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# UNIT 2 CONSERVATION OF BIOLOGICAL DIVERSITY

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## Learning Objectives



At the end of this unit, you will be able to:

- understand the meaning and components of biodiversity;
- explain the imperative to focus on biodiversity conservation;
- learn how biodiversity conservation in productive spheres is being missed in the ongoing global discourse; and
- know the role of culture in biodiversity conservation.

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## 2.1 INTRODUCTION: ANTHROPOLOGY AND BIOLOGICAL DIVERSITY

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Anthropology is concerned with the ways human societies interact with their environment from bio-cultural and comparative perspective approaches. While appreciating the diversity of cultures and environments and their interactions, anthropology emphasizes the cultural relativism for understanding other societies. Cross-cultural understandings of the environment and resource use practices are an enduring concern to anthropology. In particular, environmental anthropology aims to understand how the environment is perceived, conceptualized and classified by diverse cultures and the diverse ways of resource use practices cross-culturally. This concern has both theoretical and practical significance and particularly in the context of current debates on the conservation of biological diversity.

Biological diversity (or in short, biodiversity) simply means the diversity of life. It refers to the variety and variability among living organisms, and the **ecological**

**complexes in which they occur.** As we know, there are various kinds of organisms existing on the earth and the humankind is one among them. All life forms have their own intrinsic value and role in providing the conditions for emergence and maintenance of other life forms. In particular, they all provide the basis of life for human beings and survival of our diverse cultures. In other words, our life on the earth depends on the existence and survival of other living organisms, which provide various services directly and indirectly. So, there is growing recognition on the value of biological diversity as vital to human life.

On the other hand, paradoxically, biological diversity is rapidly eroding due to anthropogenic causes. Therefore, conservation of biological diversity is rising as an issue of global concern. It became an international agenda since the last three decades, and subject matter for various disciplines such as Conservation Biology, Environmental Science, Environmental Anthropology, Geography etc. Environmental Anthropology, unlike other disciplines, by incorporating the bio-cultural approach, explores and emphasizes the importance of culture for biological diversity and conservation and vice versa.

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## 2.2 CONCEPTS OF BIOLOGICAL DIVERSITY AND CONSERVATION

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The term **biological diversity** was first used by E.A. Norse and R.E. McManus in 1980 in biology; and later the shortened term **biodiversity** was coined by Walter G. Rosen in 1985 for a conference “The National Forum on Biodiversity” held in Washington D.C. in 1986. But, it became popular with an international Convention on Biological Diversity, which was adopted at the United Nations Conference on Environment and Development (UNCED) (the Rio “Earth Summit”) held at Rio de Janeiro in June 1992 and came into force in December 1993, by which time it was ratified by 168 countries.

The first most-used definition of the biodiversity was provided by the Convention on Biological Diversity (CBD). According to the CBD (1992) “ ‘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” (Article 2). The second most-used definition of biodiversity was given by the Global Biodiversity Strategy (WRI, IUCN, and UNEP, 1992) as “the totality of genes, species, and ecosystems in a region.” Besides these two, there are numerous definitions for this concept.

### Box

**Biological Diversity:** It is defined as 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.

As the above definitions indicate, biological diversity is the richness and variety of life on earth. The variety of life is expressed in a multiplicity of ways. It is generally understood in terms of genes, species, and ecosystems. The three constitute different levels of biological organisation, and these are referred to as Genetic, Species, and Ecosystem diversities respectively.

- 1) **Genetic diversity:** Variation of genes (or variety of individuals) within a species is Genetic diversity. For e.g., differences in pest resistance among rice varieties, varieties of a crop species including cultivated plants and its wild relatives; domesticated animals and wild animal relatives, etc.
- 2) **Species diversity:** Diversity among species (or variety of species within a region) is Species diversity. For e.g., floral diversity, faunal diversity, endemic species, etc.
- 3) **Ecosystem diversity:** Diversity at the habitat or ecosystem level (or variety of ecosystems) is Ecosystem diversity. For e.g., forest ecosystems, grassland ecosystems, aquatic ecosystems, etc.

Thus, biological diversity has three primary components/levels. Among them, species is treated as the most fundamental element of biodiversity. Besides the components, biodiversity can also be understood with its attributes such as, composition, structure, and function. Composition refers to the variety of living organisms, structure, to biological systems in which they occur, and function, to the ways in which they interact with each other and the physical environment. Among them, interaction is considered the principle mechanism that shapes the characteristics and functions of the biodiversity. In other words, biodiversity is not simply an umbrella covering a mosaic of heterogeneous elements. It represents a composite entity shaped by the continuum of all its components and their interactions.

