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Goals, Definitions, Principles, and Issues in Biodiversity Reporting: A Critical Review

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ABSTRACT

Biodiversity is the variability among living organisms from all sources and the ecological complexes to which they belong. It ranges from fish in the sea, birds in the air, and soil microorganisms in the soil to genetic variability in crops of agriculture and diversity of ecosystems. For an efficient ecosystem, this variability is very necessary because the ecosystem provides ecosystem services to an organization and society. Biodiversity is recognized more and more as an important issue. For an organization, it is very difficult to transform theory into practice. Implementing tools to sufficiently administer act inconsistency with the purpose of conservation and sustainable use of biodiversity. Reporting offers organizations a chance to give details of their connection with biodiversity. Plants are generally familiar as a vital component of biodiversity and global sustainability. They provide food, fuel, shelter, fiber, and medicine. Healthy ecosystems based on plant diversity provide the conditions and processes that sustain life and are essential to the well-being and livelihoods of all mankind. It also forms the basis of all ecosystems on which all the animal species depend. They also provide natural resources for humanity all over the world. They provide most of the basis of materials which are necessary for our daily life.

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INTRODUCTION

Life and human survival are maintained by biodiversity. Biological products and their processes produce an estimated 40 % of the economy globally. Human growth and development are regulated by biological diversity. Increased production of food has become possible by biological diversity as well. Humans have many benefits from biodiversity by close contact and management, like hundred and thousands of new ranges of crops and breeds of livestock. Our natural environment's survival and maintenance are brought about by biodiversity. It is a source of countless natural environmental services for example watersheds, reprocessing of nutrients, pollination, and availability of clean water. Variety and variability are involved in biodiversity. We can say that biodiversity means the modifications within and between all alive creatures at the different levels of biological groups such as individuals, genes, ecosystems, and species. The possibility of adaptation comes through myriad, its myriad that connects the environment and organisms. Adaptation capability and its maintenance are important as it permits the living entities to modify

themselves according to their environment for example alternation in the climate. By crossing the genetic lines and genes, several different varieties are produced by farmers and breeders through biodiversity. It boosts productivity and allows the same organisms and species to be grown up. These species can survive in huge changes in environmental and climatic conditions. Wheat, for example, this crop has several different varieties, all their varieties have adapted according to their environment and permit them to be grown up in different environmental conditions. It grows in North America and Africa to Asia and Australia. Not only from an evolutionary point of view but also in human growth and survival, biodiversity offers important effects; for example, it also helps humans to adopt change. It offers several options when other resource goes down and fall back. People become able to adapt to changes in new altered conditions. Threatening conditions is the loss of biodiversity that lessens the options and choices. This undermining of biodiversity has witnessed a rapid increase in the rate of change in biodiversity (Toppinen and Korhonen-Kurki, 2013).

As consumption needs and populations have increased, there is a need to increase the valuable resources economically e.g., timber, minerals, and food. In progressively large areas and natural habitats, there are some most valuable biodiversity of the world has been lost very rapidly. Due to increased population, areas of agricultural biodiversity have become less and less. All over the world, the poorest societies are being affected by such biodiversity losses. In history, all those that societies consider more valuable areas need to be protected to conserve biodiversity. Biodiversity can be conserved through different ways e.g., setting aside land for national parks, sacred places, and in situ conservation. A vital component of biodiversity and for global sustainability, plants are universally known. Such as plants giving shelter, fuel, medicine, and food. It is estimated that about 7,000 species are utilized as food. Conditions and processes diversity in plants establish a healthy ecosystem. The sustainability of a healthy ecosystem is essential for the livelihood and well-being of humans.

Services of the ecosystem include Emission of 50 % of anthropogenic carbon dioxide is removed by oxygen, and oxygen is produced in marine and terrestrial systems. Soil creation, protection, and sustainability. It is important for productive agricultural lands of the earth. The main carbon pool in terrestrial land is also based on it. Slowing down the rate of water falling, protection and formation of watersheds, supporting infiltration of water, and purification of water as well (Rimmel and Jonäll, 2013). The trophic pyramid is formed by plants in all terrestrial and most marine ecosystems. On these marine and terrestrial ecosystems, all the animal species are dependent. Especially in the developing world, plants provide natural resources useful for humans. Our daily lives are dependent on plants, like the provision of food, medicines, and many other materials (Li *et al*., 2011).

Status and trends in plant diversity globally

It is difficult to determine the effect of plant status and trends that are affecting them. The exact numbers of species do not know in the world. In nature, during the 21st century, about two-thirds of the plant species are going to be extinct. There are several reasons behind this extinction such as the growth rate of population, rate of change in modification, and deforestation. The spread of invasive alien species, changes in climate conditions, and pollution may also be the reason for the extinction of species. According to the Millennium Ecosystem Assessment, approximately 60% of species are being degraded in ecosystem services. As a result of this degradation, humans are more severely affected by of loss of natural assets and the wealth of the country. This assessment also represents a repetitive decline in the status of availability of services in the environment, particularly cotton, timber, wood fuel, medicines, and genetic resources. Generally, the decline is being occurred in plant diversity (Hahn and Kuhnen, 2013).

