

BIODIVERSITY: PLANNING FOR SUSTAINABLE DEVELOPMENT

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Abstract: Biodiversity may be a catchphrase, but as a concept it sits at the heart of the ecological and legal research and especially when concepts like sustainable development are gaining pace. Since the earth, and everything on or in it, is limited, the economic formulas developed over the past few hundred years to keep track of the values involved in human transaction cannot make it any larger, nor give us any more of the productive systems and commodities on which we depend. Biodiversity represents not only the organisms living in an area and the ecological processes necessary for their maintenance, but includes the interaction between these components which can be translated in the capacity of the ecosystem to support a number of living organisms. The preservation of biodiversity can be accomplished only as a part of an overall strategy to promote global stability. Contrary to the wishful thinking embodied in some cornucopian scenarios, the earth and its systems can either be used in such a way as to provide a sustainable context for our operations, or we shall destroy them. We are currently losing our biodiversity on which we depend.

Human activity cannot be divorced from biodiversity. Growing population and modernization have brought about change in the ecology and biodiversity. In particular, the following factors have contributed to the degradation of natural ecosystems and loss of biodiversity: deforestation, human encroachments, excessive grazing, man- animal conflicts, forest- fire, illegal logging, cash cropping and plantation, excessive grazing, developmental activities etc. the need of the hour being mitigating these adverse factors, and to prepare a comprehensive plan for biodiversity management.

The conservation of biodiversity is a thrust area in the national and international agenda. Therefore every attempt has to be made to consummate the importance and preservation of biodiversity and its sustainable use both nationally and internationally through various legislations. At the international level, India has contributed to biodiversity

conservation by signing to the Convention on Biological Diversity, 1992, Kyoto Protocol, 1997 etc. Conservation of biological diversity has been given high priority in India as reflected in various enacted national legislations viz., Biodiversity Act, 2002, National Forest Policy, 1988, Forest (Conservation) act, 1980, Wildlife Protection Act, 1972 etc. In June 1992 the Earth Summit held in Rio de Janeiro explicitly recommended through the United Nation's Agenda 21 development patterns based on the satisfaction of basic needs of the environment. The summit choose three major areas namely, biodiversity, climate change and sustainable development.

Protecting our environment, while stabilizing our population and adequately feeding the people who will share the earth in the next generation is the largest challenge facing human kind today. For the conservation of biodiversity and sustainable use it is vital to understand the root causes of biodiversity loss and ecosystem degradation and therefore, all informal and formal institutions have to work together (politics, policy and people) to generate awareness and technical demonstrations to maintain and conserve biodiversity that could well support the future livelihood and generations to come. This would necessarily involve social equity issues, improved agricultural and forestry practices, capping the activities that are leading to global warming and other drastic alterations of the earth's environment, and limiting over consumption in industrialized countries to levels that the world could sustain.

Keywords: Biodiversity, degradation, ecosystem, human, sustainable

INTRODUCTION

Biodiversity may be a catchphrase, but as a concept it sits at the heart of the ecological and legal research and especially when concepts like sustainable development are gaining pace. Since the earth, and everything on or in it, is limited, the economic formulas developed over the past few hundred years to keep track of the values

involved in human transaction cannot make it any larger, nor give us any more of the productive systems and commodities on which we depend. Biodiversity represents not only the organisms living in an area and the ecological processes necessary for their maintenance, but includes the interaction between these components which can be translated in the capacity of the ecosystem to support a number of living organisms. The preservation of biodiversity can be accomplished only as a part of an overall strategy to promote global stability. Contrary to the wishful thinking embodied in some cornucopian scenarios, the earth and its systems can either be used in such a way as to provide a sustainable context for our operations, or we shall destroy them. We are currently losing our biodiversity on which we depend.