On the other hand, the conservation, according to the World Conservation Strategy (IUCN, UNEP, WWF 1980), is “the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations, while maintaining its potential to meet the needs and aspirations of future generations. Thus, conservation is positive, embracing preservation, maintenance, sustainable utilisation, restoration, and enhancement of the natural environment.” In other words, “conservation is a philosophy of managing the environment in such a way that it does not despoil, exhaust, or extinguish it or the resources and values it contains”.

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### 2.3 IMPORTANCE OF BIODIVERSITY DIVERSITY AND ITS CONSERVATION

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Biological diversity is a complex and multidimensional reality. It is the key to adaptive success in the biosphere, and the basis of life on the earth. The concept is widely used across the world by the scientific community, conservationists, economists, environmentalists, industrialists, and general public. It is perceived, understood and interpreted differently by different sections of the society. This is perhaps because of the diversity of life itself, which shapes the world’s diverse cultures. For instance, most of the world’s biological diversity exists in majority of the third world/developing countries, which fall in the tropical regions with diverse environments. So, the developing countries are considered as the cradle of biodiversity (biodiversity rich), where as the developed countries are poor in biodiversity. Majority of the populations in the developing countries are from rural and tribal areas, most of whom are nature dependent. Their lives and livelihoods are intimately linked to biodiversity. Therefore, the perspectives of the nature dependent populations such as tribals, peasants and fisher-folk vary

from that of the urban affluent society. The perspectives of the “global South” (developing countries or Third world or Eastern world) vary from that of the “global North” (developed countries or Western world or Euro-American world).

With the varied perceptions of biological diversity, various reasons exist for its conservation. Thus, there are various ways of understanding the biodiversity from the values and worldviews of different cultures. The varied understandings range from the perspectives of cosmocentric (or ecocentric) to anthropocentric and for the values of moral, ethical, aesthetic, economic and ecosystem services of biodiversity. These provide the basis for managing the biological diversity.

Current discourses on biological diversity draws attention for two reasons: growing recognition of the importance of biodiversity on the one side and the rapid erosion of biodiversity on the other side. The importance of biodiversity can be understood in two dimensions: values and levels. The value dimension considers biodiversity for: a) intrinsic value (ecocentric), and b) anthropocentric value. The former views nature as innately valuable, or in other words, biological diversity has an intrinsic value that is worth protecting regardless of its value to humans. The latter views biological diversity as economically valuable, as it performs a number of services for human beings, which have economic, ecological, aesthetic or recreational values. It considers biodiversity as a resource that can be used for human wellbeing.

Biological diversity can also be understood by the levels: 1) local people, 2) environment, and 3) humanity. The services and benefits of biodiversity spread across these levels and varies among them. Firstly, biodiversity is inextricably linked with the local people such as, tribals, peasants, fisher-folk, etc., who derive their livelihood directly from nature. They are wholly dependent on the biodiversity for survival. Biodiversity also provides insurance against their future. Secondly, for environment, biodiversity provides ecosystem services such as, photosynthesis, regulation of climate, soil and water conservation; maintaining of biogeochemical cycles - recycling of water, oxygen, carbon dioxide, nitrogen, sulphur, carbon, etc. Lastly, the humanity as a whole benefits from biodiversity in various ways and levels: for life supporting ecosystem services, for various raw materials from nature for consumption and for market, and the benefits of the local people contribute to that of the humanity as the locals are part of the whole. Moreover, biodiversity provides the base for cultural diversity with diverse ecological conditions.

Despite such significance, there is the erosion of biodiversity, and it is expanding and accelerating today mainly due to anthropogenic causes, and to a lesser extent due to natural causes and climatic perturbations. The human activities that cause the loss of biodiversity operate in various ways. These include: 1) globalisation of an industrial culture, 2) commodification of resources, 3) over-consumption/exploitation of resources, 4) destruction of habitats, 5) dominance of Western science over the local ecological knowledge, and 6) emergence of “agribusiness” with monocultures. However, the loss of biodiversity also results in the disappearance of cultural diversity since both are intimately linked.

On the other hand, biological diversity of various ecosystems remains poorly explored and the majority of species remain unidentified. According to a report of Convention on Biological Diversity (*Global Biodiversity Outlook 1*, 2001), globally around 1.75 million species to date have been described and formally

named, It is estimated that there are around 14 million more species exist but remain undiscovered, undocumented and unknown. They may be carrying more services/values and have more worth on the earth.

