AN APPRAISAL OF THE BIOLOGICAL DIVERSITY ACT, 2002 AND RULES, 2004 – STRENGTHS AND WEAKNESSES

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ABSTRACT

Aim: To create basic understanding of the Biological Diversity Act, 2002 and Rules 2004, along with their strengths, weaknesses, complexities, incongruities and provide some suggestions in them.

Background: Biodiversity is the 'variety, variability, between genes, species and ecosystems'. It is very important for the survival of the human beings because it has direct consumptive value in food, medicine, agriculture, industry. Being one of the world's 'mega diversity' countries India, in order to ensure compliance with the Convention of Biological Diversity, 1992, enacted Biological Diversity Act in 2002 and the Biological Diversity Rules in April 2004. They are considered necessary for the conservation and sustainable use of biological diversity and regulate the access to biological resources of the country with the purpose of ensuring equitable share in benefits arising out of the uses of bioresources and associated knowledge to prevent the biopiracy.

Review results: Though the objectives of the act are noble it has created confusions amongst the most biologists, researchers, herbal industry, raw drug suppliers and start up entrepreneurs. Along with certain strengths, there are some drawbacks like inadequate access to local communities, non-inclusion of genetic resources and complexities in access benefit sharing and equitable benefit sharing etc.

Conclusion: Though the Act and Rules have some salient features there are some drawbacks and weaknesses which need to be rectified. Incorporation of the suggestions mentioned in this article can help in successfully dealing with the loopholes in the Biodiversity Act and Rules. However, till the next amendments in the legislation it is absolutely necessary for everybody in the fields related with the use of biological resources and traditional knowledge related to them to be apprised of the act.

Keywords: Biopiracy, Bioprospecting, Bioresources, Intellectual Property Right (IPR).

INTRODUCTION

The term 'biodiversity', contracted form of biological diversity, was first used by the sociobiologist E O Wilson in 1986. There are various meanings and definitions to it since it is extremely complex, dynamic and varied. In simple terms, biodiversity refers to the various life forms within the biosphere; life forms from the simple single-celled microbes to highly complex organisms. Thus it may also be defined as 'the totality of different organisms, the genes they contain, and the ecosystems they form'. It includes the genetic and morphological variability within a species and the assemblages of plants, animals and micro-organisms which together form their ecosystems and natural habitats. The Convention on Biological Diversity (CBD) defines biodiversity as the 'variability among living organisms from all sources including, among other things, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.' Thus biodiversity may be considered at three levels: genetic diversity, species diversity, and ecosystem diversity (Figure 1).
India is one of the world's 'mega diversity' countries. It has tremendous biodiversity, genetic as well as of species and ecosystems. It is ranked ninth in the world in terms of higher plant species richness. The number of plant species in India is estimated to be over 45,523 representing about 11.8 per cent of the world's flora. These include over 17,500 flowering plants off which 4,950 species are endemic to the country. India is also considered as one of the world's eight centres of origin of cultivated plants. India has 51 species of cereals and millets, 104 species of fruits, 27 species of spices and condiments, 55 species of vegetables and pulses, 24 species of fiber crops, 12 species of soil seeds, and various wild strains of tea, coffee, tobacco and sugarcane. India's faunal wealth is equally diverse. The total number of animal species is estimated at 91,307, representing about 7.46 per cent of the world's fauna. India's known animal diversity includes about 8,61,696 insects, 21,723 fish, 240 amphibians, 460 reptiles, 1,232 birds and 397 mammals. India has 26 breeds of cattle, 40 breeds of sheep, 20 breeds of goats, 8 breeds of camels, 6 breeds of horses, 2 breeds of donkeys and 18 breeds of poultry birds. India also contains vast microbial diversity. Although exact numbers of viruses, microscopic algae and other microscopic organisms are not known, India has at least 850 species of bacteria and virus, also 12,500 of fungi. At the ecosystem level, India is well-endowed with ten distinct biogeographic zones which contains over seven per cent of the world's biodiversity on 2.5 per cent of the Earth's surface. It hosts 4 biodiversity hotspots: the Western Ghats, the Himalayas, the Indo-Burma region and the Sundaic region which includes Nicobar group of Islands. These hotspots have numerous endemic species. This diversity can be attributed to the vast variety of landforms and climates resulting in habitats ranging from tropical to temperate, and from alpine to desert.

