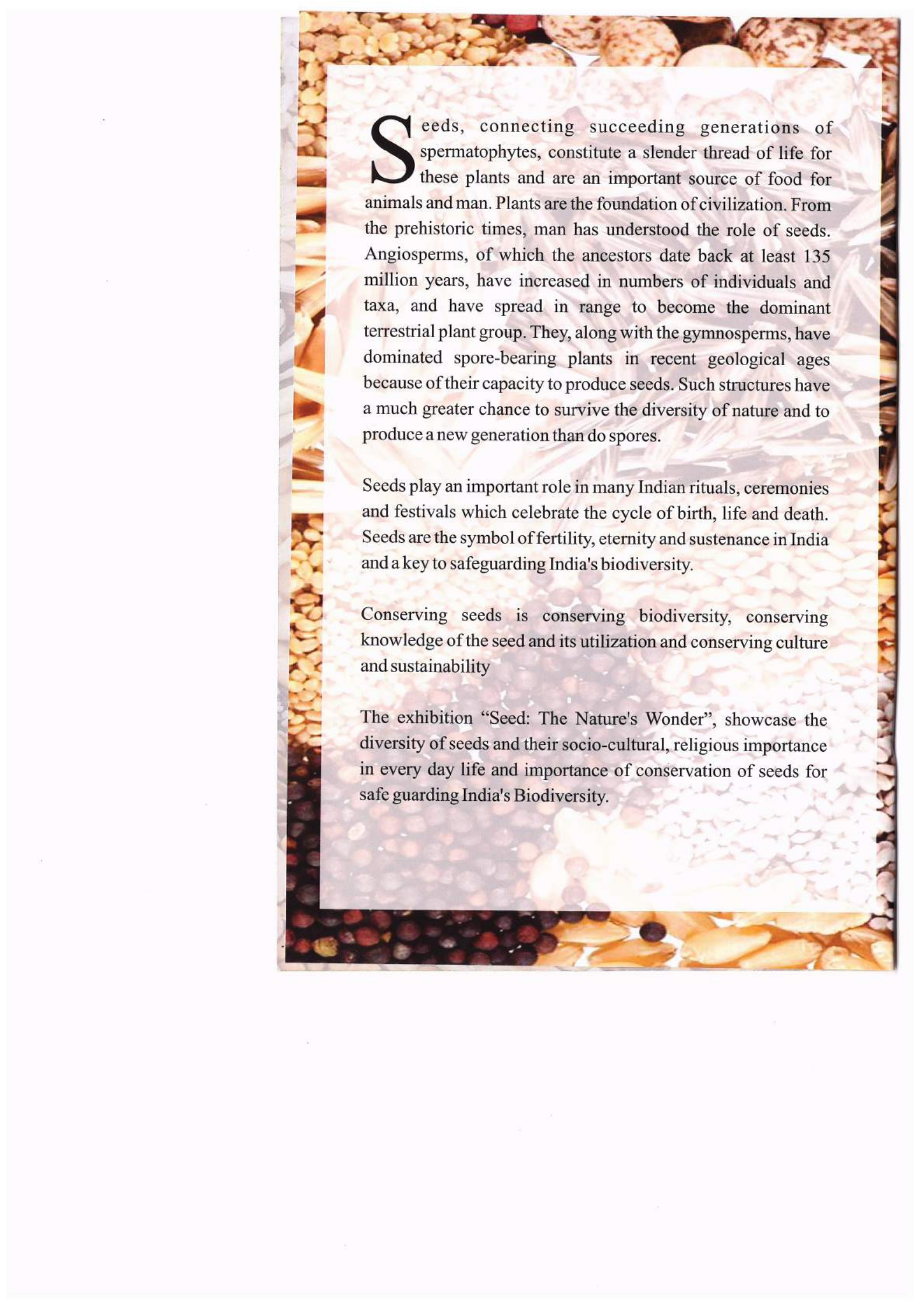




SEED

The Nature's Wonder



Seeds, connecting succeeding generations of spermatophytes, constitute a slender thread of life for these plants and are an important source of food for animals and man. Plants are the foundation of civilization. From the prehistoric times, man has understood the role of seeds. Angiosperms, of which the ancestors date back at least 135 million years, have increased in numbers of individuals and taxa, and have spread in range to become the dominant terrestrial plant group. They, along with the gymnosperms, have dominated spore-bearing plants in recent geological ages because of their capacity to produce seeds. Such structures have a much greater chance to survive the diversity of nature and to produce a new generation than do spores.