In view of the above, it is imperative to act for the conservation of biodiversity, notwithstanding the variations in values and reasons among different societies for biodiversity.

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## 2.4 CONSERVATION AS SOCIAL AND POLITICAL PROCESS

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Various perspectives have emerged for the conservation of biodiversity. Shiva (2003) provides three strands as: 1) Ethical concern – all life forms have value in themselves, independent of the value man puts on them. 2) Equity and social justice – arises from the marginal sections of the resource rich regions such as, tribals and peasants, for a struggle for self-reliance and sustenance. Since diversity protects the livelihood systems of different communities, it needs to be incorporated into the production processes in agriculture and forestry. Then it becomes conservation of ‘means of production’ of life itself. 3) Conservation for “raw material” – biodiversity provides strategic raw material for industrial production of food, pharmaceutical, fibres, energy, etc.

Under such strands, there are many initiatives and processes underway for the conservation of biodiversity, from local actions to global treaties. However, the ongoing discourse on the biodiversity and its conservation is predominated by the Western perspective (of the North/developed countries), which emphasizes mainly on natural/wild diversity (diversity of wild life) and almost neglects the cultivated/domesticated diversity (diversity of domesticated species). This is perhaps because: 1) The North is poor in biodiversity; 2) They are more concerned with the economic values of biodiversity, and the natural (wild) diversity is considered as a valuable resource that provides with raw materials to meet the economic needs and industrial requirements; 3) Their ethnocentric bias in understanding the complex process of biodiversity that links with the cultural diversity, and biodiversity rich developing countries as if they are consuming more resources, which is however not true as per the principle of “equity and social justice”; 4) Their top-down approaches for resource control and exploitation, as if they have a right and responsibility; 5) Their productive system of monocultures (uniformity of crops over diversity of crops) for agribusiness (market economy).

In view of the above, the North with its power and perspective dominates the South. For instance, a publication of IUCN, WRI, WWF, World Bank, and Conservation International (*Conserving the world's biological diversity* by McNeely, et al. 1990, quoted in Shiva, *et al.* 2003), demonstrates the values of biological resources in economic terms: consumptive use value, productive use value, etc. According this value framework, people who depend on nature for sustenance of basic needs are only “consumers”, and those who commercially exploit and produce for market are “producers”. It implies that the South is responsible for the destruction of biological resources and the North only can conserve it.

Further, the North deliberately attempts for substitution of biodiversity by uniformity of crops, trees and livestock (over mixed crops/farm, grove/forest and livestock) in production spheres of agriculture, forestry, and livestock in the developing countries through development interventions while undervaluing the local mixed cropping system, as if it is primitive and unproductive. But, the mixed cropping system is proved to be worthy for its economic and ecological values.

Anyhow, their productive system completely destroys the diverse cropping systems with the monocultures. It has a large impact on biodiversity in general and on the livelihoods of people of the developing countries in particular. Because, the domestication of resources is their critical strategy of survival, and when the crop diversity is replaced with the monocultures, it ends up with ecological and economic problems.

Thus, the crisis of the erosion of biodiversity is a crisis in the North as much as in the South, and the roots of the crisis of diversity in the South lie in the North. However, the developed countries, instead of accepting their responsibility and burden-sharing are trying to shift the burden on to countries that are not or less responsible. It is particularly evident at the recent Durban talks on climate change (The United Nations Climate Change Conference, 2011 at Durban). Further, they are trying for sharing of the benefits arising out of the utilisation of biological resources. It is evident in the Convention of Biological Diversity, which also focuses on natural diversity and neglects the diversity of cultivated.

On the other hand, the traditional and indigenous societies, most of who are from the South, have adapted “low-impact practices of use and management of biological resources, maintained over long periods of time with no detrimental effects on biodiversity. In fact, such cultural practices have often been found to contribute to sustaining and even enhancing biodiversity, while introducing subtle modifications that mimic natural processes” (Maffi 2010). Therefore, there is a growing recognition of the importance of cultural diversity for biodiversity conservation.