Biodiversity forms the ecosystem and helps in its functioning. Humans always relied on biological resources for sustenance since biodiversity provides us with a source of food, medicines, materials, energy and number of opportunities making it an integral part of every individual. Hence damage to biodiversity would impact negatively on the lives of the both – the human beings and other species in the ecosystem. It is widely estimated that more than 70,000 plant species are used in traditional and modern medicines. A loss of biodiversity would not only cause loss of raw materials but would also have ramifications for global food security and nutrition since the food and energy are obtained from the biosphere we live in. Thus earth's all biological resources are vital to humanity's economic and social development.

Man's ever growing need and greed attacked nature environment by the attitude of rampant consumerism and unsustainable patterns of production and consumption. These callous activities became more uncaring towards nature and ecology in modern era of scientific and technological innovations. As per the data published by the International Union for Conservation of Nature (IUCN), major reasons for biodiversity loss are – Habitat loss and degradation, invasion of alien species, overexploitation of natural resources, pollution and diseases, human induced climate change. As per the studies conducted by the IUCN, the abundance of species has declined by 40% between 1970 and 2000. Species present in rivers, lakes and marshlands have declined by 50%.
Since 2000, six million hectares of primary forest have been lost each year.

Implementation of the Act:
It has been noticed the debarring of actual users and the people who otherwise were the long protectors of the biodiversity resource being gradually pushed away from their inherent rights over biodiversity led to the requirement of equitable sharing of benefits from biodiversity which was felt globally. A comprehensive plan for the protection of biodiversity was adopted for the first time at Rio de Janeiro in June 1992 at United Nations Convention on Biological Diversity (CBD); a legally binding treaty was adopted to protect the biological diversity of the signing parties at their own levels. India signed this convention on 5th June 1992 and brought it into force on 19th May 1994; therefore required to integrate considerations of conservation and sustainable use of biodiversity into its country level programmes and policies. In consonance with CBD, after detailed consultation with stakeholders, the Central Government of India has brought the Biological Diversity Act, 2002 (BD Act).

<table>
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<th>Biological Diversity Act, 2002: at a glance</th>
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<tbody>
<tr>
<td>• 12 chapters</td>
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<td>• 65 sections and many subsections</td>
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<tr>
<td>• Notified notifications and rules</td>
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<td>Chapter I  Preliminary – Terminologies and definitions</td>
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<td>Chapter II Regulation of access to biological diversity</td>
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<td>Chapter III Establishment of National Biodiversity Authority (NBA)</td>
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<td>Chapter IV Functions and powers of NBA</td>
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<td>Chapter V Approval by the NBA for understanding certain activities i.e. transfer of biological resource or associated knowledge</td>
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<td>Chapter VI Establishment of State Biodiversity Board (SBB)</td>
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<td>Chapter VIII Finance, accounts and audit of State Biodiversity Authority</td>
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<td>Chapter IX Duties of the Central and the State governments</td>
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<tr>
<td>[Central Govt. to develop strategic plan for conservation and sustainable use of biodiversity and bioresources; declaration of biodiversity heritage sites by the State Govt. to protect unique biodiversity areas; power of central Govt. to notify threatened/endangered species; power of central Govt. to designate repositories; power of central Govt. to exempt Normally Traded Commodities.]</td>
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<td>Chapter X Constitution of State Biodiversity Management Committees (BMCs)</td>
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<td>Chapter XI Local Biodiversity Fund</td>
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<td>Chapter XII Miscellaneous</td>
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<tr>
<td>[NBA to be bound by policy directions as the Central Government may give in writing to it from time to time; power of State Government to give policy directions to the SBBs; settlement of disputes between NBA and SBBs; penalties etc.]</td>
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Figure 2: Biological Diversity Act, 2002 – at a Glance.

