (Civil) No. 3022 of 2008 (I)

This is a matter in which the Kerala High Court directed the Revenue authorities to seek the opinion of the SBB regarding the ecological balance of the private coffee estate at Muttill in Wayanad before proceeding with the acquisition of the estate for setting up a mega food park. *Justice T.R. Ramachandran Nair* ordered that this should be completed within two months. The park was being set up by the Kerala Industrial Infrastructure Development Corporation (KINFRA) with funds from the Union Government.

There were some very interesting arguments that were raised in the course of this PIL. The government pleader argued that the state government has got power (under Section 37) to declare an area as a 'biodiversity heritage site'. Since they had chosen not to do so, there can be no objection to any land acquisition of the area.

The court nonetheless made mention of Sections 23 and 24 of the BD Act. According to the court, Section 23 makes clear that it is amongst the functions of the SBB to advise the State Government on matters related to biodiversity conservation.

And as per Section 24, an SBB has the power to restrict certain activities in the state that might be going against the objectives of conservation. In the context, the court hinted that if the Government were to consider the inputs of the SBB on concerns of biodiversity conservation, the authorities may be compelled to reconsider the land acquisition of a biodiversity-rich area for commercial activities.

S. Jagannath vs Union of India & Ors on 11 December, 1996

This case dealt with the ecological and social implications of commercial shrimp farming in India. The traditional rice/shrimp rotating aquaculture system previously used by Indian fishermen had begun to give way to more intensive methods of shrimp culture which could produce thousands of kilograms per hectare. A large number of private companies and multi-national corporations had started investing in shrimp farms. Within a few years more than eighty thousand hectares of land had been converted to shrimp farming. A high investment return and expanding market was expected by replacing the environmentally benign traditional mode of culture by semi-intensive and intensive methods.

The petitioner sought the enforcement of a coastal zone regulation notification issued by the Government of India, stoppage of intensive and semi-intensive type of prawn farming in the ecologically fragile coastal areas, prohibition to use wet lands for Prawn farming and the constitution of a National Coastal Management Authority to safeguard the marine life and coastal areas.

The Supreme Court analyzed several national and international studies on the ecological and social implications of commercial shrimp farming. It took into account the issues of loss of agricultural land and mangroves, obstruction of natural drains, salinisation, destruction of natural seed resources, use of drugs and chemicals, extraction of groundwater and loss of biodiversity, among others. The court emphasized that the new trend of more intensified shrimp farming - without much control of feeds, seeds and other inputs and water management practices - had brought to the fore a serious threat to the environment and ecology.

Agricultural lands were being converted into commercial aquaculture farms, which had caused unemployment to the landless labourers and also loss of cultivable land. Sustainable development should be the guiding principle for the shrimp aquaculture. The industry had to develop under the unified motto of environment and development. There had to be an environmental impact assessment also taking into account the social impact on different population strata in the area before permission was granted to install commercial shrimp farms. It also had to take into consideration the inter-generational equity and the compensation for those who were affected and prejudiced.

The court therefore directed, inter alia, that the Central Government had to constitute an authority with all the powers necessary to protect the ecologically fragile coastal areas. The authority had to implement "the Precautionary Principle" and "the Polluter Pays" principles.

No shrimp culture pond as defined in the coastal zone regulation notification could be constructed or set up within the coastal regulation zone. This direction did not apply to traditional types of technologies. All

shrimp culture industries operating in the coastal regulation zone as defined under the notification had to be demolished. The agricultural lands, salt pan lands, mangroves, wet lands, forest lands, could not be converted for construction of shrimp culture ponds. Shrimp culture industry other than traditional and improved traditional could be set up outside the coastal regulation zone as defined by the notification with the prior approval of the authority mentioned above. The authority had to assess the loss to the ecology and had to assess the compensation to individuals/families who had suffered because of the pollution.

Conclusion

In conclusion, biodiversity is not just a scientific concept; it's a fundamental aspect of life on Earth with profound ecological, economic, social, and cultural significance. Protecting and conserving biodiversity is essential for ensuring the health and well-being of present and future generations.