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## 2.5 CULTURAL PERSPECTIVES AND APPROACHES TO CONSERVATION

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People of diverse cultures perceive and interact with the environment in different ways. They are influenced by their environmental world views, cultural practices, values, etc. So, their values to biodiversity, driving forces and approaches to conservation vary. However, many traditional/indigenous peoples are considered to have managing diversity in productive ways with their intimate links with nature. Most of their cultural practices have tremendous effects in promoting conservation. To support these relationships, Zent and López-Zent (2007, quoted in Maffi and Woodley 2010) have identified certain actions as biodiversity-enhancing agents. These include:

- 1) The anthropogenic creation and maintenance of biodiversity landscapes through traditional low-impact resource management practices, supported by local cultural knowledge and spiritual beliefs.
- 2) The contribution of traditional farmers to the global stock of plant crop varieties and animal breeds.

- 3) The customary beliefs and behaviors that contribute directly or indirectly to biodiversity conservation, such as sustainable resource extraction techniques, sacred groves, Selective extraction, periodic abstinence from exploitation, proscriptive sanctions, ritual regulation of resource harvests, and buffer zone maintenance.
- 4) The dependence of socio-cultural integrity and survival of local communities on access to traditional territories, habitats and resources, which also significantly affect food security.

### 2.5.1 Environmental World Views and Folk Cosmology

Florence Kluckhohn (1953, quoted in Altman and Chemers 1984) described three general orientations to nature by people of different cultures and at different times of history. These are:

- 1) People as subjugated to nature – living at the mercy of powerful and uncompromising nature;
- 2) People as over nature – dominating, exploiting, and controlling the environment; and
- 3) People as part of nature – living in harmony with the environment.

It is possible that societies hold aspects of all these orientations to one degree or another, although one may be a more salient force.

#### *People as subjugated to nature*

In societies with little industrial technology or living in very harsh and unpredictable climates, environment is viewed as powerful, uncontrollable, and unpredictable. People in such societies can only adapt and usually become fatalistic to the environment. This view is peculiar to the earthquake regions of Los Angeles, Italy, Guatemala, and people living in hurricanes and tidal waves affected areas of the Pacific islands.

This view appears in medieval attitudes towards forests and the wilderness; it is reflected in the fairy tales and myths of Western Europe during the period from 12<sup>th</sup> to 15<sup>th</sup> centuries. Forest was considered as evil, dangerous and uncontrollable; it was also the abode of witches, demons and monsters (semi-human wild men) that preyed on people. For instance, R. Nash (1967) in his book, *Wilderness and the American Mind* wrote:

“The most important imaginary denizen of the wilderness of Medieval Europe was the semi-human Wild Man. His naked figure, covered completely with thick hair, appeared widely in the art, literature, and drama of the period .... According to folk tradition, the Wild Man lived in the heart of the forest as far as possible from civilisation. He was regarded as a kind of ogre who devoured children and ravished maidens” (p. 13, quoted in Altman and Chemers 1984).

This fearful and submissive view of nature is based on the inability of people to control nature, and on the association of nature with the supernatural and demonic. This view was even traced back to the early beliefs of Romans on forests, and Greek mythology on forest gods. Similar view appears in the early Judeo-Christian attitudes toward the desert which threatens to human survival, and people’s only

recourse was to adapt and to hope that good behaviour would bring forth positive treatment.

Even in modern societies, people sometimes feel a sense of subjugation to and inability to control nature in times of natural calamities such as, earthquake, flood, drought, snowstorm, etc. Thus, from the ancient Hebrews to the Greeks, Romans, middle Ages, and even to the present, the Nature is powerful, uncontrollable, and uncompromising. Such features lead us to see nature as something to which we must adapt, bend and be respectful.

### *People as over nature*

This view of Nature is diametrically opposite to the preceding one. It states that people are above nature, i.e., humans are superior to it. Humans are considered capable of dominating, exploiting and controlling nature. They have a right and responsibility to control, subjugate and bend the nature in accordance with human needs. This view has predominated in Western societies, particularly in America. It also reflects in many facets of our lives due to food production, use of natural resources, land use practices, and exploitation of the earth; innovation and use of pesticides, fertilizers, and other forms of technology to generate higher production; extensive mining activities, forest use and water management to the extent of deforestation and resource depletion. Such activities reflect our view that nature exists to serve people.

Historical and cultural roots of this orientation lie in the Judeo-Christian heritage of Western society, and the scientific and industrial revolution. As per the former, mankind is above all other creatures, they should increase, conquer the earth, and have dominion over all living things, transform the wilderness into fruitful and productive. These views were further perpetuated in modern Western society with the scientific and industrial revolution, which produced vehicles for conquering nature and reinforced the idea that people were above and separate from nature. Exploration to Space, building dams and bridges, controlling the temperature, medical advancements (curing illness, etc.), cracking the genetic code, success in animal cloning, etc. all attested to the predominant Western view of people as superior, separate from and above nature, and unique.

