ISSN 0975 - 9379
Vol. 20, No. 1
April - June 2014

ECO NEWS

Quarterly Magazine of CPR Environmental Education Centre




C.P.R. ENVIRONMENTAL EDUCATION CENTRE
The C.P. Ramaswami Aiyar Foundation
1, Eldams Road, Alwarpet, Chennai 600 018, Tamilnadu, India.
Phone : 91- 44 - 24337023 / 24346526 Fax 91- 44 - 24320756
Email : cpreec@vsnl.com / cpreec@cpreec.org
Websites : www.econewscpreec.com / www.cpreec.org / www.cpreecenvis.nic.in
A Centre of Excellence of the Ministry of Environment and Forests, Government of India.

C.P.R. ENVIRONMENTAL EDUCATION CENTRE

Established in 1989

- ✯ **1980** - The C.P. Ramaswami Aiyar Foundation starts nature education for teachers and students.
- ✯ **1989** - C.P.R. Environmental Education Centre (CPREEC) established jointly by the Ministry of Environment and Forests and the C.P. Ramaswami Aiyar Foundation as a Centre of Excellence of the Ministry of Environment and Forests. Government of India.

Our Mission

- ✯ To increase knowledge, awareness and interest among the public about the environment in all its aspects
- ✯ To develop resource materials for environmental education and awareness raising
- ✯ To conduct training programmes for a wide cross-section of people
- ✯ To take up environmental projects for demonstration and research

Our Activities

- ✯ Training and awareness raising
- ✯ Awareness to and through action
- ✯ Awareness programmes in ecologically fragile areas
- ✯ Conservation of the ecological heritage
- ✯ Research and surveys
- ✯ Generation of resource materials
- ✯ Exhibitions
- ✯ Courses, seminars and symposia

Facilities

- ✯ Environmental Laboratory
- ✯ Library
- ✯ Computer Division
- ✯ Publications Division

Geographical Spread

CPREEC's activities extend to

- ✯ Andaman & Nicobar Islands
- ✯ Andhra Pradesh
- ✯ Goa
- ✯ Karnataka
- ✯ Kerala
- ✯ Maharashtra
- ✯ Orissa
- ✯ Tamilnadu
- ✯ Puducherry

NGO Network

CPREEC has an extensive network of about 600 NGOs. All educational programmes are carried out in partnership with select NGOs, Universities, Colleges and Schools.

Publications

- ✯ Activity and information books and pamphlets for children
- ✯ Environmental training guides and kits for teachers
- ✯ Researched Publications
- ✯ Colourful and informative posters
- ✯ *ECONEWS* - A quarterly magazine
- ✯ *Indian Journal of Environmental Education*, a peer-reviewed journal

Exhibitions

CPREEC designs three new exhibitions every year and has a bank of mobile exhibitions that travel all over India.

Environmental Education

- ✯ Green Schools of India (GSI)
- ✯ Training programmes for Teachers
- ✯ Training programmes for School and College Students
- ✯ Environmental Law Education

Special Projects

- ✯ National Green Corps (NGC)
- ✯ Biomedical Waste
- ✯ Biodiversity Conservation

Research and Surveys

- ✯ Sustainable Technologies
- ✯ Surveys of Natural Resources
- ✯ Socio-Economic Surveys
- ✯ Lab to Field Technology Transfer

Contents

Species Rich Parks

Dr. P. Sudhakar

Fifteen of the thirty parks studied harbour more than 100 species. Highest species number was recorded in Nageswara Rao Park followed by My Lady's Park.

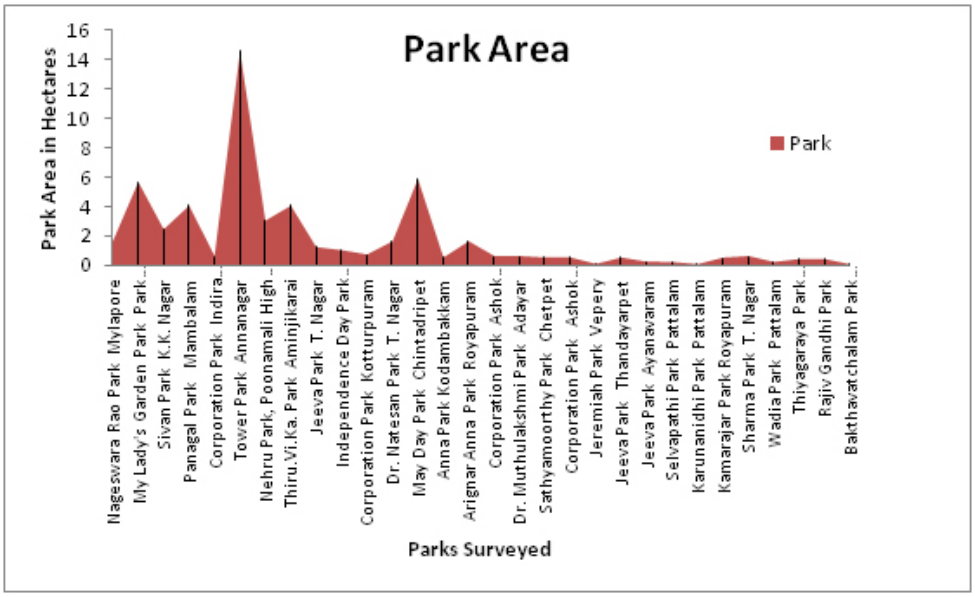
Species Rich Parks

S.No	Name of The Park	No:of Plants
1	Nageswara Rao Park, Mylapore	**180**
2	My Lady's Park, Park Town	**166**
3	Sivan Park, K.K. Nagar	**159**
4	Panagal Park, T.Nagar	**155**
5	Corporation Park, Indira Nagar	**152**
6	Tower Park, Anna Nagar	**146**
7	Nehru Park, Poonamalee High Road	**145**
8	Thiru. Vi. Ka. Park, Shenoy Nagar	**143**
9	Jeeva Park, T. Nagar	**138**
10	Independence Day Park, Nungambakkam	**137**
11	Natesan Park, T.Nagar	**134**
12	Corporation Park, Kotturpuram	**131**
13	May Day Park, Chinthadripet	**114**
14	Anna Park, Kodambakkam	**113**
15	Arignar Anna Park, Royapuram	**101**
16	Corporation Park, Ashok Nagar 1st Avenue	**89**
17	Muthulakshmi Park, Adyar	**89**
18	Sathyamoorthy Park, Chetpet	**72**
19	Corporation Park, Ashok Nagar 12th Avenue	**71**
20	Jeremiah Park, Vepery	**60**