Why do we want to save plants?

As a part of our natural heritage, the value of fungi and plants is growing up. The base of the food chain of animal plants, they make up vegetation. While fungi perform other important functions like organic matter's decomposition, soil making, and recycling of nutrients. Survival of many animal societies can become possible by protection of plants and fungal communities, as fungi are a rich source of food, food for invertebrates and vertebrates. In case, the host plant is lost; butterflies will depend upon specific food from plants, for their larvae. Fungi and plants are closely related to each other. According to estimation, 50% of the plants are mycorrhizal. Roots of such plants have a close link with at least one fungus. When plants alone are unable to survive and then mycorrhizae supply major nutrients like

phosphorus. One of the important services of the ecosystem is vegetation. The importance of vegetation is clear, such as the stem of Phragmites buds are most commonly used as a natural source on small scale. In water filtering and cleaning, Bog mosses from Sphagnum species have an important role in peatlands. As compared to engineering schemes, this vegetation gives flood control naturally.

Association among agriculture, culture, energy, health, security, and biodiversity

All these aspects clearly showed the importance of biodiversity for humanity.

Biodiversity and agriculture: The basis of agriculture is biodiversity. It causes the possibility of increased production of both wild and cultivated foods. It also contributes to the health and nutrition of all humans. Improvements have been occurred in livestock, past and current crops. It gives flexibility for future crops through genetic techniques. They can withstand harsh climate changes. People that have survival are around one billion, all they have a direct dependence on wild biodiversity. Health, culture, and livelihood are going to be affected badly if a decline occurs in biodiversity. Nutrient recycling, regulating services like diseases and pest control, and soil formation, all these are examples of supporting services. Livelihood services include regulation of flood, pollination, and a successful agricultural system.

Biodiversity and culture: Key factors of human well-being are services of the cultural ecosystem. They are maintained through cultural civilizations. There is a wide range of benefits of biodiversity, among them, energy production from biomass and fossil fuels are most important. Changes in habitats and climate conditions due to humans can be overcome through these benefits. A very small percentage of biodiversity is being utilized by humans. To increase productivity, diversity is reduced by agriculture. But all humans and people have much more dependence on diversity. There is a mechanism behind the conversion of wastes into useable products by bacteria and other microbes. Landscapes are biologically diverse by insects that pollinate the flower and other crops. All these provide enjoyment and new inspiration all over the world. Behind all these benefits of biodiversity and diversity services, is a functioning ecosystem. Presently, it is unknown how much amount of biodiversity is required to sustain the supply of services of the ecosystem.

There is a continuous loss of biodiversity instead of the most effective and important maintenance and defensible use. Its rate of loss is continuously increasing. The rate shown by the fossil record is a hundred times less than the extinction rates of the species. There are many reasons for such losses, e.g., increased human population and pressure. As a result, there is an increased use of energy resources globally. In developing countries, there is an imbalance in per capita consumption. There is variation in rates of responses to the loss of biodiversity. Responses may include the description of safe areas, improvements in landscape and seascapes management (Saunders *et al*., 2019).

Status of biodiversity globally

Ecological unit: Variations have occurred in composition and size. It ranges from the microbe's small society in one drop of water to the whole rain forest of the Amazon. The health of our ecosystem is very important as billions of species and people's existence are dependent on it. But the strain is continuously increasing on both terrestrial and aquatic ecosystems by people. At exceptional rates, they are changed in both extent and composition. The ecosystem's destruction mainly affects the species, especially those species that are migrating. They also include such species that depend upon the particular habitats, and which need different types of territories at various life stages (Figure 1).

Biodiversity and species: However, there are 5-30 million species, but 2 million species have been known. Most invertebrates are unknown. As compared to the rate of extinction of fossils fuels, species are 100 times a much higher rate in extinction. To determine the conservation status, 10% of species have been rediscovered. Out of all these, sixteen thousand species are at the risk of extinction. The conservation status of the whole species should be determined at a systematic level. Such evidence is only available for birds and amphibians. Extinction rates are increasing from 1980 to 2004 at regular intervals (Figure 2). The highest number of threatened species is present in tropical moist forests, after those tropical dry forests, dry shrubs, and grasslands come. The spread of threatened species is not known yet in freshwater. 75 % of the fish in the world have been significantly finished. Although most of the species are invertebrates, studies have been shown that these invertebrate groups are very small in number e.g., butterflies in Europe (Gaston and Spicer, 2004).