### *People as part of nature*

It is prevalent in many contemporary and historical cultures, which states that humans are an intrinsic part of nature in the same way as other components of nature such as, animals, plants, thunder, lightning, etc. For example, the Pygmies of the Congo (formerly Zaire) say “The forest is a father and a mother to us, and like a father or mother it gives us everything we need – food, clothing, shelter, warmth ... and affection. Normally everything goes well, because the forest is good to its children” (Turnbull 1961). When misfortune happens, they believe that the forest is sleeping. So they say, “We wake it up by singing to it, and we do this because we want it to awaken happy. Then everything will be well and good again” (*ibid.*). Similarly, many American Indian cultures consider “the earth and land to be the mother, the sky the father, the animals brothers and sisters, all of whom live together as a family. People are no better and no worse than the other members of the earth’s family; they are all part of the family” (Neihardt 1961, quoted in Altman and Chemers 1980).

Harmony with nature is also reflected among the Pueblo Indians of America. Ortiz (1972) observes that they “consider the sun to be the father and the earth the mother. Earth and sun govern life and create an endless series of cycles – summer, winter, spring and fall, day and night, life and death, growth and decay” (quoted in Altman and Chemers 1980).

Similar orientations are also observed among the Konda Reddis of Andhra Pradesh in India. The Konda Reddis believe that earth is the mother and sky is the father (*talli-bhudevi* and *tandri aakasam*) and all of us (Konda Reddis and all the human beings) are their children. They also say that the forest, which is the shelter of plants, animals and spirit forms, is also created by the mother-earth. This is with the help of the father-sky, who is considered responsible for the rains and protective-shield from other powers including sunlight. The earth and the sky, which include sun, moon and stars also govern life and create the cycles of monsoon, winter, and summer; day and night; life, growth, decay, and death, etc. Konda Reddis also believe that human beings and other non-human forms including plants, animals, spirits, etc. are created by the same divine power and are believed to be bound by a common kinship bond of brotherhood. Further, the existence of all non-living things including hills, streams, rock, soils, etc. are also the creation of the mother-earth for the survival of the life-forms.

Thus, people and nature are interdependent. People live in harmony with nature. They believe that nature is to be preserved and cared for; and one must take only what one really needs, whether it is food, water, or some other resource. In some cultures, this value is carried to the extent of apologizing to nature when one takes something from it.

### 2.5.2 Spiritual Ecology

As the term indicates, spiritual ecology deals with the spiritual dimension of peoples in relation with ecology. It discusses the influence of spirituality (such as of religion) on nature in the context of maintaining the environment. Sponsel (2007) defined it as “a complex and diverse arena of intellectual and practical activities at the interface of religions and spiritualities on the one hand, and on the other, of ecologies, environments, and environmentalisms.” It explores the environmental consequences of religious or spiritual beliefs, values, and behaviors in particular sites, landscapes, and ecosystems. For instance, the traditional/indigenous views of nature as sacred or a life-giving force to be respected may be beneficial for conservation.

Spirituality is an inclusive term than religion, as it encompasses people who do not affiliate with any particular religious organisation such as a temple, mosque, or church. Yet, it is also an integral component of any religion in principle. It can be a powerful influence for individuals and societies, and can play a significant role in shaping the way people engage with the natural world and in fostering ecologically sustainable living. It may allude to the radical transformation which helps to cope with the crisis of nature, rather than mere religious affiliation and worship of nature. The root causes of environmental crisis are viewed in this approach as a moral crisis.

Spiritual ecology holds out some hope for a better future for the healthy environment and that of humanity. Although spiritual ecology alone is not sufficient in the context of various secular approaches, yet it is a necessary

component. It holds the promise of even greater achievements in the future, because, spiritual values which are non-material are more powerful to influence and shaping the human behaviour. It complements secular approaches to meeting the challenges of the environmental crisis. Finally, it may help to contribute for a better future with more greener, sustainable, and peaceful environment.

Spiritual ecology can best be understood with its components. These include sacred places, and sacred groves.

### 2.5.3 Sacred Places

Some sites or areas are believed extraordinary, usually in a religious or spiritual sense. They are regarded as sacred places. Their status is due to some outstanding feature or unique shape. They stimulate a feeling of some mysterious, transcendent and awesome, and result in special reverence and treatment. Individuals may experience a sacred place in different ways as a site of ritual, revelation, healing, transformation, fascination, attraction, danger, ordeal, connectedness, identity, etc.