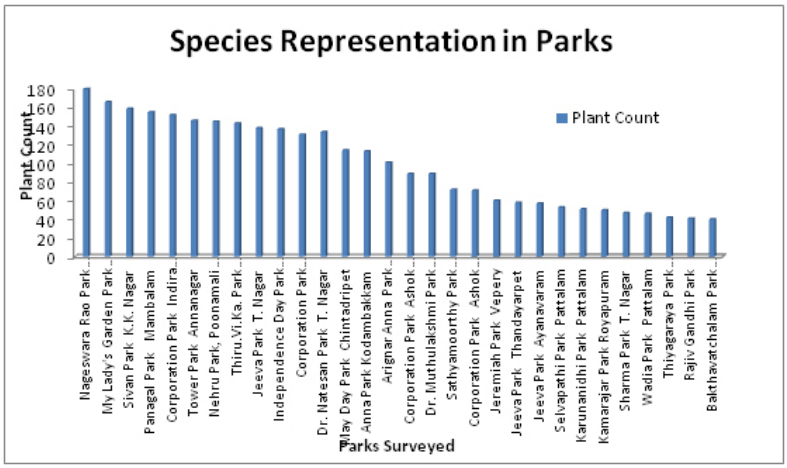
S.No	Name of The Park	No:of Plants
21	Jeeva Park, Old Washermanpet	**58**
22	Jeeva Park, Ayanavaram	**57**
23	Selvapathy Park, Patalam	**53**
24	Karunanidhi Park, Patalam	**51**
25	Kamarajar Park, Royapuram	**50**
26	Sharma Park, T. Nagar	**47**
27	Wadia Park, Patalam	**46**
28	Thiyagaraya Park, Old Washermanpet	**42**
29	Rajiv Gandhi Park, Perambur	**41**
30	Bakthavatchalam, Park, Patalam	**40**

There seems to be a direct relationship with regard to size of the park and the number of species. Though the data shows vagrancy (Graph- 1, Graph - 2)

Graph-1. Park Area



Graph – 2. Species Representation of Parks



Majority of species rich parks are of larger size, the only exception to this is the Anna Park at Kodambakkam which has a much smaller area wherein a total of 114 species have been recorded. Most of the parks with high species diversity occur in South and Central Chennai where the standard of living and level of education are comparatively higher.

Phytochorionomic categories

An analysis of phytochorionomic categories of plants found in Chennai Parks included in the study clearly indicates that the flora is dominated by plants of Paleotropical Kingdom that contribute about 67% of the total flora. Further analysis of Paleotropical plants found in Chennai Parks indicates Indo-Malaysian plants form the dominant component comprising 101 species. 35 species are widely distributed through the Paleotropical Kingdom and another 24 species are native to African sub-kingdom. Chennai was a favourite spot of plant introduction during colonial period. Earlier record of agri-horticultural flora consists of a number of alien species (Brown, 1862). Similarly Theosophical Society is also a place where lot of alien species of ornamentals could be found (Irwin, 1996 and Thomas, 1996). Parks of Chennai are no exceptions in having considerable percentage of alien flora. Many of the cultivated as well as naturalized alien species (*http://tnenvis.nic.in*) are native of Neotropical region. This study has recorded 76 species of Neotropical origin from the parks. Some of the naturalized weeds of Neotropical origin found in Chennai Parks include *Amaranthus spinosus, Antigonon leptopus, Euphorbia hirta, Gomphrena serrata, Parthenium hysterophorus, Passiflora foetida, Phyllanthus amarus* and *Pilea microphylla.* Cultivated plants of Neotropical origin of parks include *Bixa orellana, Caesalpina pulcherrima, Canna indica, Calliandra haematocephala,*

Cassia alata, Couroupita guianensis, Dieffenbachia amoena, Gliricidia sepium, Hamelia patens, Pedilanthus tithymaloides, Swietenia mahagoni, Tabebuia rosea and *Tecoma stans.*

References

- Brown, R.N. 1862. *A Hand Book of the Trees, Shrubs, and Herbaceous Plants growing in the Madras Agri-Horticultural Society's Gardens and Neighbourhood of Madras*. J. Higginbotham, Madras.
- Irwin, S.J. 1996. *A study on the Polypetalous and Gamopetalous Flora of the Theosophical Society Campus, Madras*. M. Phil. Dissertation (unpublished) submitted to the University of Madras, Chennai
- Thomas, S. 1996. *A study on the Monochlamydeous and Monocotylednous flora of the Theosophical Society Campus, Madras*. M. Phil. Dissertation (unpublished) submitted to the University of Madras, Chennai.
- *http://tnenvis.nic.in/IAS%20cultivated.htm*
- *http://tnenvis.nic.in/IASinvasive11.htm*

Bamboo – The Wonder Plant

R. Sabesh

Bamboo is one of the fast growing woody grass with 91 genera and over 1200 species, grows up to 130 feet in clumps and it is widely distributed in Africa, Asia and American continents. Bamboo species are of notable economic and cultural significance in South Asia and is widely used as Building material, source of food and as a versatile raw product. Botanists estimate that bamboo can grow up to 1.21 meter in 24 hours. Bamboo species tolerates extreme climatic conditions. It's wide spread root system and large canopy greatly reduces rain water runoff and prevents massive soil erosion. Bamboo helps mitigate water pollution due to its high nitrogen consumption making it a solution for excess nutrient uptake of waste water from manufacturing, livestock farming industries. Bamboo plant species are extensively used in clothing, shelter, food, paper, furniture, textiles, wall paneling, tiles, flooring, skyscraper, scaffolding, medicines, musical instruments making and so on. The fibre obtained from Bamboo plants are used for the production of clothes and the endemic animals like Panda feeds on bamboo leaves and shoots.

Bamboo in mythology

In many Asian cultures, including Andaman Nicobar islands people believe that humanity emerged from a bamboo stem. According to Philippine Mythology one of the most famous creations tells that the first man and woman emerged from split bamboo stem. In Malaysia a similar

story includes a man who dreams of a beautiful woman while sleeping under a bamboo plant when he wakes up and breaks the bamboo stem discovers the woman inside. The Japanese famous folk tale tells of princess from the Moon emerging from a shining bamboo section. In a Chinese legend, the Emperor Yao gave two of his daughters to the future Emperor Shun as a test for his potential to rule. Shun passed the test of being able to run his household with the two emperor's daughters as wives, and thus Yao made Shun his successor, bypassing his unworthy son. Later, Shun drowned in the Xiang River. The tears his two bereaved wives let fall upon the bamboos growing there explain the origin of spotted bamboo. The two women later became goddesses.