Strengths of the BD Act 2002:
Some of the remarkable and progressive features which can be called as strengths of the BD Act are:

- It aims at conserving and sustainable use of biological diversity.
- It regulates access to biological resources of the country with the purpose of ensuring equitable share in benefits arising out of the use of biological resources; and associated knowledge relating to biological resources.
- Protection of knowledge of local communities related to biodiversity, provisions for them to have a say in the use of their resources and knowledge, and to charge fees for this.
- Protection of indigenous or traditional knowledge, through appropriate laws or other measures such as registration of such knowledge.
- It ensure sharing of benefits with local people as conservers of biological resources and holders of knowledge and information relating to the use of biological resources, including transfer of technology.
monetary returns, joint research and development, joint Intellectual Property Right (IPR) ownership, etc.

- Conservation and development of areas of importance from the standpoint of biological diversity by declaring them as biological diversity heritage sites.
- Protection and rehabilitation of threatened species.
- Three tiered management structure at national, state and local levels with involvement of institutions of state governments in the broad scheme of the implementation of the BD Act through constitution of committees.
- Approval of Indian government is needed for transfer of Indian genetic material outside the country and for anyone claiming an IPR, such as patent, over biodiversity or related knowledge.
- Regulation of the use of genetically modified organisms.
- Designating Biodiversity Heritage Sites (Section 37).
- Conservation of Rare, Endangered and Threatened (RET) species (Flora, Fauna, microorganisms etc).
- For biodiversity conservation Designated National Repository (DNR) has been established under Section 39 which provides service providers for preserved specimen consisting all fauna, herbarium (dried plant material for research), living cells, genomes of organisms and information relating to hereditary and function of biological system. DNRs also contain collections of culturable organisms (e.g. microorganisms, plant, animal and human cells), replicable parts of these (e.g. genomes, plasmids, viruses, DNAs), viable but not yet culturable organisms, cells and tissues, as well as databases containing molecular, physiological and structural information relevant to these collections and related bioinformatics.

- Scope of developing new models / case studies/ best practices related to conservations, sustainable utilization and access and benefit sharing (ABS).

**Management structure of Biological Diversity Act of 2002:**
The BD Act, 2002 and the Rules, 2004 are implemented by three tiered structure at national level by National Biodiversity Authority (NBA), at state level by State Biodiversity Board (SBB) and by Biodiversity Management Committees (BMCs) at local levels (Table 1).

<table>
<thead>
<tr>
<th>Tier</th>
<th>Level</th>
<th>Authority</th>
<th>Key functions</th>
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<tbody>
<tr>
<td>1</td>
<td>National</td>
<td>National Biodiversity Authority (NBA)</td>
<td>Deal with all the matters relating to requests for access by foreign individuals, institutions or companies, and all matters relating to transfer of results of research to any foreigner.</td>
</tr>
<tr>
<td>2</td>
<td>State</td>
<td>State Biodiversity Boards (SBBs)</td>
<td>Deal with all matters relating to access by Indians for commercial purposes. The Indian industry is required to provide prior intimation to the concerned SBB about the use of biological resource. Board have the power to restrict any such activity, which violates the objectives of conservation, sustainable use and equitable sharing of benefits.</td>
</tr>
<tr>
<td>3</td>
<td>Local</td>
<td>Biodiversity Management Committees (BMCs)</td>
<td>Institutions of local state government will be required to set up BMCs in their respective areas for conservation, sustainable use, documentation of biodiversity and chronicling of knowledge relating to biodiversity.</td>
</tr>
</tbody>
</table>

**Some important aspects, intricacies and incongruities in BD Act, 2002**
Section 2(b) of the BD Act defines the 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 ecosystems’. Though genetic resources form an integral part of the biodiversity there has been no mention about genetic resources in the Act. However, since the law does not specifically deal with the ownership of the genetic resources, these resources can be exploited by various bio-prospectors and other international companies for different purposes. The exclusion of the human genetic material from scope of the act may lead to the problem of 'cloning crisis'. Inclusion of the term 'human genetic material' under broad definition of biological resources may address these issues.