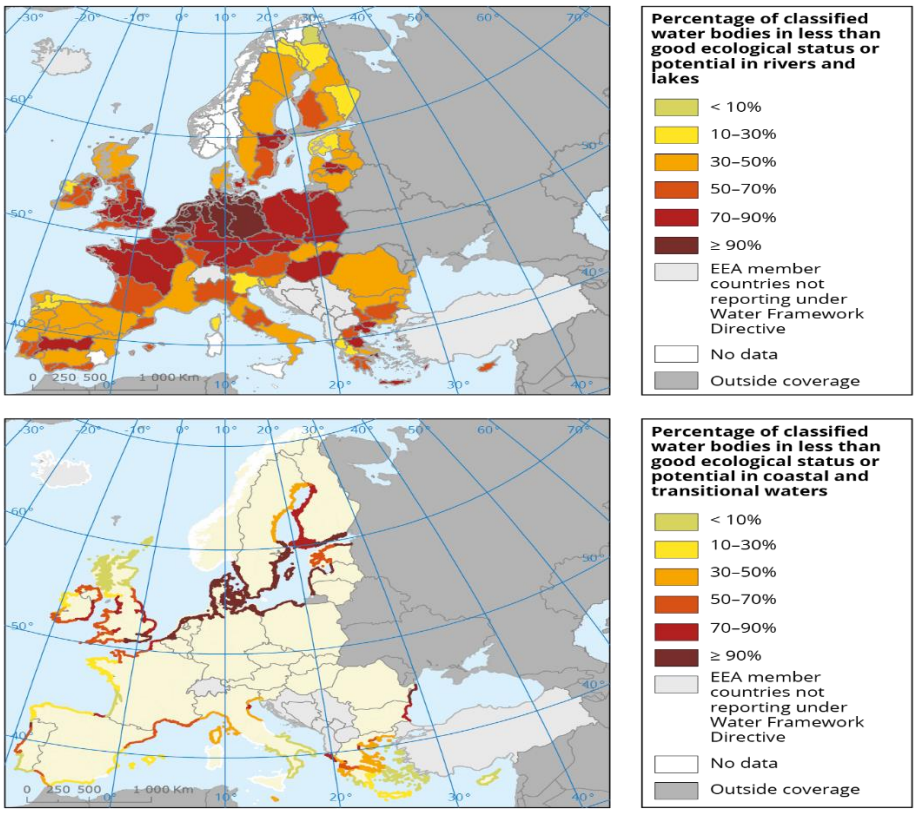


Figure 1. Water bodies with ecological status. (https://www.eea.europa.eu/legal/copyright).

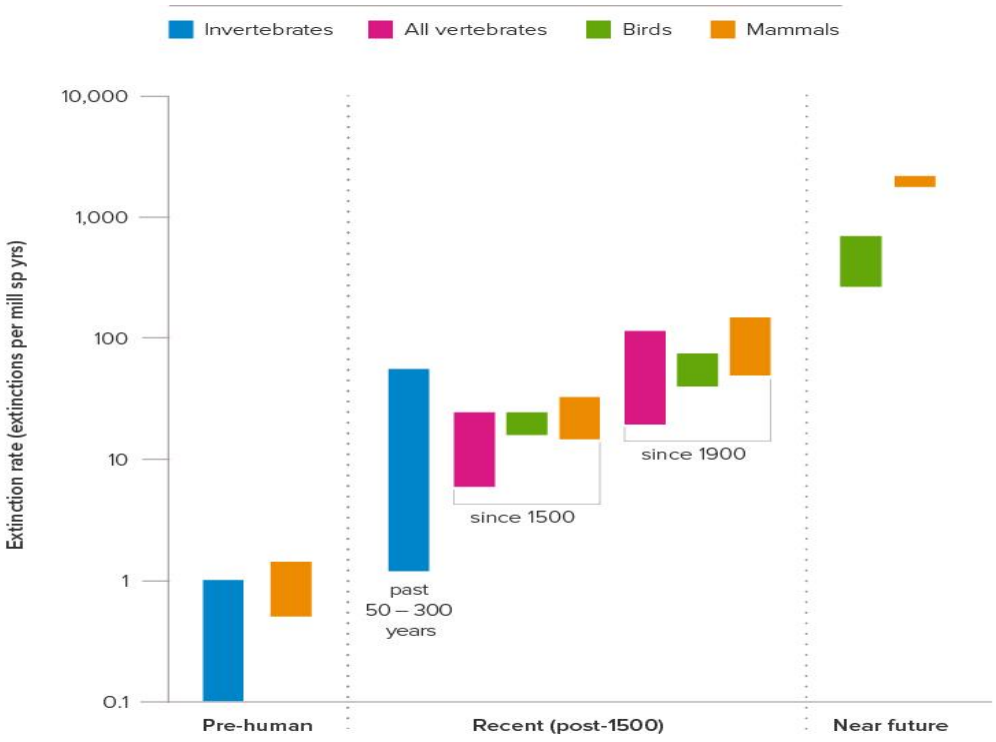


Figure 2. Biodiversity and species extinction rate. (https://royalsociety.org/topics-policy/projects/biodiversity/decline-and-extinction).