A wide range of “natural” phenomena (or geographical feature) is considered sacred by one or another culture or religion. These include mountains, hills, caves, rocks, soils, rivers, streams, springs, waterfalls, lakes, forests, groves, islands, beaches, estuaries, and so on. A particular sacred place or area may encompass various individual sites and phenomena as integral part of the whole or a sacred landscape, such as waterfalls, springs, caves, and meadows on a mountain. Sites can be connected by a river, legends or stories, histories of individuals or groups, etc. There are numerous mountains around the world considered to be sacred. They are often associated with some legends or origin myths as abodes of the gods, or revered as dwelling places for the spirits of the dead, places where prophets received their wisdom, or retreats for prayer, meditation, and vision quests.

For instance, the mountain, Mount Kailas of Himalayas (located in Tibet and rising about 22,000 feet or 6,700 meters) has been sacred for Hindus, Buddhists, Jains, and Bon (indigenous religion in Tibet). They believe it to be the sacred abode of Lord Shiva, a member of the supreme divine trinity. So they do not even think of trying to climb it. Thousands of pilgrims follow the ancient tradition of circling the mountain on foot. The rugged trek (of 52 kilometers) is seen as a holy ritual that removes sins and brings good fortune.

Some sacred places annually attract thousands or even millions of pilgrims and other visitors. For instance, the sacred hill of Sabarimala, where millions of pilgrims visit every year is one of the most popular pilgrimage sites for Hindus. However, the visitation pressure may be problematic for some places. But, there are some sacred places where humans are excluded or access is strictly limited to a special class of individuals such as ritual specialists, healers, or elders.

Sacred places are complex phenomena that can be viewed in various ways ranging from natural (biophysical) to anthropogenic (cultural); prehistoric to recent; secret or private to public; single culture (or religion) to multicultural (or multi religious); intrinsic to extrinsic in value; uncontested to contested; and protected to endangered. Particular sacred places variously reflect with some combination of these aspects. Nowadays, many sacred places are contested by diverse and

conflicting interest groups. However, the sacred places with their spiritual values or special significance have been the sites for biodiversity conservation.

#### 2.5.4 Sacred Groves

Sacred groves comprise of patches of forests or natural vegetation ranging from a few trees to several acres of forests. They are usually dedicated to local deities or spirits (ancestral, tree, or other). These groves are protected by local communities because of their religious beliefs and cultural practices such as, the abode of local deities, site for community ritual, etc.

Although the sacred groves in many parts of the world such as West Asia and Europe got demolished due to modern religions and changes in man's attitude towards nature, some of the sacred groves remained in India and a few other countries even today. In India, they are found all over the country, but abundant along the Western Ghats in the states of Karnataka and Kerala. They are known in various names such as *Devarakadu* (Karnataka), *Kavu* (Kerala), *Kovil kadu* (Tamil Nadu), *Sarna* (Chhattisgarh, Jharkhand), *Oran* (Rajasthan), etc. So far about 13,720 sacred groves have been reported in India, which is an indication of the extent and magnitude of the presence of sacred groves in the country. However, it is estimated that the total number of sacred groves in India is likely to be between 100,000 and 150,000.

The sacred groves in India can be understood in three categories: 1) Traditional sacred grove – a place of natural vegetation where some deity/spirit resides; 2) Temple grove – a place where a grove is created around a temple and conserved; and 3) Groves around the burial or cremation grounds. For temple groves, patches of forests or gardens have been specially created near established temples and declared sacred to ensure their protection and conservation. Sacred groves are maintained by local communities through customary taboos and sanctions with cultural and ecological implications. Thus, sacred groves are segments of landscape, containing vegetation and other forms of life and geographical features that are delimited and protected by human societies under the belief that to keep them in a relatively undisturbed state.

The groves are normally considered the property of gods. Since sanctity is ascribed to the plants of such groves and since spiritual beings are believed to reside in such places, touching plants (and animals) in the sacred groves is forbidden to all except temple priest and he is too restricted to offerings to the presiding temple deity and curing the ailments of local people. Ordinary human activities are voluntarily precluded there. These activities include felling of trees, gathering of wood/fuel and plants and leaves, grazing by domestic animals, planting and harvesting, hunting, dwelling. This ensured the conservation and preservation of the local vegetation for posterity.

