International Journal of Theoretical & Applied Sciences, 10(1): 174-177(2018)

ISSN No. (Print): 0975-1718
ISSN No. (Online): 2249-3247

Status and Importance of Biosphere Reserves in India

Dr. Sarla
Asstt. Professor, Department of Geography,
Ramdoot College of Education, Randevi, Nakur Saharanpur (Uttar Pradesh), India

(Corresponding author: Dr. Sarla)
(Received 28 January 2018, Accepted 19 March, 2018)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The concept of Biospheres Reserves (BRs) is to deal with one of the most important questions of reconciling the conservation of biological diversity and consequently promoting economic and social development and maintenance of associated cultural values. This study is focus on the status as well as the importance of Biosphere Reserves in India. India has designed 18 Biosphere Reserves, covering total geographical area of 90,000 sq. km. (2.54% of India's total geographical area). Under the programme the focus is on communities living within buffer zone of the reserve and alternate livelihood is given priorities to reduce these communities dependence on the natural resources. According to the UNESCO's guidelines and criteria fixed by the Indian National MAB Committee, 18 BRs have been established in India has revealed. The implementation of the scheme has been quite satisfactory and the scheme has been helpful in attracting co-operation of local communities in management and conservation of nature resources in biosphere Reserves.

I. INTRODUCTION

Biosphere Reserves (BRs) are representative geographical areas of major eco-system types of the world, set apart exclusively for long-term conservation. Biosphere Reserves are natural and cultural landscapes extending over large areas of terrestrial or coastal/marine ecosystems or a combination thereof and are special environments for both people and the nature. They are living examples of how human beings and nature can co-exist while respecting each other's needs, India has designated 18 Biosphere Reserves, covering a total geographical area of 90,000 km. (2.54% of India's total geographical area). Under the programme, the focus is on communities living within buffer zone of the reserves and alternate livelihood is given priorities to reduce these communities' dependence on the natural resources that are under heavy pressure of exploitation. These reserves contain genetic elements evolved over millions of years that hold the key to future adaptations and survival of living organisms. The high degree of diversity and endemism and associated traditional knowledge held by the people in these reserves are the product of centuries of human innovation and experimentation. These sites are of global importance, having tremendous potential for future economic development, especially as a result of emerging new trends in biotechnology.

A. Criteria for designation of BR

1. A site that must contain an effectively protected and minimally disturbed core area of value of nature conservation.
2. The core area should be typical of a bio-geographical unit and large enough to sustain viable populations representing all trophic levels in the ecosystem.
3. The management authority to ensure the involvement/cooperation of local communities to bring variety of knowledge and experiences to link biodiversity conservation and socio-economic development while managing and containing the conflicts.
4. Areas potential for preservation of traditional tribal or rural modes of living for harmonious use of environment.

B. International Status of Biosphere Reserves (BR)

The UNESCO has introduced the designation 'Biosphere Reserve' for natural areas to minimize conflict between development and conservation. BRs are nominated by national government which meet a minimal set of criteria and adhere to minimal set of conditions for inclusion in the world network of Biosphere reserves under the Man and Biosphere Reserve Programme of UNESCO. Globally 621 BRs representing from 117 countries included in the network so far [10].

C. Structure and functions of BR

Biosphere reserves are demarcated into following 3 inter-related zones:

Core Zone. Core zone must contain suitable habitat for numerous plant and animal species, including higher order predators and may contain centres of endemism. Core areas often conserve the wild relatives of economic species and also represent important genetic reservoirs having exceptional scientific interest. A core zone being National Park or Sanctuary/protected/ regulated mostly under the Wildlife (Protection) Act, 1972. Whilst realizing that perturbation is an ingredient of ecosystem functioning, the core zone is to be kept free from l human pressures external to the system**.**

Buffer Zone. The buffer zone, adjoins or surrounds core zone, uses and activities are managed in this area in the ways that help in protection of core zone in its natural condition. These uses and activities include restoration, demonstration sites for enhancing value addition to the resources, limited recreation, tourism, fishing, grazing, etc; which are permitted to reduce its effect on core zone. Research and educational activities are to be encouraged. Human activities, if natural within BR, are likely to continue if these do not adversely affect the ecological diversity.

Transition Zone. The transition area is the outermost part of a biosphere reserve. This is usually not delimited one and is a zone of cooperation where conservation knowledge and management skills are applied and uses are managed in harmony with the purpose of the biosphere reserve. This includes settlements, crop lands, managed forests and area for intensive recreation and other economic uses characteristics of the region.

D. Tripartite functions of BR (Conservation, Development and logistic support)

1. To conserve the diversity and integrity of plants and animals within natural ecosystems.
2. To safeguard genetic diversity of species on which their continuing evolution depends.
3. To ensure sustainable use of natural resources through most appropriate technology for improvement of economic well-being of the local people.
4. To provide areas for multi-faceted research and monitoring.
5. To provide facilities for education and training.

