Research Paper
Impact Factor: 5.646
Peer Reviewed & Indexed Journal
www.ijmsrr.com

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

THE SOCIO –ECONOMIC ALLUSION OF BIODIVERSITY- A PANORAMA

S.Ambili
Assistant professor, Department of Economics, MES Ponnani college, Ponnani.

Introduction

Biodiversity is defined as the variety and variability among living organisms and ecological complexes in which they occur. (Nambiar, 2009).The great variety of life on earth has provided for man's needs over thousands of years. This diversity of living creatures forms a support system which has been used by each civilization for its growth and development. Those that used this bounty of nature carefully and sustainably survived, while those that overused or misused it disintegrated. (Bharucha, 2003). A biogeography region which is a significant reservoir of biodiversity and potentially threatened with destruction is called a hotspot of biodiversity. The UN Earth Summit held in Rio de Janeiro in 1992 defined biodiversity as the variability among living organisms from all sources, including terrestrial , marine and other aquatic ecosystems and ecological complexes of which they are a part. Diversity within species, between species and of ecosystems is encompassed in this definition. Throughout the world in general and in the developing countries in particular, biodiversity is a vital resource, a key component in poverty reduction and crisis prevention. The term biological diversity or biodiversity covers not only species diversity but also the diversity of ecosystems and genetic diversity. (Nambiar, 2009).

Genetic diversity enables organisms to adapt themselves to their environments and thereby to enhance their fitness and survival value. It also serves as the raw material of organic evolution. So, the greater the genetic diversity, the greater would be the adaptability, fitness, survival value and evolutionary potentiality of a species. Species diversity is the variability between the species of a community. To be more precise, it is the variety of rare, unrelated, or dissimilar species in a community or area. So, the higher the number of rare or unrelated species, the greater the species and thereby improves community stability. Ecosystem diversity is the diversity in the composition of the communities and ecosystems. So it represents the variability in the continental or global distribution of communities or ecosystem types. The species, living in each habitat or area, may be especially adapted to the abiotic and biotic environments of that habitat. So, biodiversity varies with communities and ecosystems. In the present day social order of economic liberalization, patenting and market oriented culture, the importance of biodiversity and its roles in economic advancement and sustenance of human race are grossly undervalued. (Bhaskaran, 2010). The world wide decline in biodiversity is alarming. Many species are on decline and some are becoming extinct. Extinction of species leads to loss of biodiversity. (Smitha and Sreekumar, 2004).

Objectives

The primary goal of this paper is to provide an understanding of what economics has to say about biodiversity. Because the overriding goal of economics is to deliver choice solutions that make society better off, a strong emphasis would be given to the value of biodiversity because it is the creation of value that makes society better off. Specifically, the following questions will be addressed:

1. Why is biodiversity valuable?
2. What is the socio-economic significance of biodiversity?
3. Role of biodiversity in the sustainable development.
4. Role of biodiversity in the survival and economic well being of the poor.
5. Biodiversity and economic safety of women.

It is intended that the paper will give policy makers a background about the impact of bio diversity on the socio-economic front.

Socio- economic significance of biodiversity

Biodiversity is an invaluable resource, beneficial to mankind in many ways. It meets the commercial, industrial, aesthetic and cultural requirements of man. It serves as a, major source of food, pharmaceutical drugs, crops, fibre, timber, spices, oils and so on. Countless varieties of edible plants and animals, including the cultivated and

domesticated ones serve as the source of human food. Many pharmaceutical products are derived from plant substances. While morphine, which is widely used for sedation and relief of pain, is produced from poppy plant, quinine and cinchonine used in the treatment of malaria and coronary diseases are produced from the bark of cinchona tree. Taxol , an anticancer drug, is obtained from the bark of yew trees. Apart from these, thousands of plant species are important in traditional medicines. Plants are also used for making several synthetic products commonly called botanochemicals or botanicals. (Bhaskaran, 2010). The biodiversity is useful to mankind in a number of ways. Many of the world's poorest people depend directly on the diversity of plant and animal species for their livelihoods. (Smitha and Sreekumar,2004).

