

PREFACE

There is a growing concern towards preservation and conservation of biodiversity resources in the context of unsustainable means of production and consumption of goods and services. It is significant to note that biodiversity conservation involves multidisciplinary approaches. Due to lack of awareness and knowledge about existence value of biodiversity resources, people have the tendency towards over exploitation of biodiversity resources. In this context of awareness generation about biodiversity is the urgent need of the hour through environmental education in general and biodiversity education in particular. The realization on importance of biodiversity could be observed through environmental ethics and bioethics. Hence the imparting knowledge about environmental ethics and bioethics is very important to promote the biodiversity conservation on the part of the people.

The importance of life support role provided by green plants is essential to develop the habit of growing more number of trees and plants species. In this context, the biophysical role performed by biotic components in the life support system including flora and fauna could deserve due alteration in analyzing the importance of biodiversity resource towards maintenance of healthy ecosystem services.

An analysis of socio-cultural and religious significance towards conserving some plant species and animals' species is quite noteworthy. In Hindu religious tradition, some tree species and animals are considered as sacred and they worshiped along with deities. This type of biodiversity conservation behavior should take proper attention towards studying biodiversity conservation behavior.

The biodiversity conservation could be promoted through formation of eco clubs and environmental movements. Throughout the globe, many ecological movements, environmental movements and eco clubs have been established and they are functioning with the objectives of sustainable maintenance of biodiversity and life support system. The role performed by such movements is quite noteworthy

The biodiversity conservation could be promoted through maintenance of natural vegetation. Some of the species are in the process of disappearance consequent upon monocultivation practices and shifting cultivation practice. Hence, such types of cropping pattern can be discouraged by considering the advantages of maintaining multispecies system and survival of many species. These days, introductions of genetically modified organisms into the natural environment and ecosystem are expected to destroy some of

the indigenous species by the ways of discharging some lethal effects into the environmental environment. Hence there is a need to promote the knowledge about negative biodiversity effects consequent upon mono cultivation practices swiftng cultivation practices and introduction of genetically modified organisms through formal education as well as non formal education methods.

There is an urgent need to protect the over exploitation of some species through restriction on over use. In this context, restriction on during breeding season of fish and other species is quite noteworthy. The over use of some species could be prevented through imposition of economic instruments, such as tax, fines, subsidy reduction and permit fees, etc. The role of environmental towards protection of biodiversity resources should be recognized and motivated.

The biodiversity conservation could be done through protection of gene banks and protection of endangered species by the way of developing gene banks and captive breeding programmes. The knowledge of species during could be promoted through encouraging the students towards preparation of herbarium. The maintenance of biodiversity in natural ecosystem depends on promotion of non destructive tourism practices. In this context, the knowledge of eco tourism could be generated through school curriculum for the benefits of non formal education for the benefit of general public. The eco tourism practice is expected to prevent the anti environmental behaviour on the part of the people. The development of biodiversity conservation attitude depends on environmental education. It could be noted that environmental education has been introduced in school curriculum. It has not been propagated widely for the general public, and hence proper efforts could be made to propagate the same.

The biodiversity conservation depends on attitudinal changes on the part of the people from destructive behaviour into promotive behaviour. It could be achieved through inculcation of knowledge about biodiversity conservation. In this context, the government agencies, civil society, environmental movements and NGOs should play a major role in inculcating biodiversity conservation practices among the general people.

The knowledge of ethonobotany, is essential to understand the utility of many plants, particularly herbs. Many of the local people and indigenous people are well aware of a large number of medicinal plants, and their quality and their utility in curing many diseases. Hence, there is need to protect the indigenous knowledge. In this context, efforts should be made to exploit the indigenous medicinal herbs by multinational companies through properly imposing intellectual rights property rights protection.

The research in the areas of identification of number of existing plant species and animal species is incomplete. Some of the insect species, animal species, marine life and invertebrates species are not yet discovered and identified as per the reporting of the researchers throughout the globe. Hence, the researcher in the area of plant taxonomy and animal taxonomy can be encouraged. Such type of research enables us to understand the utility of unknown species to mankind.

An analysis of effectiveness of government programme on biodiversity conservation is very essential. It could be noted deforestation is a continuous process in India which shows the failure of government programme. In order to restore biodiversity, national afforestation programme, integrated wildlife protection scheme, captive breeding programmes, wild life sanctuary, national parks and protected areas programmes have

been implemented. The benefits of such programme could be analysed through undertaking research studies.

The biodiversity conservation depends on governments' efforts in protection of rare species, threatened species, endemic species and endangered species. An analysis of success made in this direction is very important. It is significant to note that unsustainable means of production of goods and services and consumption of goods and services pose a threat to biodiversity conservation. Hence, there is a need to undertake proper research studies in this area and suggesting possible ways and means of controlling unsustainable means of production and consumption of goods and services.