Bamboo in Forestry

- Bamboo plantation helps in Soil Stabilization and serves as wind brakes to control the wind velocity and thereby control the soil erosion.
- Being the fast growing plant bamboo plantations helps in Carbon-di-oxide Sequestration
- Bamboo species are widely accepted as Commercial Plantations as it serve as raw material for several industries.
- Bamboo Plantations can also be used for Landscaping and controlling soil Erosion.

Bamboo in pulp, paper and textile industries

Several bamboo producing countries mainly China and India use bamboo in pulp, paper and recently in textile industry. Bamboo paper has practically the same quality as paper made from wood. Its brightness and optical properties remain stable; the quality of bamboo paper may be improved by refining the pulp. China started producing bamboo panels in the early 19th century itself. At present more than 20 different types of panels are produced in Asia. Bamboo fibre is longer than wood fibre, which gives bamboo some technological advantages. The panels are widely used in modern construction as structural elements or as forms for concrete moldings. They are also used for flooring, roofing, partitions, doors and window frames. Bamboo panels have some advantages over wooden boards due to their rigidity and durability.

Bamboo Housing and flooring

Traditional houses which use bamboo culms as a primary building material and traditional bahareque bamboo houses in which a bamboo frame is plastered with cement or clay and the modern prefabricated houses made of bamboo laminated boards, veneers and panels. Sociologists estimate that over one billion people live in traditional bamboo houses. These buildings are usually cheaper than wooden houses, light, strong and earthquake resistant unlike brick or cement constructions. New types of prefabricated houses made of engineered bamboo have certain advantages. They can be packed flat and transported long distances at a reasonable cost.

Bamboo flooring is a quality product that can be used widely and has a large global

consumer market. It has certain advantages over wooden floors due to its smoothness, brightness, stability, high resistance, insulation qualities and flexibility. Bamboo flooring has a soft natural luster and maintains the natural gloss and elegance of bamboo fibre. This flooring is attractive and has great demand in Europe, Japan and North America. The most recognizable version of bamboo flooring is one in which the whole bamboo stalk is cut open and flattened out. This method preserves the uniqueness of each bamboo stalk. It results in flooring where no two square meters are the same. It has great appearance.

Textile Industry

The fibre obtained from bamboo is biodegradable. Having reached its useful life, clothing made from bamboo can be composted and disposed in environmentally friendly manner. Synthetic fibres such as nylon and polyester are not biodegradable and remain in landfill for longer period of time. A bamboo textile refers to clothing made out of bamboo fibres. During recent years a range of technologies have been developed allowing bamboo fibre to be used in a wide range of textile and fashion applications. Modern bamboo clothing is clothing made from either 100% bamboo yarn or a blend of bamboo and cotton yarn. Bullet Proof Vests, Blankets, Towels, Baby Diapers are also produced from Bamboo fibre.

Food and Beverage Industry

About 200 species of bamboo can provide edible and palatable bamboo shoots, including the monopodial bamboos such as Acidosasa edulis, Chimonobambusa quadrangularis, Phyllostachys heterocycla. Fresh bamboo shoots are delicious and healthy, with high fibre content and vitamins. Bamboo shoots can be found in Chinese grocery stores and restaurants worldwide. After cooking the shoots are still crisp, because cooking does not destroy their texture. Cooked bamboo shoots can be stored in containers and shipped worldwide. Bamboo Wine, Bamboo Tea, Bamboo Beer, Bamboo Vinegar, Bamboo shoot pickle are some of the edible items obtained from the Bamboo plant.

Bamboo and china's economy

Over 3,000 years the Chinese people have had a symbiotic relationship with bamboo. China's flourishing bamboo industry is becoming one of the pillar sectors in the country's forestry sector and also a key in the country's efforts to establish a low-carbon economy, an industry leader said in Beijing. With 5.38 million hectares of bamboo plantations and an annual increase of 100,000 hectares, China is leading the world's bamboo industry in its number of varieties, amount of bamboo reserves, as well as production output, said Jiang Zehui, co-chair of the International Network for Bamboo and Rattan (INBAR)'s board of trustees. The Chinese government is also working to develop its bamboo industry to meet its goals in environmental protection and green economic development as planting bamboo is both profitable and environmentally-friendly. Bamboo can capture and hold more carbon dioxide than other plantations. To promote the development of the bamboo industry, China has encouraged technological innovations. "Nearly 200 patents have been applied to develop more uses of bamboo, which has greatly assisted in the development of the industry," said Jiang.

According to Jiang, new processing techniques have led to a variety of new bamboo products, such as raw bamboo, daily-used goods, artifacts, plates, and bamboo charcoal, which are widely used in different sectors ranging from construction, packaging, transportation,

medicine to tourism. A further opening up of the international market also helps to boost the industry. Health-care products and artificial plates made of bamboo were well received in Southeast Asia, Europe and America, she said. China's bamboo industry has provided more than 35 million jobs, making the sector part of the new drive in the economic development of the world's largest agricultural country. The bamboo sector chalked up 70 billion yuan (10.33 U.S dollars) in total output value during 2008.Jiang admitted that despite all the positive signs, problems and challenges remained in the industry.

Conclusion

Due to the presence of modern processing techniques bamboo can be transformed into many products. It is also known to be a valuable ecological resource for soil and water conservation and is often used for the restoration of degraded lands. Unlike trees, all bamboo species grow to full height and girth in a single growing season of three to four months. When plants come into full production in 3 to 5 years they can be continually harvested every year. Bamboo shoots are rich in vitamins and they are delicious food in many Asian countries. About 2.5 billion people across the world economically depend on products of bamboo plant (INBAR, 1999).

Lot of finished Bamboo based eco friendly products are expected to find their way into store shelves in the years to come. Several Bamboo products are excellent alternatives to plastics. Bamboo has attained greater importance in national economies and international trade. Most of the economic activities related to bamboo are not recorded officially. The growing industrial and environmental importance of bamboo requires development of more comprehensive statistics on bamboo resources, utilization and trade.