Genes: The basis of adaptation is diversity in genetics. This allows organisms and humans to react to the selection of nature. In such a way they can adapt according to their environment. Therefore; for global change, genes have a very major role intractability of biodiversity. There are many important other roles of genes like they give straight assistance to humans; like crops develop resistance against many diseases, they can adapt in changing climate, and they can give large production level. All these benefits can be achieved by genetic material that is required to bring change at the genetic level. As there is a change in the practices of agriculture, major crops of the world have lost their genetic diversity in the previous two decades. As a result of this loss in the genetic diversity of crops, the security of food becomes most threatened. How much genetic diversity has been lost, is still unknown. But it is clear from recorded extinction that considerable loss of genetic diversity has been occurred (Gaston and Spicer, 2004).

Steps were taken to stop biodiversity globally: Different parties that have participated in the Convention on Biological Diversity (CBD) in 2002, steadfastly take some actions to limit the considerable loss of biodiversity at the global level. They also committed to taking responsibility at national and regional levels to save lives on earth. The need for improvement in biodiversity has been highlighted by this target. It has also helped and motivated the scientist's societies to discover such indicators that can measure tendencies in various levels of biodiversity. Two major reasons for the decline in biodiversity are the increasing population and the extinction of species. However, biodiversity is continuously consumed rapidly. A promising trend in the form of slow and regular increases in areas is indicated by coverage of protected areas. The number of protected areas is increasing by more than 22,000 in the previous twenty years. Currently, it is estimated at 115,000. But these may mislead indicators of protection and maintenance of biodiversity (Deegan *et al*., 2002).

The degree and percentage of protection may be varying in every ecosystem. In protected areas, about 12% of the land of the world is included. The marine ecosystem is only 1% or less is protected. To ensure the real and operative management of conserved areas, there is a need to protect biodiversity separately from conserved areas. It is also associated with other land surfaces in case biodiversity loss is being reduced. For more secure and sustainable growth of biodiversity, contributing factors are new policy formation, repetition of justifiable agricultural rehearses, and expansion of partnership in different sectors. Such sectors include partnership among protected organizations and extractive productions. On global scale issues of the environment have been known as important in the development sector for more than 20 years in the past. For example, the achievement of goals of CBD like mitigation of poverty on earth. To implement the maintained policies of development, a complete outline was given at WSSD. This framework covered five important points that are health, energy, water, biodiversity, and agriculture.

Maintenance of Livelihood

Critical services are provided by an ecosystem. In the maintenance of occupation, living, and livelihood, biodiversity plays a major role directly or indirectly. To overcome the changes in climate important buffer is a functioning ecosystem. The functioning ecosystem also works as a sink of carbon and as a filter for air and waterborne pollutants for water. Such as the roots of plants gives mechanical support to the soil, stability to slope at shallow depth. For stability of shoreline, reduction in erosion, sediments trapping, nutrients and toxins are more important and effective in wetlands and coastal areas. To buffer the storms, these wetlands act like waves and windbreaks. The important functions of vegetative composition in wetlands are the storage of water and steam flow regulation. These functions help in the maintenance of the structure of soil and especially small slopes. With the increasing risk of loss of biodiversity, livelihoods are continuously lost by degradation of land and loss of habitats. Alternation inland organization especially adaptation of land systems affected by the fire with some other type of land surface has occurred. These changes can enhance strength and fire extension resulting in increased hazards to humans.

At local, regional, and global levels, the climate is affected by changes in land utilization. Complementary sources of income are forests, freshwater, grasslands, coastal ecosystem, shrubs, and forests. Animal protein is provided by wild and fish meat, while supplementary dietary components are provided by resources of forests. For millions of rural people get safety and benefits from these ecosystem goods. Currently, access to these safety nets and common property sources has been limited due to the increase in population and entrance of new models of markets. It will result in severe impacts on rural lives.

To sustain rural lives, the commercialization of wild products can be easily assessed with reliable market access. Vulnerability to many disasters happens due to degradation of the environment along with high exposure of humans to this vulnerability. In the 20th century, around 2 billion people were suffered from disasters.