LESSON ROUND-UP

- Biodiversity denotes the variety of living organisms originating from various sources, along with their associated ecological components. This includes ecosystem diversity, genetic diversity, and species diversity, all of which contribute to enriching human lives and achieving developmental objectives. The relationship between these concepts is evident, as inventions and products often stem from resources found in biodiversity.
- Biological resources and related traditional knowledge are often of great commercial value to business corporations in developing commercial products. Corporations often want to acquire IPRs related to biological resources and traditional knowledge as a way of maximizing their income generation.
- Traditional knowledge (TK) associated with biological resources is an intangible component of the resource itself. TK has the potential of being translated into commercial benefits by providing leads for development of useful products and processes. Traditional knowledge encompasses the wisdom, customs, and beliefs transmitted orally from one generation to another within specific communities.
- The Biological Diversity Act, 2002 covers foreigners, non-resident Indians, body corporate, association or organization that is either not incorporated in India or incorporated in India with non-Indian participation in its share capital or management. These individuals or entities require the approval of the National Biodiversity Authority when they access/ use biological resources and associated knowledge occurring in India for commercial or research purposes or for the purposes of bio-survey or bio-utilisation.
- Section 3 of the Act states that 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 utilisation or for bio-survey and bio-utilisation.
- Any person covered under section 7 applying 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 which is accessed from India, including those deposited in repositories outside India, or traditional knowledge associated thereto, shall register with the National Biodiversity Authority before grant of such intellectual property rights.
- The National Biodiversity Authority may, while granting the approval under this section, impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the commercial utilisation of such rights..
- The National Biodiversity Authority shall be a body corporate by the name aforesaid, having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to contract, and shall by the said name sue and be sued
- National Biodiversity Authority may constitute a committee to deal with agro-biodiversity. It also states that for the purposes of this sub-section, "agro-biodiversity" means biological diversity of agriculture related species and their wild relatives.

- According to Section 20, any person or entity who intends to transfer the results of any research on biological resources, which are found in or brought from India, including those deposited in repositories outside India or traditional knowledge associated thereto, to persons referred to under sub-section (2) of section 3 for monetary consideration or otherwise, he shall make an application to the National Biodiversity Authority in such form, and on payment of such fee, as may be prescribed.
- National Biodiversity Authority shall, while determining benefit sharing for the approval granted under this Act, ensure that the terms and conditions subject to which the approval is granted secures fair and equitable sharing of benefits arising out of the use of accessed biological resources, their derivatives, 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, and the Biodiversity Management Committee represented by the National Biodiversity Authority.
- The functions of Biodiversity Management Committee so constituted shall include conservation, sustainable use and documentation of biological diversity, including conservation of habitats, landraces, folk varieties, cultivars, domesticated breeds of animals, and microorganisms, and chronicling of traditional knowledge associated thereto relating to biological diversity.
- The National Biodiversity Authority and the State Biodiversity Boards shall consult the Biodiversity Management Committees while taking any decision relating to the use of biological resources or traditional knowledge associated thereto occurring within the territorial jurisdiction of the Biodiversity Management Committee.
- Any person, aggrieved by any determination of fair and equitable sharing of benefits or order or direction of the National Biodiversity Authority or a State Biodiversity Board under this Act, may file an appeal to the High Court within thirty days from the date of communication to him, of the determination or order of the National Biodiversity Authority or the State Biodiversity Board, as the case may be.
- The People's Biodiversity Register serves as a comprehensive record of various aspects of biodiversity, including the conservation of habitats, preservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals, micro-organisms, and the accumulation of knowledge related to the area's biological diversity.
- ABS is based on prior informed consent (PIC) being granted by a provider to a user and negotiations between both parties to develop mutually agreed terms (MAT) to ensure the fair and equitable sharing of genetic resources and associated benefits.
- In order to prevent biological diversity and resources from getting exploited few international instruments and agreements have been entered into, like Bonn Guidelines, UN agreement on Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ), Kunming-Montreal Global Biodiversity Framework (GBF), Convention on Biological Diversity, Ramsar Convention on Wetlands, Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization and Cartagena Protocol on Biosafety to name a few.

GLOSSARY

Biological Diversity or Biodiversity - It is referred to 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.