Developing the bamboo industry is of great significance in order to protect the environment and developing a greener economy. We need to develop action plan specialized skills in order to promote the bamboo based industry as it provides suitable and sustainable solutions to many of the current Environmental and Economic challenges. Let us hope that the Bamboo industry will flourish in future and provide much more livelihood for several million people across the world.

References

1. Farrelly, David (1984). *The Book of Bamboo*. Sierra Club Books. ISBN 0-87156-825-X

2. Jonathan Bardelline (2009) Growing the future of Bamboo products GreenBiz.com Retrieved 11 August 2009. Bamboo as Building Material Washington D.C.: US Department of Agriculture. 1981. pp. 7–11. Retrieved 11 August 2009.

3. Needham, Joseph (1986). *Science and Civilization in China*: Volume Number-3 Mathematics *and the Sciences of the Heavens and the Earth*. Taipei: Caves Books, Ltd. p. 614.

4. "National Bamboo Mission " URL http://ubfdb.org/NBM%20Guidelines.pdf

5. International Network for Bamboo and Rattan URL http://www.inbar.int/publications/

Flying Lizard – Draco dussumieri

M. Kumaravelu

The word 'Wildlife' is broadly defined as the classified and unclassified plants and animal species that live in this earth. People see that Wildlife means only animal diversity. On the other hand only the big mammals or the herbivores and carnivores are the only part of wildlife. The elephant, tiger, guar, panther, deers etc are on the row. Similarly most scientists are also focusing on to work among big animals or plants. Very few are showing interest in working on small animals and birds. This is mainly because of easy identification and sighting of the small creatures in its habitat. In addition due to the loss of habitation and change in the micro climate many small creatures including reptiles, insects, tortoise etc have become rare.

However, the protected area like BTR, MTR and Nagarhole in the Nilgiris Biosphere Reserve (NBR) and part of Western Ghats provides shelter to many small animals including reptiles, amphibians, small mammals etc.

Flying Lizard

Location: The Draco or Flying lizard was identified at Kargudi block of Mudumalai Tiger Reserve during the field visit. The Lizard was sighted on a Teak tree, believed to be its nesting.

Habitat

There are about three Draco species identified in India. The endemic flying lizard (Draco dussumieri) occurs in the Western Ghats. The Mudumalai Tiger Reserve (MTR), Bandipur Tiger Reserve (BTR), Nagarhole is a potential habitation for the Flying lizard. The habitations for the Flying lizard are Ever Green Forests, Moist Deciduous Forests and plantations. At the above said Protected Areas (PA) the ever green forests and moist deciduous forest exist. Gliding lizards are usually found in dense forests; the forest with

close tree cover and high canopy. The highly suitable habitat for Draco is low land forests, The Western Ghats and low land forest area from Kanyakumari to Goa, particularly on western part in Kerala. Active in day time, the sighted lizard at MTR around 10.00 am appeared ash-grey with medium series of black circles.

Description

Dr Kannan, says it can be easily distinguished from other lizards by the presence of prolonged ribs supporting a wing-like expansion called petagium. The species is distinguished from other Dracos by the rows of rectangular brown spots on the top of the wing membranes, and black spots on the bottom of the wing (Mori and Hikida, 1994). The flying lizard has characteristic of forming camouflage with petagium brown above turning purplish black flecked with yellow at margin. Throat with a finger like appendage with bright lemon-yellow in male is thrice as long as in the female that extends beyond the snout when erect. The male maintain courtship territory from which the other male are excluded.

Ecological role

Reptiles including Flying lizard in the Nature pyramid stand in secondary consumers part mostly eat consumers and are also commonly eaten as prey themselves. Like other species the lizards have an important role in ecological web. The important one is that the lizards are fond of eating ants, insects and termites; in turn this will help in maintaining the balance among the species.

Worldwide studies have shown that number of small insects, reptiles, earthworms, bacteria etc are affected; and facing extinction. The reasons for this include change in micro climatic condition, usage of toxic chemicals in agriculture field. The western slope of Western Ghats, particularly in Kerala usage of pesticide and insecticide for plantation crops have drastically increased simultaneously thus affecting the habitation of micro organisms. The small creatures inhabit the soil and at the higher level plants are facing extinction at large. To save all the life forms in this earth needs a greater awareness among all sectors including farmers. This ill effect of chemical fertilizers, insecticide, pesticide and fungicide are to be taught to farmers in particular. The roles of each and every small organism in food web are to be highlighted broadly.

Reference

1. Daniel J.C, The Book of Indian Reptiles, Bombay Natural History Society, Oxford University Press, Oxford, 1983.

2. Prater S.H, The Book of Indian Animals, Bombay Natural History Society, Oxford University Press, 1971.

3. Field Study conducted during March 2014 at Mudumalai Tiger Reserve, The Nilgiris.

Effect of Forest fire on Biodiversity in Similipal Biosphere Reserve, Odisha, India

Pradeept Kumar Nayak

Introduction

Similipal Biosphere Reserve (SBR) situated in Mayurbhanj district of Odisha (21°28'- 22° 08' N latitude and 86°04' - 86°37' E longitude) is rich in both floral and faunal diversity. Floristically the biosphere reserve is the store house of 96 species of orchids and about 3000 species of other plants. Out of 96 species of orchids 2 species are endemic while in angiosperm category, 8 plant species are endangered, 8 species are vulnerable and 34 species belongs to rare category. There are 55 species of animals, 304 species of birds, 20 species of amphibians, 62 species of reptiles and 37 species of fishes which collectively heighted the Biodiversity richness of Similipal. The climate of the reserve is influenced by a monsoon pattern of rainfall. Maximum rainfall occurs from mid June to October accounting for 75-80% of annual rainfall. In spite of high annual rainfall summer and winter are relatively dry, generally with <10cm monthly rainfall. The amount of average annual rainfall is not correlated with elevation and generally ranges between 28.11 to 344.96 cm. Summer is not unbearable, as the maximum temperature rarely goes above 40 ^{0}C. Winter is severe and the temperature comes down to 4^{0}C in parts with frosts in valleys. Spring is very pleasant because of luxuriant vegetation cover and a network of perennial streams Similipal is relatively moist throughout the year. Humidity of Similipal at 0600 hrs is around 40% and at 1800 hrs is around 81% to 93% that's why it has very rich biodiversity.

