

Forest Resources Management and Conservation: Historical Perspectives

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Introduction

- Natural resources richness were found as a basic commodity for living organism during the 7000 B.C
- *Pre-Vedic* literature justifies that forest resources were formed initially on vacant space after the ice age 8000 B.C
- After the evolution of human being around 5000 B.C started utilizing the natural resources
- In the beginning started clearing the forest for agricultural purposes then slowly from 5000 B.C to recent years natural resources were destroyed without scarification
- Around 8000 – 7000 BC the European environment was transformed from the boreal forests (coniferous forests) to tundra.

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- Europeans altered the landscape through firing more thoroughly than their predecessors to create a more predictable living environment for themselves
- Burning of grasses helped to rejuvenate their environments especially near water sources
- The Europeans learned to manipulate their environments and created a mosaic of woodlands and open land for food gathering and hunting
- Farming, including crops like emmer and einkorn and domesticated animals, reached northwestern Europe via Southeastern and central Europe around 4,800 BC during the Neolithic (New age stone initial farming) period
- The new economic and ecological regime was based on barley, oats, sheep, goats and domesticated cattle which had wild ancestors
- Farming typically revolved around small hamlets and farmsteads and crop rotation were introduced
- Between 536 and 551 AD tree ring growth was very low due to ice age (cold environment) throughout Europe and many other parts of the world, including North America, New Zealand and China

Unpredictable changes across World

- Depressed temperatures, disrupted weather patterns reduced biological productivity, including food crops, and resulted in famine and social disruption during the 6th century
- These consequences were experienced worldwide
 - In Britain, during 535—555 AD experienced the worst weather of the 6th century
 - In Mesopotamia there were heavy falls of snow and flooding in Arabia followed by famine
 - In China, in 536, there was drought and famine and yellow dust rained down like snow
 - In Korea, 535 and 536 were the worst years of that century in climatic terms with massive storms and flooding, followed by drought
 - During 541-542 Justinian Plague affected the Byzantine Empire, including its capital Constantinople due to climatic events
 - During the Little Ice Age (1300 to 1870) Europe and North America were subjected to much colder than during the 20th century

Indian View

- Pre-Indian age (circ 3000 B.C.) the Indo-Aryans were found occupying the country as an Indian frontier (Aiyangar 1941)
- Aryans are nomadic agricultural folk and differentiated from their Iranian brethren peculiar to the Indo-Aryans of the *Rig-Veda*
- Indian civilization evolves at the five river regions among which Aryans were found at Hindu Kush and Sutlej areas
- During the 1000-750 B.C. Indo-Aryans were rearing great edifices of learning and forming religion

Appr. dates of early Hindu Period

Rise of Magadha under the Saisunagas	600 B.C
Birth of Buddha, founder of Buddhism	557 B.C
Commencement of the region of Bimbisara	520 B.C
Persian invasion of the Indus valley	500 B.C
Ajntasutru's region begins	490 B.C
Death of Buddha	487 B.C
First Buddhist Council	477 B.C
Second Buddhist Council	380 B.C
The first of the Nandas begins to region	370 B.C
Alexander's invasion	327 B.C
Chandragupta Mauriya	321 B.C
Bindusara	295 B.C
Asoka	267 B.C
Third Buddhist Council	244 B.C
Pushyamitra, founder of the Sunga dynasty	184 B.C
Menander's incursion	150 B.C
The Kanva dynasty founded	72 B.C
The Andhra ruler reduces Magadha	27 B.C

Source: (De La Fosse, 1918)

Ancient Meanings Hindus (from Sanskrit Words)

abhayavana	Protected woodlands
akasa	Space
ap	Water
Aranyakas	Forest books, dealing with the cosmic significance of the Vedic rituals; a category of vedic literature, following the Brahmanas and preceding the Upanisads.
arati	Cermonial waving of a lamp in front of an effigy of god as an offering of light during pūjā
Arthasastra	A work on politics in theory and practice extolling law, order and centralized authority. The book is attributed to the Brahmin Kautilya who acted as a minister under the rule of Chandragupta Maurya (323-297 B.C.)
artha	Object of desire, material welfare
Atharvaveda	The fourth Vedic collection of hymns also known as the "fourth Veda".
Brahma, Brahmā	The first of the Hindu Trinity (Trimūrti), the God creator; he was the chief God during the period of Brahmānism; in entire India, only two temples are dedicated to him (in Puśkara near Ajmere and in Khedbrahma)