Biological Resources - It include plants, animals, micro-organisms or parts of their genetic material and derivatives (excluding value added products), with actual or potential use or value for humanity, but does not include human genetic material.

Traditional communities - It is a broad term that refers to communities whose way of life is largely shaped by generations of their ancestors. They are distinct from urban or fast-changing societies and lifestyles, maintaining a shared body of cultural, environmental, economic and family customs that are based on traditional occupations, knowledge, values and social hierarchies.

Biopiracy – It is a violation of the rights of traditional communities over their biological resources and related knowledge. The implications of biopiracy are economic as well as ethical: Obtaining IPRs usually patents or Plant Breeders Rights to gain monopoly control over biological resources, related traditional knowledge, or commercial products based on these resources or knowledge, without the consent of, or any benefits going to, the original holders of the resources/knowledge.

Access - It means collecting, procuring or possessing any biological resource occurring in or obtained from India or traditional knowledge associated thereto, for the purposes of research or bio-survey or commercial utilisation.

Bio-survey and Bio-utilisation – It means survey or collection of species, subspecies, genes, components and extracts of biological resource for any purpose and includes characterisation, inventorisation and bioassay.

Research - It 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.

Commercial utilisation – It means end uses of biological resources for commercial utilisation 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.

Sustainable use - It 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.

Benefit claimers – It means the conservers of biological resources, their by-products, creators or holders of traditional knowledge associated thereto (excluding codified traditional knowledge only for Indians) and information relating to the use of such biological resources, innovations and practices associated with such use and application.

People's Biodiversity Registers (PBR) - It is a document folk knowledge of status, uses, history, ongoing changes and forces driving changes in biodiversity resources, gainers and losers in these processes and people's perceptions of how these resources should be managed. The documents bring together important locality specific information on biodiversity resources and ecological processes affecting them.

Ecosystem Diversity - This refers to the variety of ecosystems present in a particular area, such as forests, grasslands, wetlands, deserts, rivers, lakes, and oceans. It represents the inter-relation between the living (plants and animals) and non-living components (climate, soil, chemicals) of the environment. A drop of water represents the smallest ecosystem. Tree, ponds, ocean, well, etc. all are examples of ecosystems.

Species Diversity - Species diversity refers to the variety of species living in a common habitat. The rainforests and corals show high species diversity. Species diversity is the variety and abundance of different species present in ecosystems. It includes both the number of species (species richness) and their distribution (species evenness).

Genetic Diversity - Genetic diversity refers to the variety of genetic characteristics within species. It includes the diversity of genes, alleles, and genetic traits present within populations of organisms. It is defined as the variation present in the genes of the organisms of a species.

Access and Benefit Sharing - It refers to the ways in which genetic resources may be accessed and how benefits that result from specific uses of genetic resources are shared between providers and users.

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation.)

1. What do you mean by Biodiversity? Why is it of importance?
2. How are IPR and Biodiversity inter related? Explain with the help of case laws.
3. Traditional knowledge is an important IPR aspect. Explain.
4. How can one benefit from access and benefit sharing of biodiversity and resources found therein?
5. Impact of bio-diversity and ABS on human are enormous. Explain with relevant case laws.
6. Explain the power and functions of National Biodiversity Authority and State Biodiversity Board.
7. Write a note on International Instruments relating to Bio-diversity as IPRs.
8. Write a short note on-
 - People's Biodiversity Register
 - Ecological Diversity
 - Species Diversity
 - Genetic Diversity
 - National Biodiversity Authority.

LIST OF FURTHER READINGS

- Biological Diversity Act, 2002 and rules made therein
- Cartagena Protocol on Biosafety to the Convention on Biological Diversity
- Biodiversity and Intellectual Property Rights: Can the Two Co-Exist? BY 2(2) Journal of Int'l Wildlife L & Pol'y (1999)
- Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning.

OTHER REFERENCES (Including Websites / Video Links)

- <http://nbaindia.org/>
- <https://www.iucn.org/about-iucn>
- <https://leap.unep.org/en/countries/co/national-case-law/future-generations-vs-ministry-environment-and-others>
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