The whole forest cover is divided into two parts viz. disturbed and undisturbed based on disturbance received either from anthropogenic and natural activities. The two type of forests differed considerably in soil characters, canopy cover, light intensity on forest floor as well as the tree density. Conflict arises on disturbed site due to resource access and in many instances over the character of particular resources. Many believe that fires are bad but they are actually necessary to promote diversity. Forest species change in composition after fire, this may be good or bad depending on the utility of the stands that preceded and succeeded the fires. Frequent fires in the Similipal forest of Mayurbhanj district in Indian have been blamed for forest deterioration. It is true that frequent fires on large scales cause air pollution, mar quality of stream water, threaten biodiversity and spoil the aesthetics of an area, but fire plays an important role in forest ecosystem dynamics. Fire has long been integral part of the forest environment and has played an important role in shaping the flora and fauna. A fire may be either beneficial or detrimental to individuals of a particular species but the effect of a single fire is not as environmentally significant as a change to the fire regime (Smith, 1995). Moreover, it is not fire, but other anthropogenic activities plus fire that are degrading the forest of Indian. In the present study the role of fire in shaping forest structure and composition is analyzed. If fire is managed wisely it can be used as the cheapest means of forest management. For this purpose different fire characteristics are assessed

together with their interrelationship with forest flora.

It is well known that fire is used in forest areas to initiate the coppicing of kendu plants and to facilitate the collection of mahua flowers. Unfortunately – and incorrectly – these activities are among the reasons commonly given for forest fires and some other causes are hunting for wild animals and birds. Now a day's every newspaper and article focusing on elephant & human conflict. Here is most negative impact put on elephant habitat because of forest fire. Due to loss of natural habitat of elephant basically the food of elephant i.e. the seedling and seed of *Diospyros melanoxyglon* (Kendu), *Peterrocarpus marsupium* (Piasal), brack of *Buchanania lanzan* (Chanhar or char), *Bambusa bambos* (Bamboo), *Careya arborea* (Kumbhi)and somehow *Sorea robosta* (Sal) has been lost . These trees are dominated in similipal area and due to loss of the species the elephants could not got nutritious food and finally they came toward village.

Here is some picture where forest fire occurs in different places i.e. Lulung, Pithabata, Sitakunda, Baniabasa, Podadiha of Similipal in the Mayurbhanj, Odisha. (2012).

In disturbed forest stands of Similipal 90% of newly germinated seeds and existing seedlings were lost due to ground forest fire. On account of such activity forest covers are gradually decreased which is one of the major challenge for forest managers. To restore more normal fire dynamics to a particular region, managers need to know how fire has historically affected the local system, and how it functions today. This can form basis for new policies aimed at restoring fire cycles that will present a lower risk to human life and property, and help safeguard the stability and diversity of ecosystems. Forest managers must take a holistic, long-term landscape-level view. Considerable progress is attainable, but this requires collaboration between ecologists and forest managers. The forest fire can be controlled by involving and discussing elaborately with the forest dwellers, grassroots-level workers in a local non-governmental organization (NGO) working in the area and Forest Department officials in this sites. The environment education among the students, villagers and the local people of the nearest forest area should be taken regularly.

Conclusion

The field data analysis shows that low intensity surface or ground fire were less detrimental to forests of Sal (*Shorea robusta*), Teak (*Tectona grandis*), Chir Pine (*Pinus roxburghii*) but herbs and shrubs suffered most. Bare soil was devoid of surface cover which makes it susceptible to soil erosion. Some trees suffered fire scars which were vulnerable spots for infestation by insects and pests. On the basis of quadrate study for assessment of status of biodiversity of flora species, it is clearly evident that fire controls floristic dynamics of the area. Overall biodiversity status of different burnt areas in Similipal was significantly less than unburnt sites. This is evident from the comparison of Shannon-Wiener diversity index for burnt and unburnt areas. This suggests that uncontrolled forest fire has depleted the biodiversity of the area. Moreover, fire increased accessibility to these areas so people used to collect Non-Timber Forest Products from this area which has considerable impact on floristic composition. The frequent and uncontrolled forest fire is not good sign for animals including man also. It is very necessary and urgently needed to control forest fire for sustainable development and survival of future generation.

Reference

1. Smith, A.,1995, Adaptation to Fire' *in the Contribution of Fire in Dramatizing the Australian Landscape*. URL: *http://online.anu.edu.au/Forestry/fire/ecol/as20.htm.*

2. Pradeepta Nayak, 2012, "Forest Fire and its effects on Biodiversity in Similipal Biosphere Reserve, Orissa", *Eco News*, Vol. 18, No.1, Pp.14-16.

Biofuel - The hassle-free energy of the future

Gouthama

"He who is in harmony with Nature hits the mark without effort and apprehends the truth without thinking"

- Confucius

Biofuel is a cleaner fuel source, produced from the renewable source whose energy is derived from the carbon fixation. Even though, fossil fuels are derived from carbon-cycle it is not said to be a biofuel as it emits carbon-dioxide that affects our environment. Biofuel is the cleanest form of energy in terms of energy security and greenhouse gas emission. Biofuel is getting an increased attention in both political as well as scientific communities, thanks to the climate experts who gave the renewable energy upper-hand vis-a-vis conventional energy. It is the best alternative for traditional fuels like oil and natural gas whose prices is just sky-rocketing and also pose a serious threat to our environment. Bioethanol, biobutanol, biodiesel, biogas, and vegetable oils are some of the biofuels used in the market at present.

Overview of the Biofuel Market

With the emergence of the number of 'Global Climate Summits,' renewable energy has become the most important subject to be discussed in terms of sustainable development. With the amount of pressure built over this issue, all the government is in catch-22 situation whereas that's not the case with 'Biofuel Entrepreneurs', who are already on their way towards the formula of success. The development of global biofuel industry over the past few years has been in a swift pace, which is due to the raising concern over energy security.

During 1973, Arab members of OPEC (Organization of the Petroleum Exporting) imposed an export oil embargo against Japan, the United States and Western European countries. This obviously resulted in remarkable increase of oil prices from $3 to $12 per barrel. As a result there was a comprehensive thrust of biofuel production in Brazil and United States. The United States with its superior thinking invested in biofuel market to reduce the dependence on imported oil from other nations and Brazil's objective was to reduce the pressure on its balance of payments due to the rising cost of fossil fuel imports. Although Brazil and the United States launched their ethanol programmes more than 30 years ago, only Brazil made it a priority to make ethanol a significant component of the domestic fuel supply.