Out of these, 86% were affected by droughts and floods. In estimation, it was shown that only in Indonesia, about 45600 square km of forests were damaged. Loss of forests over 15000 square km was occurred in Central America due to wildfires. These wildfires cause a reduction in the capability of natural forests to shield the effects of heavy rainfall and storms. In 2005, as large fires of forests of California, Spain, Portugal, and other Mediterranean nations these effects were spread over the tropics. However, the degradation of coral has negative effects on coastal societies. Biological risks related to climate, also have negative impacts on the human population e.g., heatwaves and failure of crops. All such risks can be minimized by the ecosystem. A complex linkage has been found between the security of livelihood and biodiversity. This linkage is based on the basic relationship between communities and their environment.

To minimize such risks, policies have been designed that involve mutual attention to the management of ecosystem and local risk as well. Policies for improvement and organization of resources of water and removal of hazards related to weather can subsidize the risk of disaster. It can be possible by increasing the restoration of landscapes and management of coastal forests. The importance of Sunderbans mangrove forest found in the Bengal Gulf has been known by India and Bangladesh. This forest does not only act as a livelihood source for whaling societies but coastal protection, it is an effective mechanism. Another source of coastal protection is known as Viet Nam. Comparable benefits can be taken from coral reefs.

Relationship between agriculture and biodiversity

According to the definition of agriculture, crops, forests, fisheries, and the production of livestock are included in agriculture. Some known species out of 270,000 from higher plants 10000-15000 are eatable. Around 7000 species are commonly used in agriculture. Threaten to varieties of species that are commonly used in agriculture is increased globally. Such as 90 % of livestock production is dependent on only 14 animal species. Similarly, global agriculture is dependent on 30 crops only. Although agriculture is most important in supportive communities, it is the largest carter of erosion of genetics, loss of species with loss of natural habitats all over the world. Services that are essential for agriculture are provided by wild and cultivated biodiversity. However, economically it is of less value, but they have a crucial role in regional and national markets. These services are used by various kinds of systems of agriculture to varying intensities and degrees.

Relationship between energy and biodiversity

Services of the ecosystem are providing various forms of energy. In past, they are laid down in form of fossils fuels. Changes in the same ecosystem result in increased energy requirements for communities. Therefore, there is a need to search for new energy resources and patterns for their use. Although energy is an essential and fundamental need of communities. The challenge is the maintenance of energy without further loss of biodiversity. The development of mitigation and adaptive strategies has become necessary. By 2030, it is estimated that about 53% of energy's demand will grow. By 2030, energy supply from biomass and other sources like waste is expected to be at least 10% as per global demand. To overcome the energy demands, fossils fuels will exist. Some researchers find it not realistic. The release of energy through carbon dioxide is suggested to grow to some extent more rapidly as compared to utilization of energy by 2030. The use of energy has various effects at the local, national and global levels (Figure. 3).

European and North American forests, soils, and lakes are affected by pollution due to the burning of fossil fuels and acid rain. However, they have little impact on biodiversity. The risk of soil acidification is now more in Asia as compared to Europe and North America due to control of emission of energy related to carbon dioxide. Waste disposable problems are created by the utilization of thermal and nuclear power e.g., solar cells which causes contamination of soil due to heavy metals. Overexploitation of natural resources is an indirect impact on energy utilization. Behavior, species ranges, and climate change are other major impacts of energy utilization. For human well-being; they will result in changing forms of human diseases, providing greater chances for hostile alien species. Species that are limited to alpine areas and islands, peripheral and specialized species, migratory and polar species, and genetically poor species are most expected to be affected. The extinction of some amphibian species has already been associated with changes in climate conditions. By 2050, it is estimated that 15 to 37% of regional endemic species could be extinct.