Human beings, or their close genetically relatives, have lived on earth for several million years. Yet it is only recently that human activity has reached levels at which it can affect fundamental natural processes, such as the concentration of gases in the atmosphere of the planet, and the complex web of species that constitute life on earth. There is considerable uncertainty about the magnitude and impact of the changes that human mankind is causing, but it is known that industrial activity has, for the first time in history, reached levels at which it can alter the planet's atmosphere and destroy biodiversity. Incidents of destruction of particular species are recorded; however, the overall destruction of biodiversity on the planet is not. Some fear that humanity's survival may be at stake.

The term biological diversity was coined by Thomas Lovejoy in 1980, while the word biodiversity, shorter version of biological diversity, was coined by the entomologist E.O. Wilson in 1986 in a report for the first American Forum on biological diversity organized by the national Research council.¹

However the most well accepted definition of biodiversity is given in Convention on Biological Diversity. "Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.²

Biodiversity found on Earth today is the result of 3.5 billion years of evolution. Until the emergence of humans, the Earth supported more biodiversity than

in any other period in geographical history. Since the advent of humans, however, biodiversity began a rapid decline, with one species after another suffering extinction. The loss of biodiversity often reduces the productivity of ecosystems, thereby shrinking nature's basket of goods and services. Biodiversity cannot be seen in isolation, and the threats to biodiversity must be contextualized within the patterns of economic development. Most biodiversity loss is due to habitat destruction.³

VALUE OF BIODIVERSITY

There are four ways in which biodiversity is a source of value, namely: (a) It may be valuable as a source of knowledge. (b) Biodiversity has value in life-support systems. (c) Biodiversity- such as animals, plants, and even landscapes- may have an intrinsic value, a value in and of themselves independently of their anthropocentric value, and similarly, they may have a right to exist independently of their value to humanity. (d) Biodiversity may have cultural effect.

SUSTAINABLE DEVELOPMENT

The notion of sustainable development, introduced previously, remains a broad, inspirational objective, both at domestic and international levels. Defining sustainable development is no easy task. Its meaning sits on shifting ground, primarily as a consequence of its routine deployment in the positioning of contrasting parties across a wide spectrum of interests. It does however broadly accommodate shared objectives within a language that can be mutually understood across a range of stakeholders and awareness of sustainable development arguably encourages fuller environmental consciousness.⁴

It is generally agreed by ecologists, economists and sociologists that the concept of sustainable development demands that communities should have within their boundaries, biologically diverse ecological systems that will provide the incentives for growth. Sound and adequate policies formulated through the involvement of indigenous people of the communities who understand the complex nature of the linkages of all the subsystems of the ecosystem are necessary for sustainable development. Thus a system wide approach that focuses on the dynamic and complex nature of habitats is needed to assist

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http://en.wikipedia.org/wiki/Biological_diversity#Biodiversity_definitions accessed on 1/Nov/2013.

² Article 2, Convention on Biological Diversity

³ Lakshman D. Guruswamy, Jeffrey A. McNeely, Protection of Global Biodiversity, Duke University Press, Durham, 1998, p. 102.

⁴ Mark Stallworthy, Understanding Environmental Law, Thomson Sweet & Maxwell, 2008, UK, p. 173.

policy makers in understanding the linkages of natural, economic and social systems.⁵

Humanity has the ability to make development sustainable- to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own demands. The concept of sustainable development does not imply limits- not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities.⁶

Time has come when sustainability in development has to enter in our planning process as one of the basic and permanent objectives. Some areas have been identified where priority action are needed like, population stabilization, integrated land use planning, control of pollution in water and air, development of non- polluting renewable energy systems and the most important being conservation of biological diversity. The biological wealth of the country is very rich with nearly 45,000 plants and 65,000 animals' species. However, our efforts at conservation have been directed to the conservation of plants and animals. It is important to mention here that to ensure conservation in space and time; we need to have strategy based on principles of genetics and evolutionary biology.⁷

GREEN ACCOUNTING

Green accounting⁸ is a type of accounting that attempts to factor environmental costs into the financial results of operations. It has been argued that gross domestic product ignores the environment and therefore decision makers need a revised model that incorporates green accounting⁹ A proposal currently being considered by the United Nations would modify the system of national accounts followed by all countries to formally incorporate environmental costs. Green accounting is the practise of deducting environmental costs from the computation of the