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Brahmanas	Priestly literature, texts that follow the Vedas; treatises on mythological and cosmic significance. Most important is the Satapatha Brahmana.
dharma	Righteousness, virtue, duty, moral order
jivanmukti	The condition of having attained enlightenment
jivanmukta	One who has attained the condition
karma	Deed, action and its residues; the cosmic law of balance; a kind of natural "law of retribution" for human actions on the principle "as you have sown so you will reap".
ksatriya	Warrior or aristocrat; member of the second of the four main Hindu castes (varans)
Laksmi	Visnu's wife; underwent many incarnations alongside him as Sita with Rāma or Rukminī with Krisna. As Visnu's sakti she is the sustaining force in the universe.
lingam	Mark, sign, symbol; representation of Śiva.
Mahabharata	The great epic of the Bharatas"also known as the longest epic poem in the world. It tells about the events before, during, and after the vicious war between the Kauravs and pandavas. The epic deals with questions of morality and duty including the meaning of life and salvation, and explains the ways to achieve it.

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mantras	Formulas of prayer
naga	Snake
Prakrti	Cosmic matter
prithvi	The earth; "the broad one".
Prthivi S kta	Celebrated hymn of the Atharva Veda
puja	Ritual worship, ceremony
pujari	Ceremony master, often a temple priest
Purans	Religious works of Hinduism containing legendary and mythological versions of creation, history and the destruction of the universe.
Rama	Prince and hero of the epic Ramayana. Regarded as the seventh main incarnation of Vishnu.
Ramayana	The epic tells the story of Lord Rama and his wife Sita that went into exile followed by Rama's brother Lakshmana. The epic is composed by Valmiki probably between 750 and 500 B.C.
Rajas	Passionate activity
Rigveda	The first Vedic collection of 1028 hymns codified around 1000 B.C
sakti	Divine creative female force
samaveda	The second Vedic collection (compiled around 900-800 B.C.)
Samhita	Collection of metric texts (mantras)
sattva	Lightness, purity