As the outcome of Kyoto Protocol in 1987, European Union decided to exercise biofuel as a tool to fulfill its commitments. Rising oil prices and the related concerns about economic growth in the United States and European Union pushed the production and use of biofuel even further, ultimately increasing its market size. Thereafter, the biofuel market has essentially marched towards the rapid development phase for the opportunity

they offer i.e. increase in exports, enhanced rural development and reduction of poverty. Most of the areas with highest biomass productivity are located in the tropics; hence biofuel has apparently become a new export-driven industry in which developing countries would have a significant advantage.

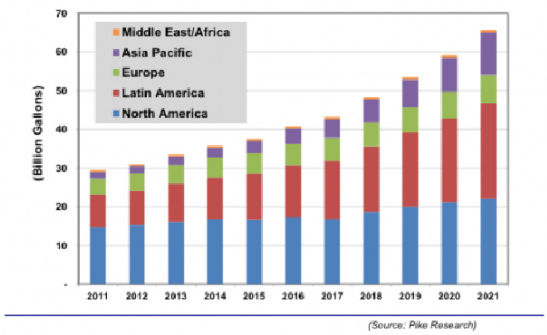
Biofuel has also been discussed as a matter of distress when grains and oilseeds were used for the production of ethanol and biodiesel at the backdrop of increase in agricultural and food prices. Moreover, there are also concerns regarding the expansion of agricultural activities for biofuel production as it could intrude into environmentally sensitive areas with the consequence of abolishing or severely reducing the actual contribution of biofuels to greenhouse gas reductions. Besides that, extensive livestock activity for biofuel production, excessive use of pesticides and overexploitation of water resources could lead to considerable environmental degradation like loss of biodiversity. There are also claims that current biofuel policies are not geared toward energy conservation. Conversely, they may end up encouraging more fossil fuel consumption in the transportation sector, since the presence of even tiny percentages of biofuel into the fuel mix may give consumers the false impression that driving does not contribute to the release of greenhouse gas emissions.

Emerging trends in Biofuel Market

Biofuel market is at the peak of development due to the growing concerns like greenhouse gas emission, global warming, and so on. With these issues getting higher importance in the global arena, biofuel market definitely demands greater consideration.

The production of biofuel in global market is expected to reach 65.7 billion gallons per year by 2021, and supremacy among them is projected to be maintained by ethanol with nearly 50 billion gallons produced per year compared to biodiesel's 16.2 billion gallons per year. The United States, Brazil, and European Union are the three largest markets contributing 85 percent of global production in 2010. North America dominated the industry accounting for about 48 percent of the global market in biofuel while the European Union stands top in terms of global biodiesel production contributing 49 percent in world's total production.

Chart 1.1 Biofuels Production by Region, World Markets: 2011-2021



(Source: Pike Research)

The industry may not meet total market demand by 2021 irrespective of its growing trend, which is due to some internal factors like intensive livestock cropping, loss of bio-diversity, raise in agricultural goods, etc. Meanwhile there will also be increase in demand in transportation fuel including aviation and marine sector, which again will be an added pressure mounted on biofuel industry. According to Pike, "the global gasoline market will reach 375 billion gallons per year; the global diesel ground transportation market will hit 427 billion gallons per year." Even if biofuel market grows twofold, it will contribute only seven percent of the total transportation fuel market.

In recent years, algae seem to be the centre-of-attraction for its advantage and greater contribution in biofuel market. Many conferences have been held overtime for disseminating its special characteristics. One such conference is World Biofuels Markets organized in Rotterdam, Netherland. Over 15000 delegates across the globe participated in the conference to discuss the importance of the algae. "Everyone from U.S. President Obama to leading scientists and investors around the world are talking about algae, and hence our timely focus on the latest issues helps the attendees," said Claire Poole, Event Director for World Biofuels Markets. "With the development of pilot and demonstration projects, all the promise of algae is starting to become reality and we look forward to exploring timelines and existing hurdles the industry is addressing."

Conclusion

The technological advancement of first-generation biofuel sources such as corn, sugarcane, rapeseed and soy combined with a second-generation fuel sources could lead to the increasing production in future. The combination of mature investments along with growing demand and industry consolidation mean an optimistic future for biofuel. Even at this rapid growing phase, there remain some political as well as social hurdles that could prevent the industry from meeting government's mandates. Few other hurdles may also come in the form of vested interest created by the uninterested parties towards nation's development.

References

- United Nations conference on Trade and Development (UNCTAD)
- Global Biofuel Market Analysis
- http://cleantechnica.com/
- http://www.businessgreen.com/
- http://www.renewableenergyworld.com/
- http://www.worldbiofuelsmarkets.com/

No alternative for Tree translocation!?

Kakarla venkataratnam

Trees have always been regarded as the symbol of Life and Growth and have been associated with Wisdom and immortality in India. Due to the benevolence of trees in Indian mythology and folklore; they are widely considered as Sacred and worshipped. Trees Relocation/ Translocation is really good or bad? In terms of economics how much Useful? This is the topic widely discussed among the environmentalist in recent times in Hyderabad.

After the Hyderabad urban development authority was established & when its activity reached peak stage and subsequent start of Metro rail project construction in Hyderabad there is a large scale Tree

related works picked up. Due to hue & cry from environmental lovers /circles about old aged /big trees felling in Hyderabad, Govt of Andhra Pradesh, Hyderabad municipal corporation ,Hyderabad development authority ,Hyderabad metro rail corporation ltd together initiated discussions and started working on Trees Relocation. As a result a big number of trees were either Re located / accessed, or lakhs of saplings/seedlings were planted in Hyderabad surroundings. For many environmentalist and others relocation is very good and required much. If you discuss the topic with most of the economist and gardeners' for them it is not much useful in terms of economy as there is no growth in the relocated trees. Here we can't involve the Govt officials because they are rule abiders. Here I want to briefly discuss about the two sides and both versions.

APWALTA 2002

Under the Andhra Pradesh Water, Land & Tree Act (APWALTA) 2002 act helped the Forest Authorities to ensure the examination and exploring of various alternatives of tree felling by the user agencies before finally granting permission for felling of these trees. According to APWALTA if any body wants to cut any tree he/the institute has to plant at least five (5) saplings/seedlings as substitute to each tree, which is the minimum criteria for the permission.