Seeds play an important role in many Indian rituals, ceremonies and festivals which celebrate the cycle of birth, life and death. Seeds are the symbol of fertility, eternity and sustenance in India and a key to safeguarding India's biodiversity.

Conserving seeds is conserving biodiversity, conserving knowledge of the seed and its utilization and conserving culture and sustainability

The exhibition "Seed: The Nature's Wonder", showcase the diversity of seeds and their socio-cultural, religious importance in every day life and importance of conservation of seeds for safe guarding India's Biodiversity.

Seed ?



Seed ?

A unit of reproduction of a flowering plant, capable of developing into another such plant.

It is an embryonic plant enclosed in a protective outer covering. The formation of the seed is part of the process of reproduction in seed plants, the spermatophytes (gymnosperms and angiosperms).



Seed-The Largest and Smallest



The largest seed in the world is the double coconut (*Lodoicea maldivica*). It can reach about 12 inches long and weigh up to 18 kgs.

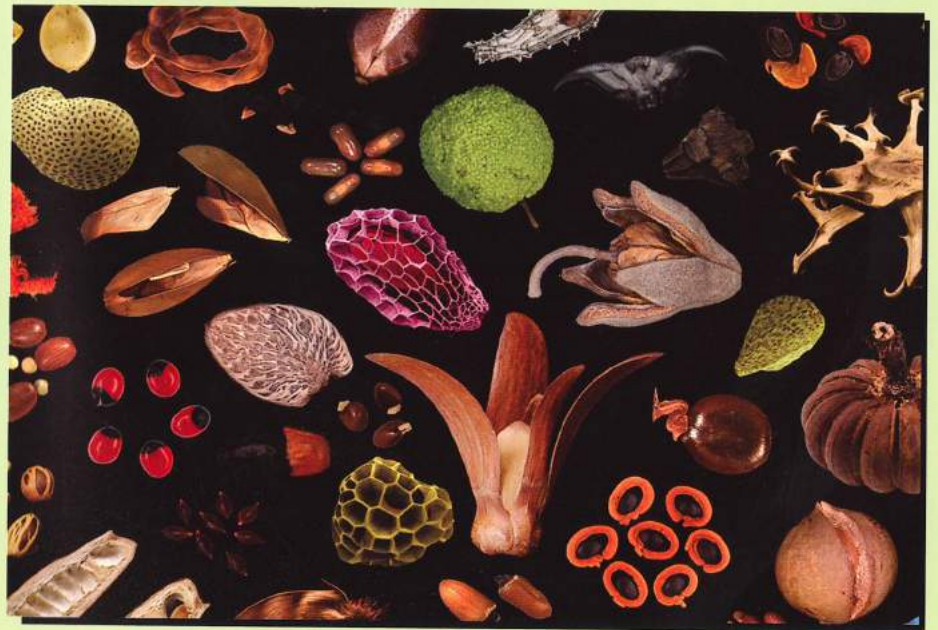
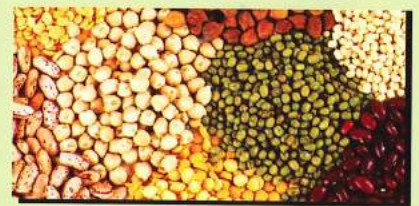
Certain epiphytic orchids of the tropical rain forest produce the world's smallest seeds weighing only 35 millionths of an ounce. These seeds are dispersed into the air like tiny dust particles, ultimately landing in the upper canopy of the rain forest.