However, the degree of sanctity of the sacred groves may vary based on place, community, and time; and restrictions may range from complete prohibition to partial relaxation (i.e., from the prohibition of not touching even the dry leaves and fallen fruits to a relaxation for collecting fallen parts of the trees but not to cut them).

The sacred groves serve as valuable repositories of biological (floral and faunal) diversity that have been conserved by local communities for generations in a

sustainable manner. They are the important places in which biodiversity is protected/preserved in mostly undisturbed natural condition through social taboos and sanctions that reflect spiritual and ecological ethos of the local communities. They help to preserve the representative genetic resources existing in the surrounding regions for generations. They act as traditional sanctuaries for rare and endangered species of flora and fauna. Thus, sacred groves are significant traditional practices of biodiversity conservation. They have also significance for cultural and religious life of local communities.

**Activity**

Identify certain practices that contribute biodiversity erosion as well as conservation from your culture or area, and explain why?

### **2.5.5 Protectionist and Community-based Conservations**

Under the influence of its environmental world view as humans as separate from nature and meant to be dominant over it, the Western society perceived nature as existing in a 'pristine' state, unless and until humans encroach upon it for resource exploitation and for purposes of development. This pervasive view of nature has had profound impact on nature and implications for mainstream approaches to biodiversity conservation, because the Western society has mostly focused on the scope of resource extraction and transformation of nature on the one side, and on the role of 'other peoples' in threatening that 'pristine' state of nature on the other side. Therefore, they try to control, manage, and exploit nature through various coercive measures and top-down approaches, which include the reserved forests, protected areas, biosphere reserves, etc. These top-down approaches seek to construct an idealized state of environment of 'pristine state' or 'humans out' (i.e., excluding humans, prior to any human presence or prior to intensified human impact on the environment). Such idealized pictures have been used as baseline for developing conservation visions and to build benchmarks for measuring success in reaching conservation targets. Consequently, some areas of the environment are reserved and protected for wildlife (such as national parks, wildlife sanctuaries, etc.) by the state control. However, these protectionist conservation approaches often resulted in the forced removal of the local indigenous people who had lived for generations on lands purported to be "untouched" by human encroachment. Because, there is only about 10% of the earth remain unpopulated, 'pristine state' and suitable for 'set the land aside' approach, but the remaining 90% has the human presence, and majority of whom are nature dependent people for their life and livelihood. In fact, these people have also contributed positively to shaping the natural world, in the course of long-term adaptive interactions with their environments.

However, the top-down protectionist approaches have failed in getting the desired results due to their insensitivity to local ecological conditions, and undervaluation of the local cultures, which influence the local environment and vice versa. It is, however, realized later that the efforts of conservation with the exclusion of local people are fruitless.

In response to the recognized failure of the top-down approaches to ecological limits of protectionist conservation, the Community-based Conservation has become an alternative solution. This approach shifts the focus of conservation to nature as managed through inclusive, participatory and community-based actions,

from nature as protected through exclusive state control. It is based on the premise that local cultures have a greater interest in the sustainable use of resources than does the state or distant centres of power; that local communities are more cognizant of the intricacies of local ecological processes and practices; and that they are more able to effectively manage those resources through local or traditional beliefs and practices. Therefore, the involvement of communities living in the area to be protected is more ethical and also more effective. Thus, local people in this approach are believed to be part of the solution and not as part of the problem.

This approach helps in expanding conservation beyond protected areas into human-inhabited rural landscapes. It also helps in conserving the diversity of local productive systems, meeting the needs of local cultures, and for self-reliance and sustainability.

Biodiversity is the basis of life on earth and vital to human wellbeing. It is a complex and multidimensional reality. It is understood and approached from the values and worldviews of different cultures. The varied understandings range from the cosmocentric to anthropocentric perspectives. These provide diverse grounds for valuation and conservation of biodiversity. However, there is growing recognition of the importance of biodiversity across the world and the imperative to conserve it. Many initiatives and processes are underway for conservation from local actions to global treaties. The mainstream approach of conservation, which is dominated by the Western perspective, concerns for natural biodiversity for its economic benefits. It, however, deliberately neglects the diversity in productive spheres, which has profound impact on the biodiversity itself, besides eroding the traditional cultures and livelihoods. The dominant model of protectionist conservation with coercive measures is also failed due to its insensitivity to local ecological conditions. On the other hand, the traditional and indigenous people have tremendous practices of conservation developed based on their cosmocentric and ecocentric perspectives.