The government officials, non government organizations, researchers, and academicians after detailed research and consideration formulated the provisions of the BD Act, 2002. In 2004, with enactment of the Biodiversity rules, BMC was established which gave powers to the local and indigenous communities to voice out their opinion on conservation, use and equitable sharing. Protection and conservation of biodiversity is one of the major aims of this act. Instead of focusing on this aspect the act lays more emphasis on preventing profit sharing from the commercial uses of the biological resources. Prevention of biopiracy is at the root of this provision. Because an effective legal safeguard against biopiracy assumes enormous importance for a country like India, which is amongst the twelve mega biodiversity countries of the world, and possess a rich treasure of traditional and indigenous knowledge, both coded as well as informal.
Section 3 of 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 NBA 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. In nutshell, all foreign nationals require to obtain an approval from NBA before using any biological resource. This helps in the prevention of biopiracy by biopirates but on the other hand this part of the act hampers the start up founders, entrepreneurs, and scientists who look forward to international collaborations in their business and research endeavours. Any individual who has a citizenship of another country or is Non-Resident Indian (NRI) is considered a foreigner under the act and is not allowed to either fund or be part of the senior management without prior approval. Foreigners are not allowed to handle biological material, so they can't even do lab work that directly deals with a biological resource. If any company/research organization using a biological resource like plants, microbes, animals or bio-products derived from it, this clause implies that their management need to think twice before allowing any foreign investment or participation in their company. Usually, scientists/research organizations look forward to international collaborations (foreign joint ventures) and this act seems to discourage the same while on the other hand the government expects something great from companies/start ups stemming out of these research environments. The Act differentiates between Indian company and multinational company (MNC) which is not in congruence with the provisions of Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement which demands that the MNCs shall be treated at par with domestic companies. The Act excludes Indian biological resources that are normally traded as commodities. Such exemption holds only so far the biological resources are used as commodities and for no other purpose. The Act also excludes traditional uses of Indian biological resources and associated knowledge occurring in India for commercial or research purposes or for the purposes of bio-survey or bio-utilisation. The farmers, livestock keepers, bee keepers and traditional healers like Vaids and Hakims are excluded from it. Collaborative research projects between Indian and foreign institutions with the approval of the central government are also excluded [Sec 5(a,b)]. The Act also exempts those plants which are registered under the Protection of Plant Variety and Farmers’ Rights (PVPFR) Act, 2001. This Act provides corporations and scientists who are breeding new varieties of crops to gain IPRs. Such an exemption means that the progressive features of the BD Act listed above many of which are absent from the PVPFR Act, would not apply to plant varieties registered under PVPFR Act. Indians and Indian institutions do not require the approval of the NBA when they engage in the above mentioned activities. However they would need to inform the SBBs prior to undertaking any research with the intent of commercialisation [Sec (7)]. Any application for IPR based on biological resources should be approved by NBA [Sec 6(1)]. Though the objectives of the act are noble it has become a barrier for many. It seems 'mystery' to most biologists, researchers and start up entrepreneurs. The act assumes that resident citizens and corporations of India are cannot be exploitative and never a threat to biodiversity. The major problem with Act is that its focus shifted from ecological and scientific value of biodiversity to its mere commercial value.

The BD Act provides that any person/company seeking any kind of intellectual property right (IPR) in or outside of India for any invention based on any biological resource or information on a biological resource obtained from India, is required to obtain prior permission of the NBA, which may determine benefit-sharing fees or royalty for the benefits arising out of the commercial utilization of such rights [Sec 6(2)]. Failing to notify the NBA before patent is granted can amount to criminal offence. This provision is in conjunction with Patent laws with the Amendment Act of 2005 which states the mandatory disclosure of source and geographical origin of the biological material used in the invention while applying for patents and also allows the composition of a drug to be patented. Both the Acts provide sufficient space for combating the biopiracy threats at the national level in India. But the efficacy of such a provision remains in doubt because NBA does not have power to monitor patent applications overseas and its legal inability to exercise beyond its normal boundaries. Access to bioresources and sharing of its benefits, together referred to CBD as “Access and Benefit Sharing” (ABS), has been the key issue in the implementation of the Act. The CBD framework considers “access” and “benefit sharing” as two sides of the same coin. The Nagoya Protocol under the CBD, also called the international regime on ABS, came into force in October 2014 mainly stating that the benefits arising from any kind of use of biological material and associated traditional knowledge need to be shared. In relation to this, in India, NBA and the Ministry of Environment, Forests and Climate Change notified the “Guidelines on Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations” on 21 November 2014. But unfortunately, the “new” guidelines only marginally add to what the existing BD Act and Rules lay down on ABS. Table 2 presents a synthesis of what is contained in the 2014 ABS guidelines, which could help understand their thrust and intent.
### Table 2: 2014 Guidelines on ABS.