GDP. For example, the national accounts would depreciate the value of stocks of forests or minerals extracted much in the same way that private individuals and firms depreciate the value of their own stock when reporting their personal or corporate income.¹⁰

LEGAL IMPLEMENTATION TOWARDS PROTECTION OF BIODIVERSITY

The international community's concern about the unprecedented loss of biological diversity emerged at the United Nations Conference on the Human Environment held in Stockholm in 1972.¹¹ The debate at that time was whether environmental protection and economic development were consistent with each other or antithetical. Indira Gandhi, the then Prime Minister of India, was the voice of the Third World and put their concern in the most expressive words when she said¹²

" on the one hand the rich look askance at our continuing poverty, on the other they warn us against their own methods. We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people. Are not poverty and need the greatest polluters? For instance, unless we are in a position to provide employment and purchasing power for the daily necessities of the tribal people and those who live in or around jungles, we cannot prevent them from combing the forest for food and livelihood, from poaching and from despoiling the vegetation. When they themselves feel deprived, how can we urge the preservation of animals? How can we speak to those who live in villages or slums about keeping the oceans, the rivers and air clean when their own lives are contaminated at the source? The environment cannot be improved in conditions of poverty. Nor can poverty be eradicated without the use of science and technology."

In 1987, the World Commission on Environment and Development concluded that economic development

⁵Valentine U. James, Sustainable Development in Third World Countries: Applied and Theoretical Perspectives, Praeger Publications, USA, 1996, p. 62.

⁶ Dr. Janamjit Singh, "biodiversity: Planning for Sustainable Development", Deep & Deep Publications, New Delhi, 2006, p. 290.

⁷ T N Khoshoo, Environmental Concerns and Strategies, APH Publishing Corporation, New Delhi, 2008, p. 16.

⁸ The term was first brought into common usage by economist and professor Peter Wood in the 1980s

⁹http://en.wikipedia.org/wiki/Green_accounting accessed on 1/Nov/2013.

¹⁰ Lakshman D. Guruswamy, Jeffrey A. McNeely, Protection of Global Biodiversity, Duke University Press, Durham, 1998, p. 110.

¹¹ "Regional Approaches to Implementing the convention on Biological Diversity: The Cases of Access to Genetic Resources", Paper prepared by Carolina Lasen Diaz, Foundation for international Environmental Law and Development for the EU Concerted Action Conference on the Effectiveness of International Environmental Agreements, Barcelona, 9-11 November 2000.

¹² Indira Gandhi, Prime Minister of India, in her speech at the UN conference on Human Environment, Stockholm, 1972.

must become less ecologically destructive. In its landmark report, *Our Common Future*, it said that: "Humanity has the ability to make development sustainable to ensure that it meets needs of the present without compromising the ability of future generations to meet their own needs." It also called for "a new era of environmentally sound economic development", that is, an economic development that does not consume natural resources at a rate that would lead to long term decline of those resources. "sustainable development" became the theme of the United Nations Conference on Environment and Development held at Rio De Janerio.¹³ The June 1992 Earth Summit in Rio de Janerio underscored this concern. In the United Nation's Agenda 21, 150 nations explicitly recommended new development patterns based on the satisfaction of basic needs. The summit chooses three major areas in which concerted international action is urgently needed: biodiversity, climate change and sustainable development.