**Activity**

Biodiversity teaches us a lesson for balance, cooperation and compromise.  
Learn how?

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## 2.6 SUMMARY

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Biological diversity is defined in the convention on Biological diversity (or in short, biodiversity) simply means the diversity of life. It refers to the variety and variability among living organisms, and the ecological complexes in which they occur. This includes diversity within species, between species and of ecosystems.

The loss of biodiversity appears to be accelerating because of habitat change, growth of population and technological change. The loss of biological diversity has become an important scientific and political issue since 1970 and increasingly addressed by anthropologists. Biodiversity conservation has become an issue in political ecology, one of the subfields of the environmental anthropology. In anthropology such conservation schemes may expose very different notions about the “rights” and value of plants and animals versus those of humans. Anthropologists have contributed to biodiversity conservation in many areas

like forest, marine ecosystem, pastoralism, and natural resource management etc. Anthropologists are involved in both protected area and agricultural resource conservation as researchers on indigenous knowledge and management, as practitioners in managing conservation programs, and as advocates for indigenous peoples' rights.

The cultural value of biodiversity and the importance of genetic resources in agriculture and medicine have added urgency to conserving biodiversity in anthropology. Anthropology's engagement with environmental conservation has been rooted in local or indigenous knowledge. The studies found that indigenous knowledge systems have enabled the various communities live in harmony with their environments for generations, and the systems are important tools in environmental conservation. Their local traditions, customs, beliefs and cultural rights also played an important role in environmental conservation and biodiversity. Many of the communities in the countries maintained shrines and protected forests which were used as places of worship and other rituals. In addition, certain trees or animals were considered sacred or totems, so they were protected.

Indigenous knowledge systems conserved the biodiversity of the local environment in many ways because of the cross-cutting nature of conservation measures. Such practices as the traditional protection of forests, shrines, watercourses, certain species of flora and fauna, as well as farming technologies that focused on indigenous food crops, contributed immensely to biodiversity. But the most notable biodiversity conservation practice was the protection of forests and shrines. For example, in India, indigenous people protect sacred groves or traditionally protected forests small patches of natural forests not less than 0.04 hectares established by ancestors for worship and other cultural rites. These sacred groves were protected by the inhabitants in accordance with customary laws. Apart from being used as places of prayer, they were also believed to bring rain. Among the indigenous community forests and water resources were used sustainably through restrictions of access, prohibitions, customs, beliefs and taboos. The protected forests, therefore, play an important role as habitats for a high diversity of flora and fauna. The main indigenous knowledge approaches to environmental conservation prevalent in the areas studied focus on the management and use of lands, forests, water and biodiversity. Indigenous knowledge thus provided the communities with well-tested coping mechanisms in environmental conservation.

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### **Suggested Reading**

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### **Sample Questions**

- 1) What is biodiversity? What are its components?
- 2) Why is biodiversity important for us and why should we conserve it?
- 3) What are sacred groves? What is their role in biodiversity conservation?

A biologically diverse forest holds a greater variety of potential resource options for a longer period of time than a less diverse forest. It is more likely to be able to respond to environmental stresses and adapt to a rapidly changing climate. The global focus on issues related to the conservation of biodiversity will continue to increase, and it will highlight serious and complex problems not likely to be easily resolved. A broad understanding of the significance of managing of biological resources currently exists in the United States across the social and political spectrum. In fact, most areas of the United States and levels of government have experienced first hand the difficulty of understanding and managing species or ecosystems that have been put in jeopardy. Only RUB 193.34/month. UNIT 2: Conservation of Biodiversity. STUDY. Flashcards. Learn. Write. Spell. Test. Designate SSIs. Benefits of biological corridors. Migration. Gene pool diversity. Nest sites. Food and water available. Recolonise after local extinction. Species richness. Number of different species in an area. You might also like Apes Unit 3 Vocab- Sustaining Biodiversity. Chapter 4: Population Biology. Activity 2. Chapter 5: Biological Diversity and Conservation. Activity 8. Activity 9. Chapter 6: The Chemistry of Life. Activity 3. Chapter 10: Mendel and Meiosis. Activity 4. Section 5.1: Vanishing Species. Section 5.2: Conservation of Biodiversity. BioDigest: Ecology. Chapter 6: The Chemistry of Life. Section 6.1: Atoms and Their Interactions. Section 6.2: Water and Diffusion. Section 6.3: Life Substances. Chapter 7: A View of the Cell.