E. Design and Structure of Biosphere Reserves

While designating and demarcating an area as a BR, the entire range of living resources and their ecological foundations are brought under conservation and sustainable use on a long-term basis. Participation of local inhabitants for effective management and promotion of means of improving livelihood is given priority. Integrating scientific research with traditional knowledge, education and training is an important component of the scheme.

As per the criteria prescribed for designation of a site as a BR, the site must contain an effectively protected and minimally disturbed core area, typical of a biogeographical unit and large enough to sustain viable populations representing all the tropic levels in the eco-system. Areas home to rare and endangered species, diversity of soil and micro-climatic conditions and indigenous varieties of biota, with potential for preservation of traditional tribal or rural modes of living for harmonious use of environment are given priority.

The Core Zone is required to be kept either absolutely undisturbed or minimally disturbed and often conserves the wild relatives of economic species. It also represents important genetic reservoirs. The core zone, mostly being a notified protected area, secures legal protection. Only management and research activities that do not affect the natural processes are allowed. The core zone is to be kept free from all human interferences. The uses and activities in the buffer zone, which adjoins or surrounds the core zone, are managed in a way that protects the core zone. The transition zone, or the outermost part of a BR are usually not delimited and constitute a zone of cooperation, where knowledge and management skills are applied and uses are managed in harmony with the purpose of th® BR. This includes settlements, crop lands, managed forests, areas for intensive recreation, and other economic uses characteristic of the region.

The BRs widen the scope of conventional approach of protection and further strengthen the Protected Area Network. Existing legally protected areas (national parks, wildlife sanctuaries, conservation reserves and protected forests) may become part of the BR without any change in their existing legal status.

F. Functions of Biosphere Reserves

Conservation

(a) To ensure the conservation of landscapes, ecosystems, species and genetic variations.
(b) To encourage the traditional resource use systems.
(c) To understand the patterns and processes of functioning of ecosystems.
(d) To monitor the natural and human-caused changes on spatial and temporal scales.

Development

(a) To promote local economic development which is culturally, socially and ecologically sustainable.
(b) To develop the strategies leading to improvement and management of natural resources.

Logistics support

(a) To provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and sustainable development.
(b) Sharing of knowledge generated by research through site-specific training and education.
(c) Development of a community spirit for the management of natural resources.

G. Biosphere Reserves in India

Approval of the Scheme

The establishment of Biosphere Reserves in India was approved by the Committee of Secretaries in the meeting held on August 12, 1983, based on the proposal formulated by MoEF [9]. The Committee made the following broad recommendations:

1. Constitution of biosphere reserves may be taken up, implemented and managed by the state governments in a few selected sites.
2. The tribal settlements shall continue to be part of the BR. However, other settlements will have to be shifted.

3. Areas of minimum habitation/cultivation should be identified for this purpose.
4. The recurring cost could be fully met by the Central Government.
5. There was no immediate need for a separate legislation for biosphere reserves and existing legal provisions under the Wild Life Protection Act could be availed.

Present Status. In light of the above recommendations and also in accordance with the UNESCO's guidelines and criteria fixed by the Indian National MAB Committee, 18 BRs have been established in India. An additional 13 potential sites have been identified. These include Thar Desert, Cold Desert, Seshachallam, Ghintapalli, Kanha, Abujmarh, Singhbhum, Blue Mountain, Tawang and West Kamang, Namdapha, the northern Islands of Andaman and the Lakshadweep Islands. Arecent review and evaluation of the scheme by the Wild Life Institute of India has revealed that the implementation of the scheme has been quite satisfactory and the scheme has been helpful in attracting cooperation of the local communities in management and conservation of natural resources in biosphere reserves due to its strong component of alternate livelihood option.

Potential sites. Following is the list of potential sites for Biosphere Reserves as selected by Ministry of Forests and Environment:

-Abujmarh, Chhattisgarh
-Andaman and Nicobar, North Islands
-Chintapalli, Visakhapatnam Andhra Pradesh
-Kanha, Madhya Pradesh
-Kovalam, Kerala
-Lakshadweep Islands, Lakshadweep
-Little Rann of Kutch, Gujarat
-Phawngpui (Blue Mountain), Mizoram
-Namdapha, Arunachal Pradesh
-Singhbhum
-Tawang and West Kameng, Arunachal Pradesh

H. Data collection and analysis

Present paper is a combination of comparative analysis of literature on different aspects of biodiversity and review of the same. Standard approaches were used during preparation of this paper. Literature was collected from different libraries, NGOs and central and state level research organizations from entire region and reviewed. The literature assembled belongs to the peer reviewed journals and authors having vast experience in research and management issues in their respective disciplines. An attempt was made to include the most representative publications as well as a good number of the less noted, but also important research work. Further the collection was supplemented with google searches and google scholar searches to find hard to collect types and most recent papers.