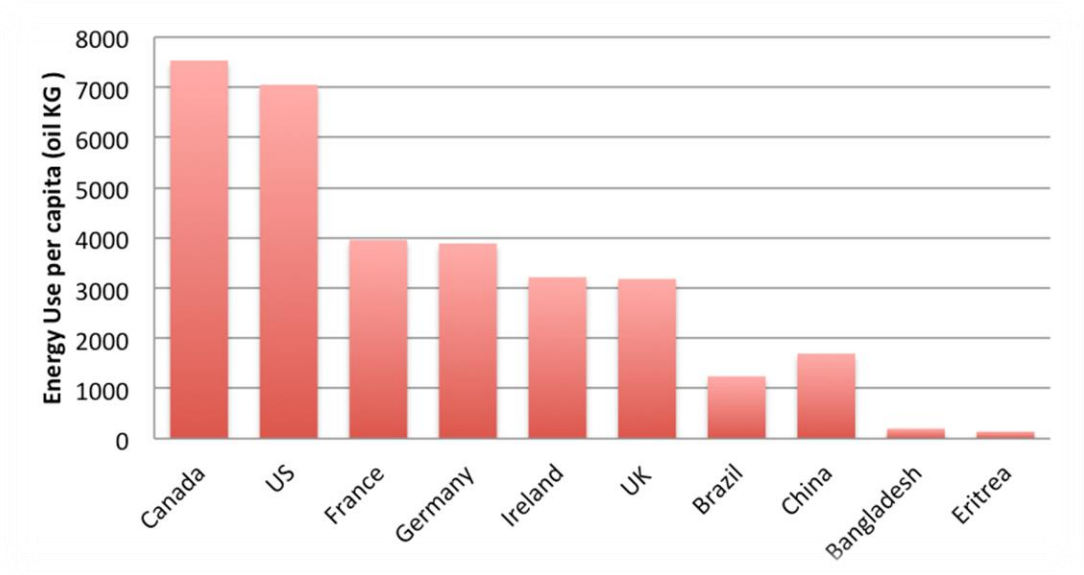


Figure 3. Rate of energy used per capita globally. (www.economicshelp.org/ Source: World Bank).

Biodiversity impacts on health

Human health is affected by changes in biodiversity. The consequences of most of the specific changes in biodiversity on the occurrence of the disease in humans and other species and on health are little known. But theoretical links are existing between changes in the environment and the health of humans, both are well understood.

Harmful effects of ecosystem change on human health: Loss of biodiversity productivity leads to a subsistence lifestyle of about one billion people. It will result in malnutrition, underdeveloped childhood development, enhanced vulnerability to other syndromes and diseases. The problem of nutritional imbalance occurs at the global level. It results in both undernourished and over nourished people including poor and rich people respectively. In history, it was shown that there are many factors such as economic and social, responsible for this imbalance. In all these factors environmental factors are most important. Animals are the source of 70 % of diseases. Spread and crossover of infectious diseases result from changes in land use, animal production in large farms, hostile alien species, and trade of wildlife internationally.

Table 1. Effects of changing ecosystem on health.

Environmental changes, loss of biodiversity, and ecosystem impairment	→ Example of health impacts
Escalating Human Pressure On the Global environment a. Loss of species and genetic resources b. Land degradation and deforestation c. Forest clearance and land cover change d. Wetlands loss and damage e. Freshwater depletion and contamination f. Urbanization and its impacts g. Damage to coastal and ecosystem	**Direct health impacts** Floods, heatwaves, water shortage, and exposure to pollutants. **Ecosystem-mediated health impacts** Altered infectious disease risk, reduced food fields, mental health, impacts of aesthetic improvements. **Indirect and displaced health impacts** Diverse health consequences of livelihood loss, population displacement, conflicts, inappropriate adaptation and mitigation.

The following factors create links between health and biodiversity. It includes:

- Destruction of tropical forests and other ecosystem and wildlife-human disease connections resulting in disease production.
- Various pharmaceutical products originate from nature.
- Ecosystem contribution to human health.
- Effects of endocrine disturbances on human and animal health.

The level of activity of disease vectors is growing due to changes in climate especially insect-born vectors. Risk and exposure to disease are increased by the number of other factors except for changes in biodiversity. As the population of human increases, the number of disease vectors and hosts are increasing as well. The temperature rises due to climate changes, expanding disease vectors and host distribution e.g., mosquitoes. People are becoming more vulnerable to diseases because of drug resistance to conventional therapy, malnutrition, and poverty. Adaptations are rapidly developing in disease-causing viruses and other organisms, resulting in an increased rate of disease occurrence. Services of the ecosystem such as sources of freshwater, systems producing food, stability of climate are important reasons behind bad impacts on human health, especially in developing countries. Effects of degradation of a local ecosystem are often avoided by rich societies through migration, replacement, and adoption of resources. Cure of many diseases are also developed from biodiversity such as 80% of new chemicals are globally introduced and traced natural products (MA, 2005).

Interactions between culture and biodiversity

For conservation and sustainable development of biodiversity, the interaction between culture, cultural biodiversity, and biodiversity. The specific relationship between environment and people is affected in each community. It results in different knowledge and practices associated with biodiversity. For management and sustainable use of biodiversity, specific strategies have been designed for example practices and current knowledge. To address the conservation of biodiversity, cultural diversity acts as an important part of the resources available globally. In parallel to biological diversity, cultural diversity has been lost continuously. For example, language diversity acts as an indicator of diversity in culture, and loss of existing languages results in loss of cultural diversity. Around 6000 world languages have become endangered. Language loss results in loss of cultural values, practices, innovations, and knowledge. For their livelihoods, cultural identity, spirituality, inspiration, aesthetic enjoyment, and recreation, humans are dependent on the conservation of biodiversity. Material and non-material human beings are affected by the loss of biodiversity. Poor people, women, children, youth, and rural societies are at more risk of biodiversity loss; these categories are being harshly affected by loss in biodiversity (MA, 2005) (Figure 4).