Type of Seeds

The seed producing plants belong to the division Spermatophyta and are classified into Gymnosperms (Non-Flowering Plants) and Angiosperms (Flowering Plants).

Angiosperms are divided into:
Monocots (Ex : Ragi)
Dicots (Ex : Bean)



Seeds in Ancient Civilizations

Thousands of years ago, humans were hunter-gatherers. The domestication that began with the sowing of seeds moved humans away from hunting and gathering into harvesting.



Rock Art - Bhimbetka



The World's Earliest known Agricultural Ploughed Field, showing criss - cross pattern of furrows. Circa 2000 BC. at Kalibangan of the Indus civilization



Earliest evidence of barley (*Hordeum vulgare* Linn.) occurred in Mohenjodaro (2250 B.C. – 1800 B.C.) Earlier record of Rice (*Oryza* sp.) found in the form of impressions of rice husk & spikelets on potsherds from Lothal (2300 B.C.). Earliest records of Ragi in India comes from Neolithic site of Hallur, Haveri district, (Karnataka) (1800 B.C. – 1500 B.C.) The principal food grains consumed by the Harappans (2250 B.C. - 1750 B.C.) have been found as belonging to the species of wheat (*Triticum aestivum*, *T.compactum* and *T.sphaerococcum*) and the hulled and naked forms of six rowed barley (*Hordeum vulgare* and *H. vulgare* var. *nudum*).



Harappan Site

Green Revolution

From Poverty, Starvation to Plenty and Prosperity

Food scarcity has haunted mankind since time immemorial. India after witnessing the green revolution has improved a lot in agriculture sector. M.S. Swaminathan has done a great job for India by introducing better yielding varieties of crops. Once upon a time we had to face droughts and famines quite often, but after Green Revolution in India frequency has drastically decreased.



Improved agriculture practices, better seeds and use of fertilizer, soil and water conservation, land development, land consolidation, agricult



ural credit and marketing and price incentive resulted in improved agricultural productivity. Between 1950 and 1984, as the Green Revolution transformed agriculture around the globe, world grain production increased by over 250%.

*Father of
India's Green Revolution,
M.S. Swaminathan
laying the foundation of the
Green Revolution, farmers
harvest the first crop of
high-yielding wheat (1967)*



Seeds for Wellness

Plants not only provide oxygen, food, water and shelter and but also a great source of medicines.

Lotus : The rural folks and tribal in India even now depend largely on the surrounding plants/forests for their day-to-day needs. Seeds of lotus (*Nelumbo nucifera*) are edible, medicinally versatile and used as an important raw material of age-old traditional medical practices like Ayurveda and folk medicine.



Triphala Churna : Triphala churna is one of the most famous and widely used Ayurvedic product. It comes in herbal powder form. Tri means three, Phala means fruit. It is made of three fruits (*Terminalia chebula*) harar, (*Terminalia bellerica*) bahera and (*Emblica officinalis*) amla. Triphala is a powerful source of anti oxidants. It helps to calm Kapha and Pitta. It is used regularly in patients having pre diabetes.



Job's Tears : The seed is antirheumatic, diuretic, pectoral, refrigerant and tonic. A tea from the boiled seeds is drunk as part of a treatment to cure warts. It is also used in the treatment of lung abscess, lobar pneumonia, appendicitis, rheumatoid arthritis, beriberi, diarrhoea, oedema and difficult urination.



Rudraksha : Ayurveda refers to this wonderful bead and gives details of rudraksha for strengthening body constitutions. The beads of rudraksha, its bark and leaves are used to cure various ailments like mental disorders, headache, fever, skin diseases etc. Rudraksha may be worn either on wrist, arm or other parts of the body. Rudraksha oil is cold compressed 100% pure oil extracted from rudraksha seeds.