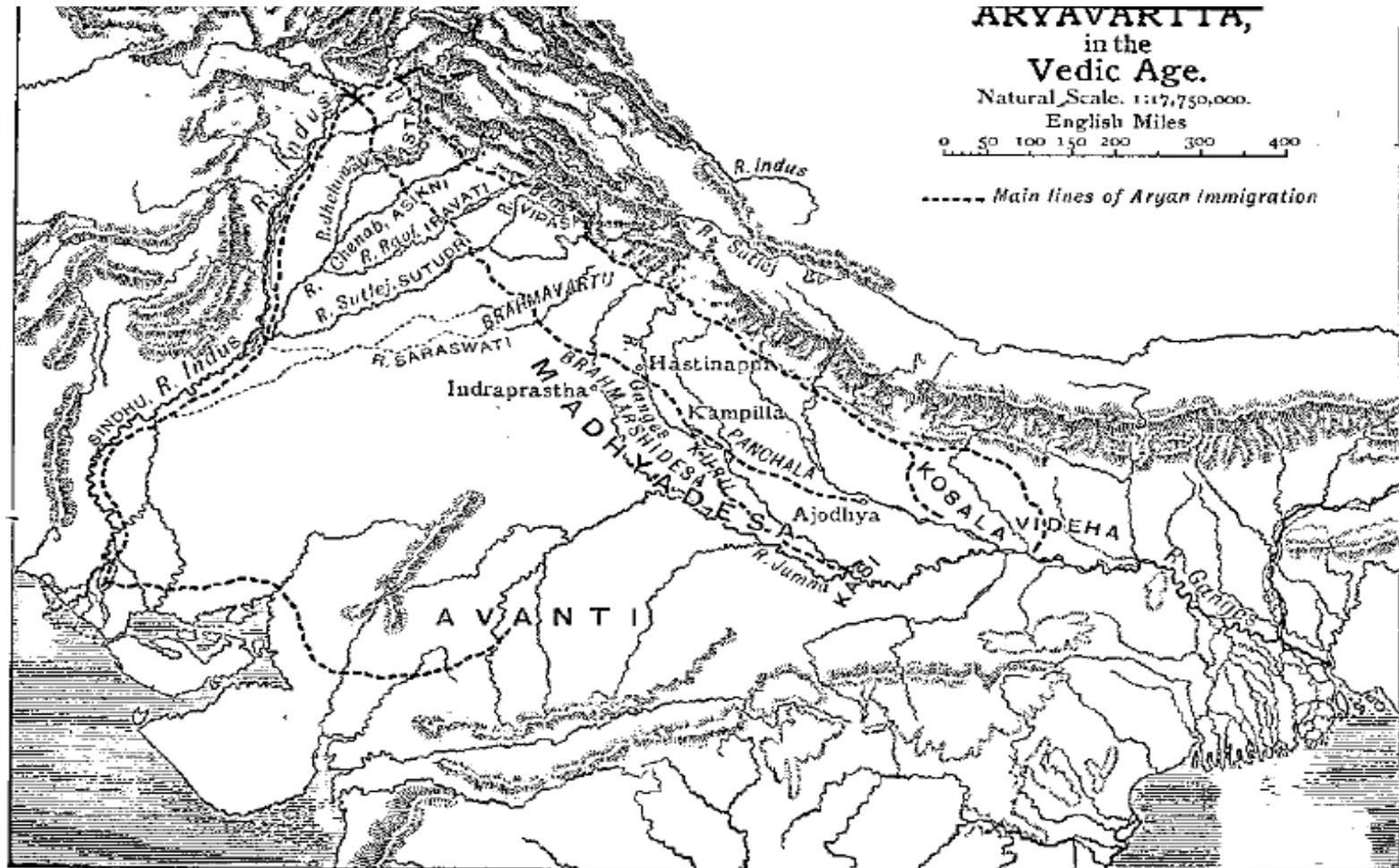
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siva	Third member of the divine Trinity as God Destroyer (destroyer of illusion) represented by his form as Nataraj; Lord of the creative cosmic power and the mastery of reality characterized by yoga.
srivana	Forests that are locally managed and extracted for the wellbeing of people.
sruti	That which was heard; revelation; the summary designation of scriptures which have the status of divine revelation in Hinduism, i.e. the four Vedas.
sudra	The fourth and lowest of the traditional varnas; traditionally artisans and labourers.
surya	Sun
tamas	Heaviness, lethargy
tapovana	Woodlands meant for contemplation; it is believed that the Upanisads and Aranyakas are written in these forests.
Tejas	Flame. Light, brilliance, vital power.
tulasi	Holy basil (<i>Ocimum sanctum</i>); considered the most sacred of all Hindu plants; found in almost every Hindu home or yard.

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Upanisads	Philosophical discourses and mystical writings dating from approximately 800 B.C. and included in the Vedic literature as its end or closing part; believed to be composed out of divine inspiration.
Durga	Hindu goddess
vaisyas commoners	Third highest in ritual status of the four varnas; traditionally described
Varna	Sanskrit name for the original four Hindu castes; colour.
vayu	Air
Vedas	Knowledge; sacred scriptures of Hinduism, the oldest religious literature of India, including: Rgveda Samhita, Samaveda Samhita, Yaryurveda and Atharvaveda Samhita.
Visnu	Member of the divine Trinity; as God the Preserver who sustains the creation.
Vrksayurveda	The Veda of plants and trees
Yajurveda	The third collection of Vedic scriptures dealing with sacrificial procedures and formulae.

India during *Pre -Vedic age* (1000 B.C.)