In November, 1990, the United Nations Environment Programme began the first of seven negotiating sessions whose objective was to produce an international treaty on the conservation of biological diversity. The Convention on biological Diversity was presented at the Earth Summit in Rio de Janerio in June, 1992, where it was signed by 153 nations and the European Community.¹⁴

When originally contemplating a worldwide agreement on biodiversity, the international community imagined an "umbrella" convention, one which would coordinate or perhaps consolidate the multitude of global and regional treaties in the field. Due to politics and impracticality, this effort was abandoned in favour of the current Convention on Biological Diversity- a loose framework convention much maligned for its lack of substance.¹⁵

It has in total 42 articles. It has in total 193 members India being a member of the Convention. The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives¹⁶: (a) The conservation of biological diversity (b) The sustainable use of the components

of biological diversity (c) The fair and equitable sharing of the benefits arising out of the utilization of genetic resources

The Convention on the first time recognizes that the conservation of biological diversity is "a common concern of humankind" and is an integral part of development process. The Convention remind decision makers that natural resources are not infinite and sets out a new philosophy for the 21 century, that of sustainable use.¹⁷

Some of the many issues dealt with under the Convention include: (a) Measures and incentives for the conservation and sustainable use of biological diversity¹⁸. (b) Regulated access to genetic resources¹⁹. (c) Access to and transfer of technology, including biotechnology²⁰. (d) Technical and scientific cooperation²¹. (e) Impact assessment²². (f) Education and public awareness²³. (g) Provision of financial resources²⁴. (h) National reporting on efforts to implement treaty commitments²⁵

In addition to this as a relatively new method of international lawmaking, the framework treaty has provided the model for a number of major international environmental agreements, including the Vienna Convention for the Protection of the Ozone Layer²⁶ and its accompanying Montreal Protocol on Substances that Deplete the Ozone

¹³ CBD secretariat accessible at <http://www.biodiv.org/doc/publications/guide.asp?id=c> hanging accessed on 3/Nov/2013.

¹⁴ Coughlin Jr., "Using the Merck- in Bio agreement to clarify the Convention on Biological Diversity", *Columbia Journal of Transnational Law*, 31(2), 337-375.

¹⁵ Lakshman D. Guruswamy, Jeffrey A. McNeely, *Protection of Global Biodiversity*, Duke University Press, Durham, 1998, p. 360.

¹⁶ Article 1, Convention on Biological Diversity, 1993.

¹⁷ <https://www.cbd.int/doc/publications/cbd-sustainable.pdf> accessed on 3/Nov/13.

¹⁸ Article 6, Convention on Biological Diversity, 1993.

¹⁹ Article 15, Convention on Biological Diversity, 1993.

²⁰ Article 16, Convention on Biological Diversity, 1993.

²¹ Article 18, Convention on Biological Diversity, 1993.

²² Article 14, Convention on Biological Diversity, 1993.

²³ Article 13, Convention on Biological Diversity, 1993.

²⁴ Article 20, Convention on Biological Diversity, 1993.

²⁵ Article 22, Convention on Biological Diversity, 1993.

²⁶ The Vienna Convention was adopted in 1985 and entered into force on 22 Sep 1988. In 2009. The objectives of the Convention were for Parties to promote cooperation by means of systematic observations, research and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures against activities likely to have adverse effects on the ozone layer.

Layer²⁷, the Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes²⁸ and the United Nations Framework Convention on Climate Change²⁹.

INDIA AND CONSERVATION OF BIODIVERSITY

The concept of protection of biodiversity is dealt under the Constitution of India.

Article 48A: Protection and improvement of environment and safeguarding of forests and wild life The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

Article 51 A(g): to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.

India signed the convention on Biological Diversity on 5 June 1992, ratified on 18 February 1994 and brought it into force on 19 May 1994. This Convention provides a framework for the sustainable management and conservation of India's natural resources. The report of the Standing Committee, which sat 26 times for preparing a draft bill, on Science and Technology, Environments and Forests was laid down on the table of Lok Sabha on 4 December 2001. The name of the Act is the Biological Diversity Act, 2002. It has Biodiversity Rules, 2004 annexed to it. The Preamble of the Act states:

"An Act to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto".

This Act is the beginning in the realization to the richness of Indian biodiversity. This Act is a double edged sword, which has the potential to stifle development as well as take away the livelihood of millions of Indians on the one hand, but on the other hand, if this Act is properly implemented, it has the potential to take India to reach new economic heights with sound ecological balance and improve the per capita income and improve the standard of living.

Section 2(b) defines biological diversity 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 eco-systems.