First kinds in India

The practice of translocation of trees is not very common in our country contrary to western countries where there is great concern for trees among citizens and they prefer and attempt to save as many as trees possible instead of felling. At present there in not much information and mechanisms available for this cause. Of late the environmentally concerned citizen and organizations/NGOs have started raising their voices for the cause of protection of trees and this has resulted into consideration of this aspect before felling of trees. The Forestry Wing of ORR (Outer Ring Road) Project of HMDA has taken up translocation of 220 Ficus trees (Ficus is one of the best coppices). All though the translocation of trees has been taken up previously in the Hyderabad but that was limited to one or two trees. It is learnt that , However such a large scale translocation that too of trees having girth up to 370 Cms is one of its first kinds in India.

HMR Projects

Presently Hyderabad Metro Rail ltd (HMR) project also caused for some of the tress relocation /accessing of trees. However the HMR has taken up good numbers (674) of trees Relocation. Starting in Miyapur to MGBS corridor 384nos of trees, in MGBS to Lalbahadurnager 221, and remaining in other places it relocated the trees.

Vana deeksha

As part of aforestation HMR distributed, 2013 year alone nearly 70,000 nos of saplings /seedlings in "Vanadeeksha" program to the various stakeholders in and around Hyderabad city. To encourage the stakeholders in trees protection/conservation activity HMR is awarding best tree growers/ Colonies/ associations/institutes with Rupees 25,000/18,000, cash awards every year for the best performers. HMR has established Tree protection committee, which will also take care after plantation ,steps to visit /inspect the premises of those stakeholders/avenue plantations to inspect/enquiry about the plantation and to know the status of survival etc, of saplings planted /distributed saplings/ seedlings.

Tree translocation/Avenue plantation

As apart HMR Green program most of the uprooted trees are Relocated /planted in both sides of Metro rail track coupling with avenue plantation. At present with in eight months of plantation, most of the both trees/plants have shown good growth. The survival rate also very good. We can't deny their good efforts. At present in some parts, where land is available, at the two sides of Train track HMR developed good greenery but in remaining parts it is yet to establish/ plant sapling in possible methods.

"We spent more than enough funds on Environment and Tree activities" explained a General Manager of HMR. 'Our MD has very keen interest on tree protection & conservation, he himself read all the literature about plantation give instructions to us' he explained . We spent very good amount of funds for tree translocation nearly one core and for the Afforesstation 2,22,16,480(Two core twenty two lakhs sixteen thousands and four hundreds eighty rupees)funds we spent for the last two years he explained. Abiding to WALTA Act 2005 HMR planted saplings double in number i.e. 1: 10 plants ratio instead of 1:5 that we are actually supposed to do he told. The Trans located trees survival rate (95%) is also very high when compared to other, we are very proud for that the GM told.

Strong support for the trees Relocation

"If any person was infected with cancer will we keep calm and quit? In some cases we know the end result, still we will go for treatment or not? Taking in to these humanitarian aspects, instead of accessing a tree, it good for Trees relocation" a renowned environmentalist from Hyderabad, argued.

We cannot expect good immediate growth in aged trees like humans also he commented on referring to growth of relocated trees. Generally it will take minimum one year for any tree to establish its root system and it will take another year to pickup more growth in Transplanted trees. In metro rail transplantation case if proper care is there you can see a good growth in those trees one expert who is fully involved in the relocation program said.

They are our part and parcel of culture and heritage how can we access them without any inhibition? He further questioned.

Is Plantation in more extent the alternative?

Some Economists & Gardeners argue that instead of tree Translocation which is casting more exchequers to govt, burdening further, it is better to go for plantation in more extent in vacant lands available in & around. "Extensive plantation is the only & good alternative" they argued. Referring to Tamilnadu state as model where they are giving Top Priority to Rain water harvesting and plantation, we have to take up the same rain water harvesting & plantation as movement in Andhrapradesh also.

Just Translocation is not at all sufficient, taking aftercare is also very important for the sustainety of the tree. After trans location, if there is no Growth /very low growth in the tree what is the use ?we are spending huge amount of money on the process but it is like brain dead body? What is the use? questioned one economist/charted Accountant who is closely working with environmental field.

Ficus benghalensis is the best

Generally all trees are not suitable for translocation and all are not drought resistant. We have to insure while selecting such trees, which have the capacity/nature that are best coppicers and drought resistant only. Ficus benghalensis, Vat family trees namely Marri, Ravi, Juvvi and Medi etc are very good and suitable for translocation. These Ficus family trees grows slowly, very strong ,longevity in life, more ecological and medicinal values hence most of these verities of trees only will be selected for trees translocation said one expert in the field.

Need/Good !!!

Translocation of trees is very important and need as the survival rate of these translocated trees is more than ninety percent in recent days. The tree translocation process is involved in so

many techniques basing on personal experiences as such there is No Tagline system in India. The following points and care is essential in translocation process/ aftercare also. As per the experts' opinion:

1) **Care while cutting:** During translocation process /period, while cutting tree root and branch/stems system proper care should be taken not to damage the roots and branches. While uprooting the tree some time the hard soil/rocky soil also causes for the damage of mother root system hence insure proper care. Loose soils/sandiness also some time may cause damage to root systems.

2) **As a part, 90%** of the Branches, Roots and leaves have to be removed /cut down, to control the water transformation through leaves. If more leaves are present it may cause more loss of water and subsequent death of tree.

3) **The crown of three** should be also restricted for easy transportation and according to need.

4) **Anti fungal & Rejunavation hormones**: After cutting the Roots, immediately all the reaming Branches/stems/Roots ends should be treated with anti fungal base like copper chloride for not to decay and required amount of root rejunavation mixed hormones should be given for shoot up root system/ coppices.

5) **Root ball sealing:** Before uprooting /lifting the Tree, to retain the water for days, watered polymers wiil be kept along with root land mass/soil of the tree, fungicide, root base is covered with gunny bags tightly. This process is called as "Root ball sealing".

7) **Mulching/Anti transparent** (like wax type) chemicals should be sprayed on the reaming tree leaves to curtain the loss of water. This anti transparent system we may call as mulching also.

8) **Slow uprooting:** After root ball sealing, we have to uproot the trees in slow pressure/phased manner, not at a time with the cranes.

9) **Transportation:** After root ball sealing/uprooting some trees like Ravi may be Lifted for transportation with in 24 hours. For some of them one can wait for 15-20 days. The Transportation should be take place either in night /morning/evening only and not at hot time.

