Role of Green Belt/Theme Parks in Linking Biodiversity and Ecotourism

Anita Tomar,
Anubha Srivastava
and
Alok Yadav

Centre for Social Forestry and Eco-rehabilitation,
Allahabad, U.P, India
Email : anitatomar@icfre.org

Introduction

Green belt development plan aims at overall improvement in the environmental conditions of the region. It can be a preventive issue of land degradation due to activities during construction phase enhancing the forest cover for increasing the biodiversity of the region; providing aesthetic value to the project area. Tourism in developing countries mainly depends upon its biodiversity. The quality of their natural environment gives many developing countries a comparative advantage in tourism. Ecotourism was globally identified as a means of achieving twin goals of bio diversity conservation and sustainable development.

Ecotourism has received much attention in recent years especially within the developing world. Ecotourism in simple terms means management of tourism and conservation of nature in a way so as to maintain a fine balance between the requirements of tourism and ecology on the one hand and needs of the local communities for jobs, new skills, income generating employment and a better status for women on the other. Ecotourism is an attempt for sustainable ecological development. India, the land of geographical diversities and wonders offers excellent options for ecotourism. No country in this world offers as much geographical varieties as India. The present plan comprises, choice of plant species for green belt development/theme parks, also religious plants development of landscape, tall tree species plantation, planting of some lesser known plants, medicinal plants etc. for linking bio-diversity with eco-tourism .

1. Green Belt along the boundary

Tress like Poplars, *Acacia auriculiformis* and Bamboos can be raised along the boundary of the proposed area. These plants provide windbreaks and protect the garden from dust and pollutants from outside.

2. **Stabilization of degraded lands with Indigenous Tree Species**

   An integrated approach adopting both biological and mechanical measures can be adopted for stabilization of degraded land with indigenous species *viz. Ficus glomerata* (Gular), *Limonia acidissima* (Kaitha), *Tamarindus indica* (Imli), *Carissa carandas* (Karaunda), *Moringa oleifera* (Sahjan), *Aegle marmelos* (Bel) etc.

3. **Tall tree planting**

   Normally in the forest department the plantations are raised with the seedlings grown in temporary nurseries, which are 6 month old, and of 2 to 3 feet height. In linear plantations it has been a challenge to raise successful plantations from the small seedlings. Thus, planting of tall seedlings, which are of more than 12 feet height is recommended for better survival of plants.

4. **Development of Theme Gardens**

   Keeping in tradition with the diverse Indian culture and religious belief, following theme gardens or Vatikas can be developed as per suitability of area for biodiversity conservation :

   - Dhanavantri Vatika
   - Nakshtra Vatika
   - Navgrah Vatika
   - Panchavati
   - Budh Vatika
   - Tirthankar Vatika
   - Masihi Vatika
   - Guru Ke Bagh,
   - Hari-Shankari
   - Masihi Vatika
   - Kurani Vriksha Vatika
   - Tirthankar Vatika

5. Conservation Gardens (*ex-situ* conservation of rare and endangered species)

   a. Garden of Some RET species (Rare, Endangered and Threatened) Plants- There are very large number of the Indian plant species which fall under one or the other category. The Red Data Book published by Botanical Survey of India has listed several plant species from across the different agro climatic zones as rare and endangered and some of these are on the verge of extinction. To conserve the gene pool, plant species can be selected from the Red Data Book garden to conserve biodiversity of area.

   b. Lesser Known Plants Garden (LKP) –LKP species existence is ignored because more commercial important tree species predominate in our surroundings. Some LKP plants though more viable and potential, drawn less attention in past, now needs recognition, awareness and focus for biodiversity conservation *(Tomar and Kumar 2012)*.

   c. Wild Edible Fruit Garden - There are many forest tree species which have a great potential to be commercially utilised for their fruits although they have been neglected in this regard. Such few species are *Artocarpus lakoocha, Aegle marmelos, Averrhoa carambola,, Annona squamosa, Grewia subinaequalis, Euphoria longan, Cordia myxa, , Eugenia jambos, Pithecolobium dulce, Spondias mangifera* etc (*Tomar et al.,2015*).