II. RESULT AND DISCUSSION

It has been observed worldwide that people living in complex and harsh conditions have considerable botanical and ecological knowledge about the natural products. These are ranging from traditional use of specific plants and animals, essential knowledge critical to harvesting natural resources, through complex understanding of the functioning of local ecosystems, to cultural beliefs and religious views of man-environmental relations (Berkes, F 1999). They have accumulated this knowledge through experience of close contact with the natural environment [1].

The conservation sites have been a major source of natural resources for the surrounding communities (Majila and Kala 2010) [4]. A wide variety of natural products are harvested in NDBR region, especially wood for fuel, and constructions, medicines; a wide variety of wild fruits are collected together with the medicinal plants from surrounding forest as well as alpine communities. Households in NDBR are significantly dependent on the harvests of forests and alpines resources, cultivation (Rao *et al.,* 2002; Negi 2007), ecotourism (Maikhura, R.K. *et al.*, 2001) [3] etc. In last few years the resources have been overexploited by the local communities due to high market demands and economic returns. Silori has suggested for some alternative income generation activities to reduce dependent on natural resources (Silori 2007) [8]. The participation of local people/youth may have the ability to influence the impact of eco-adventure tourism in NDBR (Silori 2004; Kent 2005) [2]. Now days the interest of local people has changed from age-old practices to other quick money driven activities. The livelihood options are changing due to difficulties in traditional activities (Negi 2007), crop damage and live stock depredation has damaged economic conditions of local people in many regions (Rao *et al.,* 2002) [7] and land use changing by policy maker have a great impact on subsidiary occupations (Nautiyal *et al.,* 2002) [5] etc. The involvement of local people in policy making may be one option to recognize human aspect of environment and so as to improve and identify the livelihood options (Negi 2007) [6].

III. CONCLUSION

At the same time in order to develop and implement effective policy regarding the socio-economic use of NDBR resources, it is essential for stakeholders to access to accurate and cost-effective techniques for mapping and monitoring the whole BR region.

Biosphere reserves are complex environments where approach of sustaining man and ecosystem together is followed for conservation of biodiversity.

This characteristic introduces complexities in planning and management because of neglecting local community needs. In short, conflict is more likely to emerge in the absence of shared understanding about rules of access, clear government regulations and effective means of enforcement and dispute resolution.

REFERENCES

[1]. Berkes, F., (1999). *Sacred Ecology: Traditional Ecological Knowledge* and *Resource Management*. Philadelphia: Taylor and Francis.

[2]. Kent, K., (2005). *The role of the public, private* and *civic sectos in adventure tourism in the N*and*a Devi Biosphere Reserve: Garhwal Himalaya, India [Ph.D. thesis]*. Manitoba: University of Manitoba, Winnipeg.

[3]. Maikhuri, R.K., *et al.,* (2001). Promoting eco-tourism in the buffer zone areas of Nanda Devi Biosphere Reserve: An option to resolve people- policy conflict. *International Journal of Sustainable Development* and *World Ecology*, **7**: 333-343.

[4]. Majila, B.S. and Kala, C.P., (2010). Forest structure and regeneration along the altitudinal gradient in the Binsar Wildlife Sanctuary, Uttarakhand Himalaya, India. *Russian Journal of Ecology*, **41**(1): 75-83.

[5]. Nautiyal, S.K., Rao, S., Maikhuri, R.K. and Saxena, K.G., (2002). Transhumant pastoralism and sustainable development: A case study in the buffer zone of the NDBR, India. *Mountain Research* and *Development*, **23**(3): 255-262.

[6]. Negi, C.S., (2007). Changing face of polyculture in the Darma and Johar Valleys, Pithoragarh, Kumaun Himalayas. *International Journal of Sustainable Development* and *World Ecology*, **14**: 428-436.

[7]. Rao, K.S., Nautiyal, S., Maikhuri, R.K., and Saxena, K.G., (2002). Local people s knowledge, aptitude and perceptions of planning and management issues in NDBR, India. *Environmental Management*, **31**(2): 168-181.

[8]. Silori, C.S., (2004). Socio-economic and ecological consequences of the ban on adventure tourism in Nanda Devi Biosphere Reserve, western Himalaya. *Biodiversity* and *Conservation*, **13**: 2237-2252.

[9]. "Status of Biosphere reserves in India" (PDF). ENVIRO NEWS, Ministry of Environment and Forests, Vol. **14**. January–March 2008. p. 9. Archived from the original (PDF) on January 20, 2013. Retrieved June 1, 2013.

[10]. UNESCO, (2011). *Biosphere Reserves*. [online] Available from: http://www.unesco.org/new/en/natural-sciences.