Jamun seed : Seeds of jamun are used by Ayurvedic practitioners, herbalists and traditional healers in various formulations. The seeds are usually dried and powdered. Jamun powder is mixed with different herbs and spices in accordance with treatment for an illness or disease. Jamun is known to be an effective treatment for diabetes.



Neem seed : The fruits and seeds are the main source for extracting oil. Neem seed oil is also an ingredient in medicine and many skin care products.



The seeds of karanja (*Pongamia pinnata*), arand (*Ricinus communis*) and kuchla (*Strychnos nux-vomica*) are used for obtaining drugs.

Seeds as source of ...

Proteins



Carbohydrates

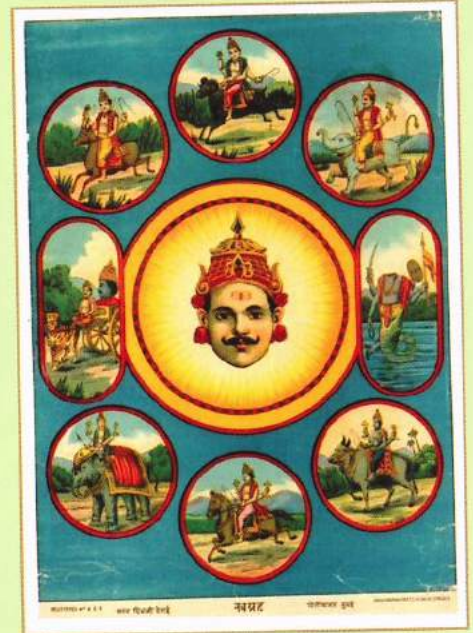


Fats & Oils



Sacred Seeds

Women play a major role in conserving seeds locally. On the day of sowing, women keep all the seeds meant for sowing before the house deity and worship them. Before sowing begins, women worship the draft animals, the plough and other equipments used in sowing. Seeds are the symbol of fertility, eternity and sustenance in India and a key to safeguarding India's biodiversity.



NAVADHANYA

In India, seeds in general and Navadhanya (nine seeds) in particular, symbolize the protection of biological and cultural diversity.

- | | | |
|-----------------|---|-----------------|
| 1. Wheat | = | Aditya (Sun) |
| 2. Rice | = | Chandra (Moon) |
| 3. Chickpea | = | Mangal (Mars) |
| 4. Green gram | = | Budha (Mercury) |
| 5. Bengal gram | = | Guru (Jupiter) |
| 6. White bean | = | Shukra (Venus) |
| 7. Black sesame | = | Shani (Saturn) |
| 8. Black Gram | = | Rahu |
| 9. Horse Gram | = | Ketu |



Rice is also associated with Goddess Annapoorna and Goddess Lakshmi

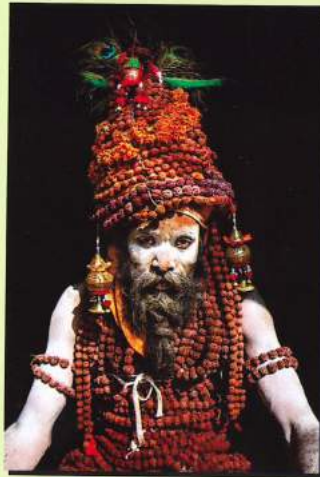
Conserving seeds is :

- Conserving biodiversity
- Conserving knowledge of the seed and its utilization
- Conserving culture and sustainability

Holy Seeds

Seeds are primarily used in India as beads for organic jewellery and malas are valued similarly to semi precious stones.

Job Tears (*Coix-lacryma-jobi*): These natural beads are the seeds of a grain plant, much like a small, skinny corn, or a really robust rye. Job Tears most likely originated in India and were originally grown as a grain plant. These seeds have been used as beads since atleast 2,000 BC.