   Wild fruits species is intended to promote the preservation of these species, presently under threat. In addition to their nutritional value, the preservation of these fruits also has economical advantages. Some of these wild fruits are also known to have medicinal properties. Any scientific evidence for the health benefits of such wild fruits in addition to their nutritional value would be an added value to the plants producing such fruits.

   d. Medicinal Plants Garden – As it is an old saying that there is no-plant in the world, which does not have medicinal properties. Different medicinal plant can be planted as per suitability of area. A concept of herbal tourism can be promoted in a sustainable

Table 1. Some religious values plants for theme garden

Local Name	Scientific Name	Family	Religious values
Bel	*Aegle marmelos* (L.) *Correa* 	Rutaceae	Leaves and fruits are used in the worship of Lord Shiva. The traditional devotees write the name of Rama on its leaves by sandal paste and worship the Lord with them. It gives endless virtue on the devoted person.
Neem	*Azadirachta indica* A. Juss. 	Meliaceae	It is associated with Sheetala Mata (Cool one) - the goddess of smallpox. It is believed that the Sheetla Mata live in this tree. The leaves of this tree are used in the treatment of person who suffers from smallpox.
Anvala	*Phyllanthus emblica* L. 	Phyllanthaceae	It is worshipped by women especially in the month of Kartik (October-November) with a view to be favoured with male progeny. It is also believed that eating food under the anvala tree in the month of Kartik absolves one from the Anna doshas for a year.
Shami	*Prosopis cineraria* (L.) Druce 	Leguminosae	Shami tree represents God Sani. It is sacred to Indian culture especially by Hindus who worship it before going on a main journey and on the occasion of Dushehra festival. It is believed that Shami tree worshiping is helpful to check bad impacts of Sani.
Peepal	*Ficus religiosa* L. 	Moraceae	It is believed as the residence place of the triad ~Brahma, Vishnu and Mahesh (Shiva). Its roots, trunk and leaves represent Lord Brahma, Vishnu and Mahesh (Shiva), respectively. Women also tie thread round the trunk of Peepal tree 108 times which grants the boon to worshiper.
Bargad	*Ficus benghalensis* L. 	Moraceae	Symbolizes Lord Shiva. It also depicts the Trimurti - Brahma (roots), Vishnu (bark), and Shiva (leaves). Married women offer their worship to this tree and tying raw cotton thread around the tree
Khair	*Acacia catechu* Willd. 	Mimosaceae	Khair wood is used in the religious ceremonies at the time of havans (yagna). Wood is considered sacred and used as one of the religious plants along with Bhoj-patra (*Betula utilis*) at the funeral ceremony. It is believed to provide mukti or moksha (peace to the heavenly soul).

(D. Pandey and V. C. pandey, 2016)

manner so that preservation of indigenous knowledge and community development may be brought about. Herbal tourism has remarkable potential for employment generation, conservation of forest biodiversity (Abraham, 2012).

e. **Religious Tree Garden** - Tree worship is an age old practice in India as seen from the seals of Mohenjodaro and Harrapa that have impressions of sacred Peepal and willow trees. Trees are prominent in the Bagvad Gita, the Bible and the holy Kuran. During ancient times tree are associated with certain deities and are said to be abode of Gods and Goddesses. Old Buddhist and Hindu sculptures display prominently Baniyan, Peepal, Siras, Sal, Mango, Ashok, Nag Kesher, Champa, Kadamb etc. (Tomar A., 2012)

Species which are related directly or indirectly with deities or mythological figures can be planted to explore the better utilization of religious trees. The present check list of some religious trees having multiple uses has been compiled some of the striking examples are *Ficus religiosa, Ficus bengalensis, Ficus glomerata, Strychnos-nux-vomica, Emblica officinalis, Eugenia jambolana, Acacia catechu, Terminalia arjuna, Aegle marmelos* etc.

Conclusion

Role of green belt/theme garden concept in planting programmes can be successful if linked with ecotourism. Ecotourism in India has flourished because of the immense bio-diversity that exists nowhere else in the world. It must, however, be realized that there is immense potential still to be tapped in terms of making optimum use of the available natural resources. Well-managed ecotourism can be hugely beneficial for biodiversity. One of the most significant ways in India by which trees are regarded is through their association with religion. Van mahotsava, farm forestry, social forestry and such other programmes have been launched to motivate farmers to plant trees. However, these programmes have not been fully successful. In summation, development of Green Park for eco-tourism can be a panacea for India, if it is promoted under the strict definition of eco- tourism that means making as little environmental impact as possible and helping to sustain the indigenous population and culture, thereby encouraging the preservation of biodiversity.

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