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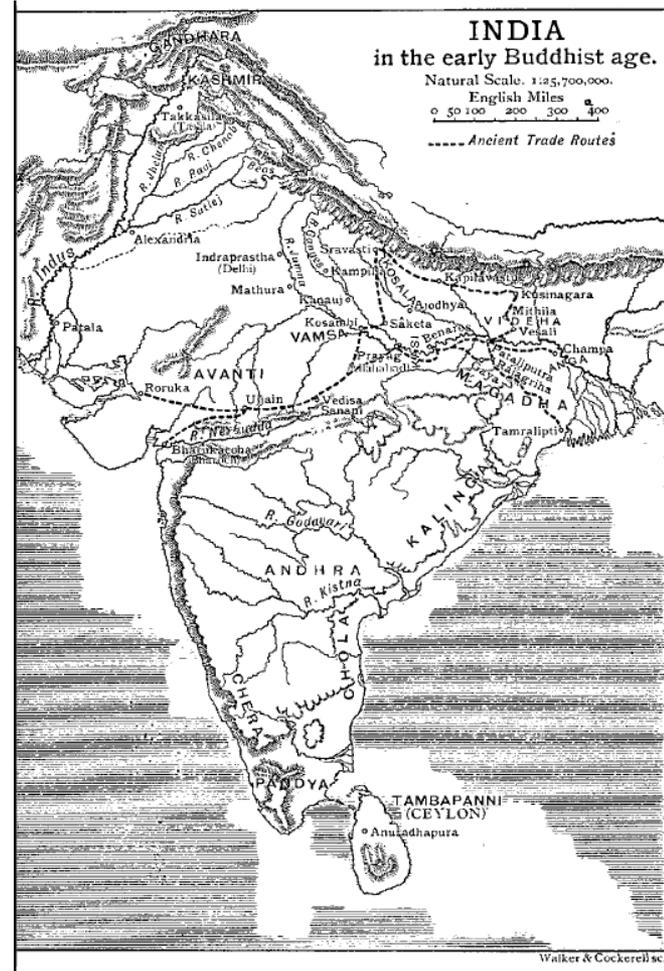
Source: (De La Fosse, 1918)

India during *Vedic age* (750 B.C)

- In the centuries on either side of 750 B.C. the Aryans begin penetrating into the the Vindhya which is preserved in the tradition
- The advent of Agastya introduces reclamation of the jungle into arable land
- The word 'India' is derived from the name of the river Sindhu
- The Chinese also knew the ancient name of India as Shin-tih or Sindhu
- In the *Rigveda* (VIII. 24. 27) is referred to as Sa-pta Sindha va or 'the Seven Rivers'
- In the famous inscriptions of Darius at Persepolis and Naksh-e-Rostam the entire territory watered by the Indu (Hi(n)du) (Bimala, 1888).

India during Buddhist period (557 B.C.)

- Pali literature completely studied the Buddha's time and undoubtedly the most important (Bimala, 1888)
- *Mahajanapadas and the Pali Ariguttara Nikaya was the main source of information which is supplemented by the Jaina Bhagavatsutra and the Karnaparya of the history of India and Mahabharata*
- Meanwhile, Buddhist environmentalists often stress the importance of trees on the life of the Buddha



Forest Depletion and Responses

- One of the most formidable problem facing modern Europe was deforestation
- The most important machines of the era, windmills (largely made out of wood) and ships
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- For example warship in the late 17th century cut 3500 trees aged 80 to 120 years old
- During the early days wood was an important source of fuel for cooking and charcoal was using for production of iron
- Moreover, Europeans in early days cleared forests to create an arable land to feed a growing population, placing pressure on the forests
- Due to this around 17th Century most of the mammals had disappeared

India and Environment

- The positive aspect is that the country is still one of the richest in the world in terms of biological diversity and natural habitats
- With its geographic, climatic and biological diversity, India has a unique environmental heritage
- India represents almost all types of habitats of the world ranging from the snow clad peaks of the Himalayas to the hot Rann of Kutch
- And from the deserts of Rajasthan to the tropical ever green forests of Kerala also innumerable mountain ranges, plateaus, wetlands, river systems, coastal areas and the oceans
- The images of Rhino, Elephant, Bull, etc. found on Indus Valley seals
- Historically, conservation and management of biological diversity was an ardent article of faith in India

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- The Himalayas have been considered the abode of the God, where many pilgrimage spots exist even today
- Rivers are worshipped and are considered to be the manifestations of Hindu goddesses
- The concern arises from the environmental degradation that the country has suffered so far due to human pressure and over-exploitation of resources
- To fulfill the basic needs of food, clothing, shelter, work, education of the people and also development and poverty

Forest Destruction - India

- The ancient Sanskrit poets speak of the southern tableland as buried under forests; and *sdl*, ebony, *sissu*, teak, and other great trees still abound
- The Ghats are covered with magnificent vegetation
- Tillage practices has driven back the jungle to the hilly recesses for cultivation
- The destruction of the forests, the high price of wood has caused many of the hills to be stripped of their forests
- Initially Potato crop was introduced from England, leads to a further destruction of timber
- The hill man clears by burning a ring round the stems of the great trees for his potato ground (Hunter, 1883).