<table>
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<tr>
<th>Condition</th>
<th>Payment by Trader</th>
<th>Payment by Manufacturer</th>
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<tbody>
<tr>
<td>1. Access of a bioresource for commercial utilisation/bio-survey/bio-utilisation for commercial utilisation</td>
<td>1%–3% of the purchase price.</td>
<td>3%–5% of purchase price.</td>
</tr>
<tr>
<td>Where no prior benefit sharing (BS) agreement with joint forest management committee (JFMC)/gram sabha/forest dweller/cultivar</td>
<td>1%–3% of the purchase price (in case there is proof of supply manufacturer chain then BS only on amount for which BS has not been paid earlier).</td>
<td>3%–5% of purchase price.</td>
</tr>
<tr>
<td>Further sale of biological resource by a trader to another trader/manufacturer.</td>
<td>Not less than 3% of purchase price.</td>
<td>Not less than 5% of purchase price.</td>
</tr>
<tr>
<td>Where there is prior BS agreement with JFMC/ gram sabha/forest price dweller/cultivar.</td>
<td>Upfront payment of not less than 5% of 5.0% on the proceeds of the sale amount, as decided fund by the NBA or SBB into a designated fund.</td>
<td>Upfront payment of not less than 5% of 5.0% on the auction, or sale amount, as decided proceeds of the auction, or by the NBA or SBB into a designated fund.</td>
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<tr>
<td>High economic value bio resource such as Red sanders.</td>
<td>Rs 1 lakh (0.1%); Rs 1–3 lakh (0.2%); above 3 lakh (0.5%).</td>
<td>Rs 1 lakh (0.1%); Rs 1–3 lakh; above 3 lakh (0.5%).</td>
</tr>
<tr>
<td>Where access leads to commercial utilisation, optional benefit on ex-factory sale price.</td>
<td>Monetary and/or non-monetary benefit as agreed with NBA.</td>
<td>Monetary and/or non-monetary benefit as agreed with NBA.</td>
</tr>
<tr>
<td>2. Access for transfer of research results With complete details disclosed of potential commercial value consideration.</td>
<td>3%–5% of the monetary.</td>
<td></td>
</tr>
<tr>
<td>3. Access for intellectual property rights</td>
<td>Monetary and/or non-monetary benefit as agreed with NBA.</td>
<td></td>
</tr>
<tr>
<td>4. Transfer of research results for research/commercial utilisation.</td>
<td>Monetary and/or non-monetary benefit as mutually agreed 2%–5% (following a sectoral approach) of any amount and/or royalty received from the transferee throughout the term of the agreement</td>
<td></td>
</tr>
<tr>
<td>When the resource is not of high value.</td>
<td>Monetary and/or non-monetary benefit as mutually agreed 2%–5% (following a sectoral approach) of any amount and/or royalty received from the transferee throughout the term of the agreement</td>
<td></td>
</tr>
<tr>
<td>Where resource is of high value.</td>
<td>In addition to the above, also an upfront payment, as mutually agreed between the applicant and the NBA.</td>
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</table>
The information related to biological resources and knowledge is governed by NBA and SBBs; local communities do not have access to it. Concerned local communities do not have any real power neither in the decision making process nor in the access of the information. They are not very well aware of their rights and have very less knowledge of the system of IPRs or commercial use of the traditional knowledge. On behalf of the Central government, the NBA takes all the measures to oppose IPRs granted outside India on any biological resource or associated knowledge originating from India. Decentralization of powers and responsibilities may be helpful in this regard.