Protecting biodiversity is our primary duty and is in the interest of the survival of the organic world. Biological resources are the pillars upon which we build civilizations. It is also the corner stone of every economic activity. Nature's products support such diverse industries as agriculture, cosmetics, pharmaceuticals, pulp and paper, horticulture, construction and even waste treatment that play many crucial roles in the economic development of the society. The loss of biodiversity threatens our food supplies, opportunities for recreation and tourism and sources of wood, medicines and energy, which are all inseparable components of economic activities determining the well being and advancement of the mankind in a big way. Biological diversity is also essential for preserving ecological processes such as fixing and recycling of nutrients, soil formation, circulation and cleansing of air and water, maintenance of the water balance within ecosystems, watersheds protection, maintaining stream and river flows throughout the year, erosion control and local flood reduction.(Bharucha,2003). Environmental philosophers divide values of biodiversity into two main domains namely; **instrumental value and intrinsic value.** The former one is the value that something has a means to another end. Materialistic uses of biodiversity are the core of instrumental values, but this is not the whole story. People also value biodiversity for pure aesthetic or spiritual reasons. The instrumental values that are determined by the role of species in an ecosystem may also be influenced by uniqueness of species. On the contrary, **intrinsic value** is the value that something has as to end to itself. Environmental philosophers claim that the concept of intrinsic value exists objectively in human and other organisms. All organisms strive to achieve certain basic pre determined goals namely to grow, to reach maturity and to reproduce. Intrinsic value of biodiversity is non anthropocentric. (Nambiar,2009)

Biodiversity at global levels

Biodiversity is not uniformly distributed in different nations, different geographical regions and different localities. In general, biodiversity is relatively rich in tropical countries and poor in Polar Regions. The floral and faunal diversity of a country, region or locality depends upon several factors, such as climate, soil type, altitude, water availability, species interaction etc.(Bhaskaran,2010). The number of known species is in a flux as new species are found, taxonomic categories adjusted and redundancies recognized. Seventy percent of the world's species occur in just 12 countries. It takes time and research to recognise these redundancies. Scientists have described over 1.5 million species of animals, pants and algae. The greatest diversity exists among insects which account for nearly a million of planet's species. Mammals make up one of the smallest groups, with just 5,416 members. Altogether the earth's oceans and continents support close to 60,000 species of vertebrate animals and 3,00000 species of plants. Taxonomists agree that their work in identifying species is incomplete. Thus biodiversity on earth represents an amazing and diverse store house of biological wealth having direct bearings on socio economic and environmental sectors.(Agarwal et al.,2002)

It is roughly estimated that 70% of the known species of organisms are invertebrates, 15% are plants and the remaining 15% consist of vertebrates, bacteria, prostists. It is also estimated that nearly 10 to 15% of world's species are found in North America and Europe. At the same time, the centres of highest biodiversity are in the tropics. World's top biodiversity- rich nations include Australia, Brazil, Cameron, China, Columbio, Costa Rica, Ecuador , India, Indonesia, Madagascar, Malaysia, Mexico, Panama, Papua New guinea, Peru, Phillippines, South Africa, Venezuela, Vietnam and Zaire. (Bhaskaran, 2010).

India – a mega diversity nation

India has a rich heritage of biodiversity. Its highly peculiar geographical location, extremely varied climatic conditions and a wide spectrum of habitats have all contributed very much to the immense biodiversity of our nation. (Table 1).

Table 1, Estimated Number of Species In India and the World

Group	No. of species		% in India
	In India	In the world	
Bacteria	850	4,000	21.25
Algae	6,500	40,000	16.25
Fungi	14,500	72,000	20.14
Lichens	2,000	17,000	11.80
Bryophytes	2,850	16,000	17.80
Pteridophytes	1,100	13,000	8.46
Gymnosperms	64	750	8.53
Angiosperms	17,500	2,20,000	7.00
Arthropods	68,389	9,87,949	6.90
Molluscs	5,070	66,535	7.62
Pisces	2,546	21,723	11.72
Amphibians	209	5,150	4.06
Reptiles	4565	5,817	7.84
Birds	1,232	9,026	13.66
Mammals	390	4,629	8.42

Source: www.globalissues.org

With a mere 2.4 % of the land area of the whole world, India contributes to nearly 8.22 % of the global diversity. India is one of the top 12 mega diversity nations, accounting for 7.31% of the global faunal species and 10.88 % of the global floral species. At present, India holds the tenth position in the world and fourth position in Asia in plant diversity. In terms of the number of land vertebrate species, India ranks 11th, in the number of mammalian species it ranks 10th, in the number of bird species it ranks 8th, in the number of reptilian species it ranks 5th and in the number of amphibian species it ranks 15th. Nearly 18% of the Indian plants, 30% of Indian angiosperms, 62% of Indian amphibians and 50% of Indian reptiles are purely endemic or unique to our country and are not found elsewhere in the world. This high endemism is found in the case of freshwater sponges, marine annelids, insects and centipedes also. .(Bhaskaran,2010).