Sacred Trees for Resource Conservation

- The 14 jewels, fourteen precious objects which emerged from the depths of the sea (they vary according to the texts) were:
 - The horse Uchchaihshravas (symbol of sovereignty),
 - The white Elephant Airavata (symbol of royalty), a throne (symbol of kingship and power),
 - The fire (symbol of life),
 - The Tulsi plant (representation of physician Dhanvantari)
 - A chariot, the goddess Lakshmi (the goddess of abundance)
 - Parijata tree (divine tree),
 - Surabhi (cow),
 - Soma (intoxicating juice of sacred plant),
 - Varuna (the sea god),
 - Precious stones,
 - The divine damsels and
 - A Lakshmi, goddess of misfortune etc..

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- Trees being a processors of solar energy which is vital for our existence, and yielding flowers, fruit, wood or medicine, have been worshipped by the Hindus as a matter of gratitude
- Manu believed that trees were conscious like humans and felt pleasure and pain
- The below said some of the trees acquired social and religious Indian sanctity they are
 - Asvattha or peepal (*Ficus religiosa*),
 - Gular (*Ficus glomerata*),
 - Neem (*Azadirachta indica*),
 - Bel (*Aegle marmelos*, bargad or banyan (*Ficus bengalensis*),
 - Asoka (*Sereca indica*),
 - Amala (*Phyllanthus emblica*),
 - Arjuna (*Terminalia arjuna*) and many other trees

Due to their ecological value and efficacious properties, trees continue to be used in the religious and social ceremonies of the Hindus.

Important Festivals or Vratas Related to Trees

Name of the Tree	Related Festival or Vrata	Time of Celebration and Rituals
Amala	Amala Ekadasi	11th day of Phalguna sukla; bath with water soaked in amala fruit; eating it; worshipping it; and worship of Radha-Krsna.
Amra or Mango	Amra-puspa Bhaksana Vrata	1st day of Caitra sukla; eating of mango blossoms and worship of Kamadeva.
Asoka	Asoka Pratipada	1st day of Caitra sukla; only women worship the Tree; they also observe fast seeking longevity.
Bakula	Bakula Amavasya	Bakula flowers are offered to the manes, seeking Their blessings.
Vata or Bargad	Vata Savitri Vrata	Jyestha purnima or amavasya day; having fasted for three previous days, married women worship the bargad tree by circumambulating, tying with the sacred protective thread (raksa sutra), and listening to the sacred Savitri-Satyavan story; some women stay awake during the night and complete the vow feeding a brahmin; in western parts of India, devout women observe this vow for five consecutive years after marriage.
Bilva or Bel	Bilva Tri-ratri Vrata	On a Tuesday of Jyestha purnima when the constellation is Jyestha; worship of the bel tree for three consecutive nights as per Hemadris injunctions in the Skanda Purana; the vow comprises bath with water mixed with mustard seeds, partaking of sacred sattvic food (havisyanna), adorning the tree with two pieces of red cloth and placing the image of Uma-Mahesvara beneath it; homa is performed and 1,008 bilva leaves are offered; brahmins are fed.

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Name of the Tree	Related Festival or Vrata	Time of Celebration and Rituals
Bilva or Bel	Shravana Krsna Ekadasi	Ceremonial offering of water to the bel tree.
Bilva or Bel Bhadra	Sukla Caturthi	Offering of trifoliate leaves of bel to Lord Ganesa
Bilva or Bel	Bilva Nimantrana	Asvina sukla sasti; summoning the tree-goddess and worshipping the Devi.
Bilva or Bel	Bilva Saptami	Asvina sukla saptami; a twig of bel, bearing two fruits, is offered to Devi.
Bilva or Bel	Bilva Navami	Asvina sukla navami; bel leaves are offered to Siva.
Karavira or Kaner or Oleander (Neriumindicum)	Karavira Vrata	Jyestha sukla prathama tithi; kaner roots and branches are bathed and adorned with red cloth; offerings of seven cereals (sapta dhanya) and fruit are made followed by fasting; Savitri, Satyabhama, and others performed this when they were in trouble
Kadali or Kela	Kadali Vrata	Vaisakha, Magha or Kartika sukla caturdasi; a banana tree is planted and nurtured till it bears fruit; wishing the welfare of ones family, a person should worship the tree with flowers, fruit, etc and circumambulate it.
Kadali or Kela	Yaksa-samantaka	Kadali Vrata A golden banana tree is worshipped and offered to a brahmin on any auspicious day.
Kevada or Screw Pine (Panadanusodoratissimus)	Kevada Teej	Bhadra sukla trtiya; soliciting unbroken married life, women offer Kevada leaves to Lord Siva.
Neem	Sitala Puja	Caitra navaratri; goddess Sitala who is said to reside in the neem tree is propitiated ritually; Pat Gosain festival in Bengal means neem tree worship; neem leaves are eaten on Vaisakha sukla saptami.