Rudrakha Beads (*Elaeocarpus ganitrus* ROXB): Rudraksha, is a seed traditionally used as prayer beads in Hinduism. The seed is produced by several species of large evergreen broad-leaved tree in the genus *Elaeocarpus*, with *Elaeocarpus ganitrus* being the principal species. It is used by Hindus for medicinal as well as spiritual purpose. Rudraksha is believed to be of 1 to 108 faces. One-faced Rudraksha is scarcely available. Rudraksha is a symbol of spirituality. Rudraksha has fascinated people across the world due to its mystical properties.

Lotus Seed (*Nelumbo nucifera*): The lotus is a fresh-water plant that grows in semi-tropical climates. It originated in India and was brought to other countries, ranging from Egypt to China, about 2,000 years ago. It is cultivated extensively in Southeast Asia (mostly in China), primarily for food with much smaller amounts for herbal medicine. Seeds have long been used in making rosaries.



Putranjiva seeds (*Putranjiva roxburghii*) Used in religious and magico-religious beliefs, seeds of the fruit strung together to form rosaries.

Seeds and Festivals

Seeds play an important role in many Indian rituals, ceremonies and festivals which celebrate the cycle of birth, life and death. Festivals such as Ugadi, Rama navami, Akshay Tritiya, Ekadashi, Aluyana Amavase, Naga Panchami, Noolu Hunnime, Ganesh Chaturthi, Rishi Panchami, Navaratri, Deepavali, Ratha Sapthami, Tulsi Vivaha & Bhoomi Puja cannot be

celebrated without religious ceremonies surrounding the seed. Seed festivals include those related to identifying which seed to grow, its germination, and other aspects. Seed is a gift of Srushti - karta (Brahma, the creator), who created seeds. Seeds are the symbol of fertility, eternity and sustenance in India and a key to safeguarding India's biodiversity.



Pongal



Sankranti



Ugadi



Kadalekai parase



Huttari



Baishaki

Ragi : Lifeline of South India

Finger millet (*Eleusine coracana* L.) also known as African millet and is commonly called "Ragi" in India. It is having excellent nutritional value and even superior to other common cereals. This can be grown in almost all types of soils and climatic conditions. It is known as poor man's food because of its long sustenance as it can be stored safely for many years without infestation by insect and pests. This property makes it a very necessary famine reserve food. Emerging products prepared from this millet are pasta, noodles, vermicelli and bread.

Finger Millet is one of the oldest crops in India is referred as "nrta-kondaka" in the ancient Indian Sanskrit literature, which means "Dancing Grain," was also addressed as "Rajika" or "Markataka."



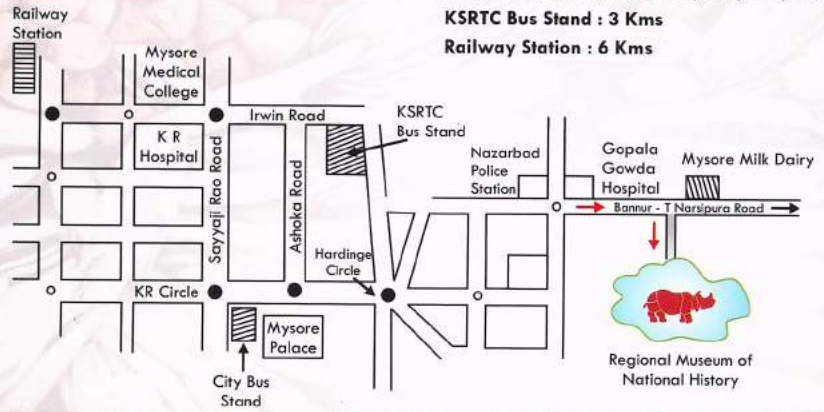
Way to Museum

City Bus Stand : 5 Kms

Bus No. : 6, 80, 75, 180, 181, 333, 335, 336

KSRTC Bus Stand : 3 Kms

Railway Station : 6 Kms



GALLERIES

10:00 am to 06:00 pm
On all days except
Mondays and National Holidays

FILM SHOWS

11:00 am to 12:00 noon
03:00 pm to 04:00 pm



REGIONAL MUSEUM OF NATURAL HISTORY

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