10) **15-20 days to recover its growth**: once the tree is shifted to a new place it takes 15-20 days to recover its growth. The methodology followed at the time of Translocation process like cutting the braches & some root systems, restricting the crown extent, Land mass shade & clothing etc are very important .They all show the impact on speedy recovery of tree and subsequent survival also.

After taking care

1) After trees are relocated one should take care at least for minimum two years as experts says .First year intensive care and second year minimum care like regular watering /no debris /no any physical pressure is expected for insuring good growth .

2) Before planting the relocated tree one should prepare good ground fit as the size required.

3) Before planting the tree the fit should be filled with vermicompost, Farm yard manure for retention of water, Neem cake, prorate Granules and with good red fertilized soil.

4) Insure that there is not be any type of termite and.

5) Weekly observation /no outside pressures like cattle's /any type of vehicular collusion/ piece/thefts etc.

Good Results /time taking!

1) Generally the relocated trees will take minimum two years to establish / good root system.

2) One need not /worry about time substitute for the tree life time, for slow growing ficus family.

3) The Rare/medicinal and invaluable /aged tress can be saved, enjoyed and reproduced without any fear for the future generation also.

4) At present there is no alternative for the Translocation /relocation.

Anybody who want to express their views on this topic please send an email to Vrkakarla2000@yahoo.com to include their name in the Trees group in Hyderabad.

ECONEWS will become an online magazine from 2014. Therefore No new subscriptions will be accepted.

Visit us on :
www.econewscpreec.com

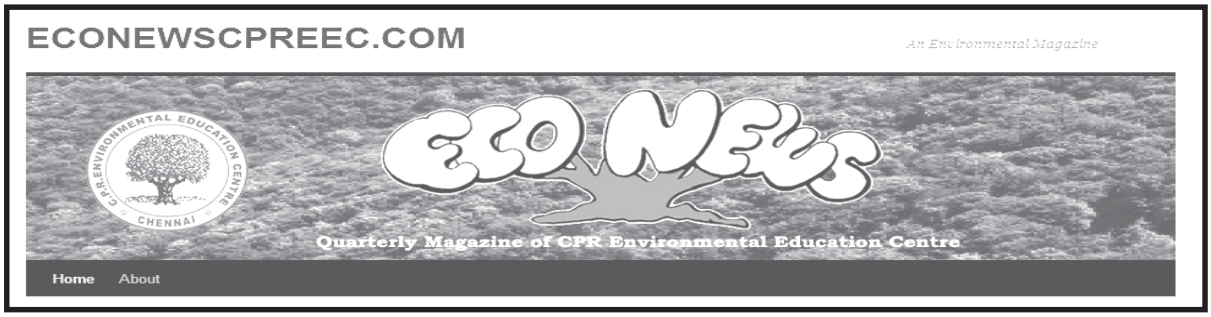
C.P.R. Environmental Education Centre is a Centre of Excellence of the Ministry of Environment & Forests, Government of India, established jointly by the Ministry and the C.P. Ramaswami Aiyar Foundation.

The Centre has been set up to increase consciousness and knowledge about the environment and the major environmental problems facing the country today. It has been conducting a variety of programmes to spread awareness and interest among the public, including, teachers, students, voluntary workers, educators, farmers, women and youth, on all aspects of the environment and ecology, with the purpose of promoting conservation of nature and natural resources.

Visit our website :

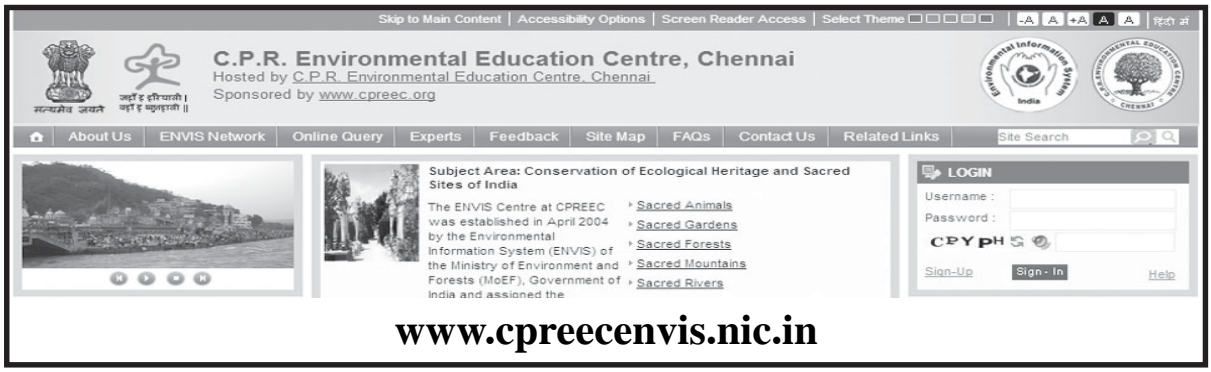
www.econewscpreec.com / www.cpreec.org / www.cpreecenvis.nic.in

Our Websites ...



www.heritageonline.in

www.environmentallawsofindia.com



www.cpreecenvis.nic.in

www.cpreec.org

CPR Convention Centre

(Fully Air-conditioned)

C.P ART CENTRE – 2nd Floor

1 Eldams Road, Chennai 600 018.
Phone : 24346526 / 2433 7023 Fax: 91-44-2432 0756
E-mail : cpreec@vsnl.com / cpreec@cpreec.org / cpreec@gmail.com

CPR Convention Centre is a new addition to Chennai. Situated amidst the lush green gardens of the C.P. Ramaswami Aiyar Foundation's vast campus in the heart of Chennai, it has already become one of Chennai's leading venues for conventions and celebrations. Several conferences, business meetings, etc. have been conducted here in serene surroundings.

CPR Convention Centre is an excellent multipurpose center, the perfect place to host seminars, meetings and conferences. It has a fully air-conditioned hall with modern interiors and comprehensive meeting and banquet facilities designed to accommodate up to 200 guests (theatre style).

Situated on the second floor, above C.P. Art Centre, Chennai's happening place, there are levitator (lift) facilities, state of the art sound and presentation systems, excellent acoustics, projection facilities and – wonder of wonders - ample car parking.

CPR Convention Centre provides the best facilities and services par excellence for all your convention needs. For more details contact Public Relations Officer, Mr.N.Srinivasan - 9444580641


Reception


Meeting Hall
(air-conditioned)


Dining Room
(air-conditioned)


Meeting Hall
(air-conditioned)