The biodiversity conservation depends on concentration of species level is different ecosystem. In this context, measurement of level, distribution level, food chain scenario and inter species relationship is quite important. It could be noted that food chain may be distributed consequent upon hunting of predator-prey relationship.

The biodiversity conservation requires knowledge of plant - animal relationship. We observe a lot of relationship between plants and animals viz. mutualism, symbiosis and parasitism. Such type of relationship is disturbed; we notice destruction of dependent species. It could be noted that chemical input agricultural practices destroy the soil faunal population particularly earthworms, ants, termites. They play a significant role in soil humification and enrichment of soil organic content.

It could be noted that destruction of soil faunal population consequent upon modern chemical input agricultural practice results in poor soil quality. The application of synthetic chemicals to destroy plant pests, insects and other pathogens results in destruction of some beneficial insect species. Hence the biodiversity conservation depends on eco friendly agricultural practices. It is significant to note that biodiversity plays a significant role in climate change mitigation. The destruction of biodiversity results in monsoon failure, change in temperature changes in precipitation rate and transpiration level. Hence, the biodiversity conservation is realized to mitigate the negative effects associated with climate change.

In biodiversity conservation, the knowledge of economics is highly desired. The value of biodiversity can be expected on the basis of subject knowledge in environmental economics. It could be noted that the use value, non use value, direct value, indirect value, existence value, bequest value, recreation value, aesthetic value and so on of biodiversity resource could be assessed through environmental economics subject. The protection of biodiversity can be done through economic instruments of tax, subsidies, fines and fees. The allocation of adequate amount by considering the proper physical targets in conservation of biodiversity is quite noteworthy. An analysis of income generation through biodiversity resources in terms of timber products, non timber products, non timber forest products and forest plantation and it is very important economics subject matter. The knowledge of economics subject is required to study the benefits of government expenditure on protected areas, national parks, wild life sanctuaries and income generation through eco tourism. An analysis of benefit cost of biodiversity conservation is needed to know about tangible benefits and intangible benefits. The concept of market failure in analyzing the value of biodiversity resources depend on environmental economics tools and techniques. The knowledge of ecological economics is required to study the valuation of ecosystem services provided by the

biodiversity in different ecosystems. The economics subject is highly required to examine the income and employment generation through cultivation and exploitation of biodiversity resources.

The knowledge of sociology discipline is required to examine the biodiversity conservation behaviour of the people in general and indigenous people in particular. The customs, habit, culture, norms and social taboos do have significant influence on biodiversity conservation and biodiversity destruction behaviour on the part of the people. The biodiversity conservation behaviour in rural areas and urban areas could be learnt through sociology discipline. The knowledge of biodiversity conservation behaviour of tribal households, forest dwellers and indigenous people could be explored through social science.

The knowledge of political science and public administration is required to frame policies and programmes towards conservation and preservation of biodiversity resources. The methods and techniques of implementing biodiversity conservation practices could be observed from the political science and public administration disciplines. The knowledge of gender studies is essential to examine the biodiversity conservation. It could be noted that in many societies indigenous women are playing a significant role in biodiversity conservation.

The women movement viz chipcoo movement in India violently protected the tree felling in Himalayan region. Like wise women throughout the globe engage themselves in utilization of biodiversity resources as well as conservation of biological resources. Hence the knowledge of gender studies should receive due attention in studying biodiversity conservation behaviour.

In biodiversity conservation, the knowledge of biostatistics and biometrics is very important to measure the species distribution, species concentration, declining trend in some species, increasing trend in some species, species extinction and number of threatened species. Many biodiversity measurement techniques are developed based on biometrics and biostatistics. The measurement of biodiversity enables one to identify the species that require conservation and protection.

In biodiversity conservation, the knowledge of law is essential to make aware people towards over exploitation of biodiversity resources and illegal utilization of biodiversity resources. The fear of punishment towards illegal utilization of biodiversity resources may change the attitude of people. It could be noted that many international acts, conventions and laws as well as national laws and national acts have been enacted to protect the biodiversity resource. Hence the knowledge of law towards biodiversity conservation is an urgent need of the hour. The knowledge of marine science is required to protect the marine biodiversity and mangrove ecosystem biodiversity. The knowledge of marine science is required to understand the fish stock, utilization level, sustainable fish yield and imposition of regulation towards utilization of marine biodiversity.

Thus the knowledge of biodiversity conservation depends on multidisciplinary approaches. The knowledge of multidisciplinary perspectives enables the biodiversity planners and policy makers towards framing a comprehensive outlook with the involvement of stakeholders from many disciplines. The development of an integrated framework on biodiversity conservation is expected to make effective implementation of biodiversity conservation planning.

This book is a resourceful guide for the scholars who are doing research on biodiversity conservation. This book can bring integrated knowledge on biodiversity conservation and such type of work is highly useful for the forest department officials and other natural resource conserving agencies. This book is useful to the botany students, zoology students, students of physical science, economics and other social science studies, marine science students, forestry course students and students of forest training colleges.

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