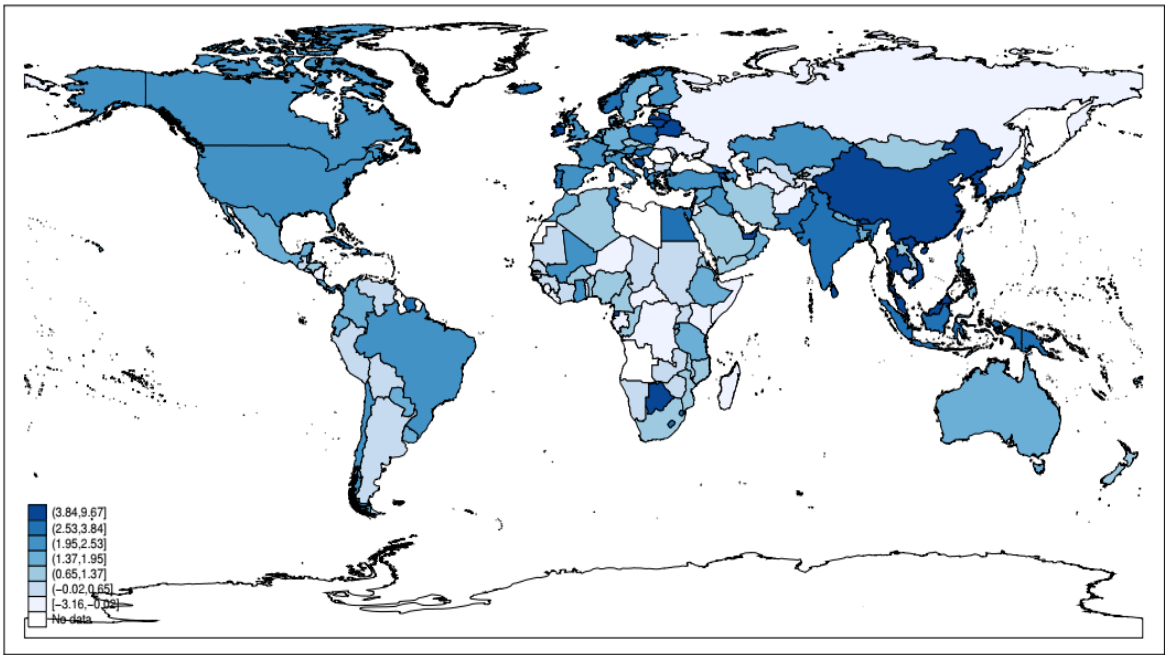


Figure 4. Cultural diversity globally (Erkan, 2013).

General principles for sustainable biodiversity

Habitats lose results in species loss. Thus, the overall goal of the management of biodiversity is the protection of habitats. On large scale and all over the range, maintenance of habitats will result in the conservation of forest biodiversity. Five general principles are there to fulfill this objective.

Connectivity maintenance

- Habitats, societies, communities, and various processes of ecological systems are linked by connectivity both at temporal and special scales. Biodiversity conservation processes for example perseverance of population, individual exchange, habitats patches occupancy, and population genes are affected by connectivity.
- The aquatic system's integrity is maintained by supporting hydrological and geomorphologic processes. For biodiversity and function of the ecosystem, the aquatic features of landscapes of forests, rivers, lakes, ponds, and wetlands are critically important. Because of a very large area of forests, landscapes are linked with aquatic ecosystems such as terrestrial and aquatic organisms.
- Stand structural complexity conservation, is a general property of all forests found naturally in the world. It not only represents a special type of stand characteristics, but also the pattern with which they are arranged in a stand. Stand structural complexity features are:

a) Trees form old age units in stand
b) Living trees and snags that are very large
c) Logs with a large diameter on the floor of the forest

For forest biodiversity conservation, maintenance of stand structural complexity is very important. Because it allows the wide distribution of such species that would be eliminated in large logged areas. A more rapid return of species to suitable habitats for them is also facilitated by maintenance of stand structural complexity. It may also increase the spread of some animals; it is an example of a connectivity function. Habitat heterogeneity is also provided by stand structural complexity.

Conservation heterogeneity of landscapes: Worldwide most special characteristic of natural forests is the heterogeneity of landscapes. But ecosystems are heterogeneous naturally. The heterogeneous land surface is created by disturbance regimes. Topography, soil, climate, and soil depth, all characterized natural environmental gradients. In natural landscapes, different environmental condition is occupied by different types of species. Forest management practices are reversed by the utilization of knowledge of natural disturbance systems in natural forests. Biodiversity conservation policies are more successful in those areas where natural disturbance is parallel to human disturbance. Organisms are most easily adapted to disturbance policies under which they have changed. But combinations of disturbance make them more vulnerable. Therefore, appropriate baseline is natural disturbance as compared to human disturbance regimes.