In terms of domesticated plants and animals, India ranks seventh in the world. The major reason for the extra ordinary biodiversity of India is that most types of biogeographically regions are represented in India. Thousands of years of agricultural and domestication practices have contributed immensely to the rich agro biodiversity and also to the conservation of numerous plant and animal species, which significantly contribute to the national economy. (Bhaskaran, 2010).

Hot spots of biodiversity

Hot spots are the regions with enormously high species diversity, exceptionally greater species richness, and extremely high concentration of endemic species, much abundant but most seriously threatened flora and fauna and rapid alteration or loss of habitat. They are selected as priority areas for the in-situ conservation of biodiversity. An area is considered as a hot spot based on the number of its endemic species, the extent of its habitat loss and the degree of threat to its biodiversity. An area becomes a hot spot of Biodiversity when it harbours more than 1,500 endemic species and nearly 70% of its original is lost. (Agarwal et al., 2002).

There are over a thousand major 'ecoregions' in the world. Of these, 200 are said to be the richest, rarest and most distributive natural areas. These areas are referred to as the 'Global 200'. The rate at which the extinction of species is occurring throughout our country remains obscure. It is likely to be extremely high, as our wilderness areas are shrinking rapidly. Our globally accepted national 'hotspots' are in the forests of the North east and the western Ghats, which are included in the world's most bio- rich areas.(Bharucha,2003)

Formerly 25 terrestrial hot spots were identified the entire world over for in situ conservation. Now, the number is above 34. They cover nearly 1.4% of the earth's land area and habour nearly 60% of the global Biodiversity. Nearly 20% of the human population is found in the hot spot regions. (Bhaskaran,2010).

Causes of loss of the diversity

The major reasons are:

1. Destruction and degradation if the habitats
2. Overexploitation of plant and animal species
3. Introduction of non native species into habitats
4. pollution and contamination
5. Global warming.

Impacts of loss of biodiversity

The important effects of species loss may be listed as:

1. Destruction of the natural systems that purify the worlds, air and water.
2. Increased flooding, drought and other environmental disasters.
3. Reduction of the potential for the discovery of new medicines
4. Serious impairment of the environment's ability to recover from natural and human induced disasters.
5. Degradation of the world's economies and thereby weakening the social and political stability of nations across the globe.
6. Irreparable damages to agriculture, fisheries and food production.
7. Decrease in the ability to control infectious diseases.
8. The ever increasing human populations and the various anthropogenic activities that adversely affect biodiversity could lead to extinction of species and may ultimately end up in socio-political chaos with economic instability and environmental catastrophies.

Steps to preserve biodiversity

1. There should be urgent measures globally to control human population by all acceptable means.
2. Social justice and elimination of poverty has to be achieved to reduce the unhealthy exploitation of the biodiversity rich natural areas like forest by the poor for their sustenance.
3. Appropriate technology should be adopted for industrial processes to avoid factors if not minimize that cause global warming, cutting down of trees, prevention of topsoil erosion, acid rain and ozone layer depletion.
4. The most effective way of saving biodiversity is to preserve areas that have all their organisms in them intact as natural communities.
5. Limiting the use of chemical fertilizers and pesticides and adopting better and eco friendly farming techniques is very important. Clearing of forest for agricultural use should be curtailed whereas better farming practices should be adopted to improve the productivity.
6. Genetic engineering can be used to improve the yield and to develop pest resistant and disease resistant varieties of plants through carefully monitored programmes.
7. Developing countries right now have about 78 percent f the world's population and 6 percent of the world's scientists and engineers and about 80 percent of the world's Biodiversity. Scientists and engineers from the developing countries should be trained on ecology and environmental management, so that biodiversity can be preserved.

8. For those species that are in the verge of extinction, captive breeding can be adopted to increase their numbers.
9. Wastage of energy must be avoided to minimize the use of natural resources that in turn have direct influences on biodiversity.
10. Large scale awareness campaigns must be undertaken to enlighten the world population about the grave dangers in loosing biodiversity.