²⁷ The treaty was opened for signature on 16 September 1987, and entered into force on 1 January 1989.

²⁸ 22 March, 1989

²⁹ 1992.

Another importance definition provided in the Act is the definition of sustainable use under Section 2(o) which means the use of components of biological diversity in such a 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.

It is important to mention here that the importance for the conservation of biodiversity springs from the concept of sustainable development. Sustainable development is the ability to co-exist in a way that maintains the natural environment, economic well being, and an equal opportunity for all people on Earth to benefit from a better quality of life now and in the future.³⁰ The three are interdependent. Nature is our life- support; there is simply no way around this reality. Only when we have a healthy natural environment, coupled with healthy social systems, can we truly prosper economically³¹.

Therefore keeping into consideration the importance of the Act it is important that the present resources both flora and fauna should be used in such a form that the concept of sustainable development is given full importance.

The two authorities established for the regulation of the Act are: (a) National Biodiversity Authority³² (b) State Biodiversity Authority³³ (c) Biodiversity Management Committee³⁴

An important section which can be directly linked with sustainable development is 36 which talks about the Central Government to develop national Strategies, plans, etc., for conservation, etc., of biological diversity. It goes as follows: (1). The Central Government shall 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, incentives for research, training and public education to increase a awareness with respect to biodiversity. (2) Where the Central Government has reason to believe that any area rich in biological diversity, biological resources and their habitats is being

³⁰R Warren Flint, Practice of Sustainable Community Development: A Participatory Framework for Change, Springer Publication, London, 2013, p. 1.

³¹ Brundtland Report, Our common Future, Report of the World Commission on Environment and Development, 1887

³² Section 8, the Biological Diversity Act, 2002.

³³ Section 22, the Biological Diversity Act, 2002.

³⁴ Section 41, the Biological Diversity Act, 2002

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. (3) 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 or cross- sectoral plans, programmes and policies. (4)The Central Government shall undertake measures,- (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. (5)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. 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.

CONCLUSION

Protecting our environment, while stabilizing our population and adequately feeding the people who will share the earth in the next generation is the largest challenge facing human kind today. For the conservation of biodiversity and sustainable use it is vital to understand the root causes of biodiversity loss and ecosystem degradation and therefore, all informal and formal institutions have to work together (politics, policy and people) to generate awareness and technical demonstrations to maintain and conserve biodiversity that could well support the

future livelihood and generations to come. This would necessarily involve social equity issues, improved agricultural and forestry practices, capping the activities that are leading to global warming and other drastic alterations of the earth's environment, and limiting over consumption in industrialized countries to levels that the world could sustain.

Thinking beyond our role as environmental lawyers, the ultimate challenge of climate change concerns first, the social and economic value society is prepared to place on sustainable future, and secondly, how far we are willing to accept necessary mechanisms of adaptation and mitigation. So it is very important that for the promotion of the concept of sustainable development the resources should be used in an appropriate manner and biodiversity should be preserved for our future generations for making earth a better place to live.

ABOUT THE AUTHOR

Ms Geetika Walia is working as Assistant Professor of Law in Rajiv Gandhi National University of Law, Patiala, Punjab. She has done her B.A.,LL.B., LL.M, UGC(NET) and is pursuing her Ph.D in the area of international criminal law. She has also done a diploma in Post Graduate Diploma in Human Resource Management (PGDHRM/M.B.A. her area of interest in Intellectual Property Rights Law, Criminal Law. She is appointed as Academic Counsellor by IGNOU's School of Law. Also currently she is holding the post of Teacher Coordinator of the internship Committee, RGNUL. She was appointed as Teacher Coordinator placement and internship committee (2009-2012), RGNUL. She has attended various national and international seminars, conferences and workshops. To her credit she has both national and international publications. She has also adjudged various moot court competitions held at the national levels. She also was a subject expert on human resource law for taking interviews for appointed Officers in the factories by PPSC. She has guided various projects and term paper at both post graduate and under graduate levels. She is teaching both the graduate and post graduate classes.

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