Managing policies to attain general biodiversity management principles: Some managing principles are adapted by organizations for biodiversity (Fahrig, 2003; Lindenmayer and Franklin, 2002).

A checklist for forest biodiversity maintenance: The range of maintenance policies has symbolized the conservation of forest biodiversity. The formation of large biological assets, an array of off-reserve maintenance measures includes conservation of individual structures of the forest at a small specific scale.

Large ecological assets: An essential part of all complete biodiversity maintenance policy is large ecological reserves and are more important for at least 5 major reasons:

- Some best examples of the ecosystem are supported by ecological assets, landscapes, stands, habitats, and organisms and inter-relationship among them.
- Optimum conditions are only found for various species within the large ecological reserves.
- Human disturbances are intolerant by some species, creating such areas that are mainly exempted from human activity.
- "Control areas" are provided by large ecological reserves against which the effects of human activities in conserved forests.
- Human impacts disturbance on biodiversity are little known and some effects may be permanent. Cumulative and synergistic impacts are difficult to predict. All these factors form large ecological reserves an appreciated safety net that is free from human disturbance.

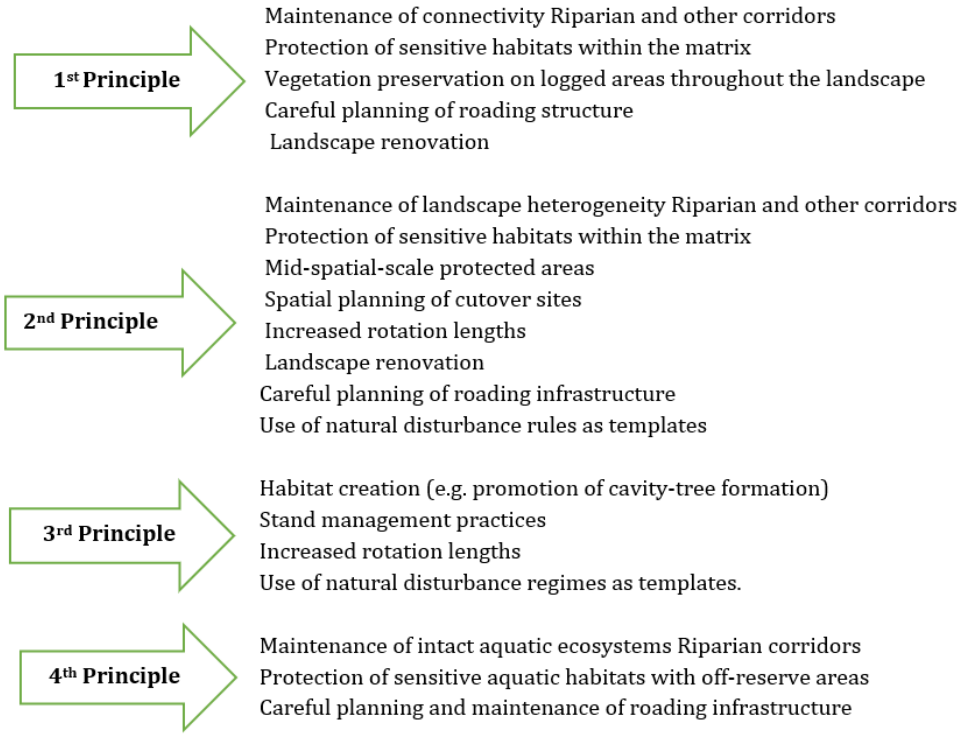
Measure for conservation at stand level

At the stand level, the main purpose of off-reserve conservation is to improve the number of fruitage units for biodiversity conservation. The purpose of managed

harvest units include:

- Maintenance of species
- Habitat diversity improvements
- Increase in connectivity
- Sensitive area to buffers
- Sustain site productivity

Degrees to which ecosystem and biodiversity can be maintained by managed forests have considerable effects on the internal structure and composition of harvested units (Beese *et al*., 2003).



Types of strategies to maintain the structural complexity

- Retention of the structure at the time of harvest regeneration
- Falls of large logs
- Girdling trees to enhance the dead woods quantities
- Through novel kinds of thinning activities, conservation of existing and regenerated stands to produce a particular type of structural condition.
- Maintenance of open areas is included in it; it may include the health habitats of grasslands found within the forests.

To address the large range of purposes, different types of stand-level strategies can be combined effectively. Such benefits of long rotations are multiplied when it is accomplished by retention of the structure at harvest point.

CONCLUSION

This article highlighted the limits and possibilities of reporting the biodiversity. Different species have different limits for restoration. Plant and animal introduction and management are the main projects where disturbance has caused vegetation removal. For animals' habitat may be created by the plant community manipulation. The goals for reporting biodiversity may vary in three groups of animals.

CONFLICT OF INTEREST

The authors declares that they have no conflict of interest.

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