Economic Perspective

Biological diversity or 'biodiversity' is of interest for two fundamental reasons. First, biodiversity is valuable to society. That is, the greater the biodiversity we have, the better off we are and as we lose biodiversity, we consider ourselves to be worse off. Second, choices made by society have made and are continuing to have effects on biodiversity. (www.iucn.org).

Biodiversity conservation and sustainable use with equitable sharing of benefits derived from its natural services are the basis of human well-being. Biodiversity benefits are being threatened by development choices that ignore the full value of these natural services to us all and particularly the poorest. Reversing this negative trend is not only possible, but essential to human well-being. (www.iucn.org). For example clearing land for agriculture, harvesting timber from forests, draining wetlands for housing estates etc., have caused depletions in biodiversity. Putting these two reasons together lead the economist to conclude that biodiversity is a scarce and valuable resource. And for an economist, that means their discipline has something to contribute to the biodiversity debate, simply because the focus of economics is on the analysis of the ways societies make choices about their scarce and valuable resources. Development strategies and choices need to recognise and systematically include biodiversity conservation and sustainable use in order to achieve sustainable development and significantly reduce world poverty.

Protected areas (e.g. parks and nature reserves) have been the cornerstone of efforts to conserve the world's species and ecosystems. They also play a key role in sustaining local livelihoods and contributing to economic and social well- being. Protected areas also have an important role in reducing risks from natural disasters and in helping counteract climate change impacts with avoided deforestation and support to maintaining ecosystem services within and beyond their boundaries

In order to conserve biodiversity while reducing poverty and increasing human well-being and development, biodiversity must become part of government development policies. Likewise, development and poverty reduction need to be an integral part of environmental and biodiversity conservation policies and programs. Sound development choices more often than not offer positive outcomes on multiple social, economic and environmental fronts, invariably involving some trade-off. The key is managing trade-offs in ways that maintain and/or restore the capacity of ecosystems to provide the full range of services to humans, and contribute to reducing poverty.

The conservation and sustainable use of biodiversity are possible only when economies take into account existing knowledge of the cultural and biological systems in which they operate and when they include benefit sharing as one of their goals. In the context of globalization, biodiversity becomes a capital on which governments can and should build to achieve sustainable levels of social and economic organization – a precondition for sustainable Development (Bridgewater and Arico, 2002).

Every decision we take that affects biodiversity, also affects our lives and the lives of other people. Biodiversity is crucial to **human wellbeing**, **sustainable development** and **poverty reduction**. But people - particularly those in the developed world - have become so far removed from nature that they have for gotten how much they, and others, rely on it.(www.iucn.org)

The aim to improve socio-economic condition of women by utilizing indigenous natural resources, with the belief that sustainable development is possible only through grassroots empowerment.

The Convention on Biological Diversity in its preamble recognizes "the vital role that women play in the conservation and sustainable use of biological diversity" and affirms "the need for the full participation of women at all levels of policymaking and implementation for biological diversity conservation". (wikigender.org)

Conclusion

The biodiversity is a natural treasure box to mankind for their well being and also for the sustenance of the biosphere. Many of the world's poorest people directly depend on biodiversity for their livelihoods. It is essential to disseminate the impending grave dangers of mass extinction of species to the public, so that conservation of biodiversity can be initiated at all levels. A massive social effort is needed to alert the public regarding the biodiversity crisis and its implications. Efforts should also be made to provide a clear idea of what individuals can do in their daily lives to meet this challenge. Preserving the Biodiversity is important not only to ensure our own existence, but it is also our moral responsibility to future generations and the planet itself.

References

1. Agarwal ,K.M.Sikdar P.K.and Deb, S.E. (2002).A text Book of Environment, Macmillan India Limited, Chennai.
2. Bharucha,E.(2003),Text Book of Environmental Studies, University press(India)Private Limited, Hyderabad.
3. Bhaskaran , K.K. (2010),Environmental studies. University press , Calicut
4. Raghavan Nambiar,K.(2009) ,Environmental studies.,Nalpat publishers, Kochi.
5. Peter B. Bridgewater and Salvatore Arico (2002), Conserving and managing
6. Biodiversity sustainably: The roles of science and society.Natural Resources Forum, 26.
7. Smitha V.P and Sreekumar M. (2004), Developments in educational Practices,Vilavath publishers, Cheruvannur.

Websites

1. www.environment.government.au,
2. www.wikigender.org
3. www.iucn.org