Every local body is required to constitute a BMC within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity. An important function of BMC is to prepare Peoples’ Biodiversity Registers (PBR) in consultation with the local people which contains comprehensive information on availability and knowledge of local biological resources or traditional knowledge associated with them. Such comprehensive PBRs would not only help to inventorize and document the local biological and genetic resources, but also to conserve and sustainably use the bio-cultural diversity for rewarding income generation. But this is again critical issue which needs much attention. The Act supposedly empowers the BMCs to take decisions on conservation and control. However the Rules severely dilute this and state that the main role and function of the BMC is to merely maintain PBR. The PBR seems the part of larger plan of government to document and record the diversity of species of flora, fauna, crops, livestock and knowledge associated with them. Till date there is no legal protection available for the knowledge recorded in PBR. Also for accessing the knowledge in them no consent of communities is required. As per Rule 17, local bodies should be consulted before approval for access to bio resource. But here the definition of ‘consult’ is unclear and in many cases it remains a mere formality and not a prior informed consent. Though criteria for rejecting applications for the grant of access to resources and knowledge are stated in the Act, community consent is not mentioned in it. BMC plays only an advisory role in the grant of approvals as per Rule 7 of the Act. Such biased rule of the Act does not facilitate community decision making. The limited space given to the communities in the legal framework may lead to destructive development by commercial forces and misuse by outsiders.

**Certain drawbacks in the BD Act & Rules**

- The genetic resources are accessed by different bio-prospectors (collectors, researchers, and others) and various other international companies for different purposes. The ABS law does not differentiate between these uses. The lack of linkages between the BMC and the other local bodies and institutions like Village Forest Communities, Eco development Committees, Van Suraksha Samitis, Joint Forest Management Committees, Pani Panchayats etc. can be a reason of conflict.
- The Act does not mention any form of distinction between the people who use the biological resources for their individual purposes and those who use it sustainability purposes.
- It does not provide the citizens the power to directly approach the courts; such power is restricted to an appeal in the High Court against any order by the NBA or SBB.

**Recommendations:**

- Broad definition of the biological resources should include the term – ‘human genetic material’ to prevent any form of exploitation.
- Awareness should be created among the local communities about the BD Act and the rights it guarantees to them. For this purpose, it is essential to build formal and informal networks among farmers, tribal people, villagers, ecologists, civil society associations, grass root organisations, scientific and academic institutions and government organisations.
- The Act and Rules should facilitate community decision making. Indigenous people should be given more control and rights on their resources and knowledge. It will be a real step towards community sovereignty.
- To prevent the misuse of local bioresources and traditional knowledge their documentation ought to be voluntary in any form and manner as the community decides, and needs to be legally protected.
- Powers of NBA should be decentralized in some aspects to SBBs and BMCs because the cost and time to get permits from them is very prohibitive and many amateur, self-financed researchers might not be able to carry on with their research.
- Provisions for creating awareness among people, school children, students and teachers in the colleges, Universities should be made to conserve the biodiversity wealth.
- Relaxation of the rules for the people helping in the sustainable and valuable use of indigenous resources and knowledge can motivate people to perform research and could play a major role in the biodiversity conservation process ultimately resulting in welfare of the mankind.
- Special committee could be set up among all the different committees working at local level to avoid the conflict...
between them and establish integration with better functioning.

- Priority; over and above commercial trade; should be given to local people's access to biodiversity and its benefits, and the sharing of these benefits amongst local communities.
- Successful biodiversity laws in some of the best biodiversity hotspots in the worlds may be identified and on those lines amendments in the BD Act and Rules should be made.

CONCLUSION
The conservation of biodiversity is an important concern of all human beings for better living, in present as well as in future because it is a valuable asset to any country since it holds the different components in it like ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values. In India, the Biodiversity Act of 2002 came into force with noble objectives of conservation of biodiversity and equitable sharing of benefits arising out of its uses. Though the Biodiversity Rules made under the act in 2004 have some salient features there are some drawbacks and weaknesses which need to be rectified for the beneficiaries of its stakeholders. The conflicts in the Act and Rules arise due to the differences of opinions among the legal people, scientists, ecologists, industrialists, entrepreneurs as the science is viewed differently by these people as per their own need and requirements. There seems an urgent need of modifications in the Act to suit the needs of these people as well as those it hopes to protect. Incorporation of some of the suggestions mentioned above in the Act and Rules can help in successfully dealing with the loopholes in the Biodiversity Act. However, till the next amendments in the legislation it is absolutely necessary for everyone in the fields related with the use of biological resources and traditional knowledge related to them to be apprised of the act.

REFERENCES