Sacred Animals and their Importance in Hindustan

Name of the Animal	Scientific Name	Common Name	Related Festival or Vrata	Time of Celebration and Rituals
Asiatic Black Bear	Ursus thibetanus	Asiatic Black Bear, Bhalu (Hindi), Karadi (Tamil)	There is a temple dedicated to Jambavantha at Avani (95 kms. from Bangalore), Karnataka.	Jambavantha (also known as Jambavan or Jamvanta) is a bear in Hindu mythology and is believed to have lived from treta yuga to davapara yuga . In the epic Ramayana , Jambavantha helped Rama find his wife Sita and fight her abductor, Ravana .
Asiatic Lion	Panthera leo persica Lion	Asiatic lion , Sher (Hindi), Singam (Tamil), Simhaha (Sanskrit)		Narasimha, the fourth incarnation of Lord Vishnu was half-man (Nara) and half-lion (Simha). He killed a demon named Hiranyakashipu. A black coloured lion is the vahana of Rahu, the serpent navagraha.
Bengal Tiger	Panthera tigris tigris	Bengal tiger, Bagh (Hindi), Puli (Tamil), Vyaaghraha (Sanskrit)		The tiger is associated with Lord Ayyappan of Sabarimala, who was born by the union of Lord Shiva with Mohini (incarnation of Lord Vishnu).
Blood Pheasant	Ithaginis cruentus	Chillimey or Semu (Local name in Sikkim)		The bird is sacred to the Lepchas, the aboriginal inhabitants of Sikkim.It is also the state bird of Sikkam.
Cock	Gallus gallus	Cock, Murga (Hindi), Seval (Tamil)		The cock is the emblem on Lord Murugan's battle flag (seval kodi). It symbolises eternity of time.

The 20th century: The great Acceleration and Environmental Globalization

- The space age created an environmental revolution during the 1960s.
- NASA's Apollo missions and their view of the small blue Earth floating in space is the first global image of the environment that is home to all humans and living things known to humanity
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- The image also a testament to global environmental impacts such as global warming and ozone depletion
- The most remarkable development of the 20th century was the "Great Acceleration", the sharp increase in human population, economic activity, resource use, transport, communication, World War II and science invention
- The "engine" of the Great Acceleration is an interlinked system consisting of population increase, rising consumption, abundant cheap energy, and liberalized political economies etc.

The Need: Integrated Natural Resource Management Policy

- The need of the hour and the possible solution, before a threat is to think about natural resources as one integrated piece of asset on this planet
- There should be a uniform resource use policy, be it land, water or air or even forest or minerals
- Natural resource management, with a primary objectives of conservation, preservation and resource enhancement
- Pollution abatement should be the view and object of a new set of policies by the government
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- An integrated natural resource management policy shall be the directive principle of a State policy for states to administer and the Centre to monitor and evaluate
- An umbrella legislation, like the well-drafted EPA (Environment Protection Act) 1986, would go a long way in making a thematic conservation strategy for resource utilization and regeneration
- People need to be the centre of any such policy

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- Ecology believes in interrelated existence of living beings and natural resources
- Environmental justice is the touching stone underlining all the three perspectives of resource conservation
- Reorienting the legal regime towards conservation and this goal will become appropriate in policy
- Lack of integrated approach and definitive standards sphere overlapping controls with communication gaps and to escape from public accountability through mutual accusations
- Until conservation and preservation become the aim of institutionalized policy-making, environment is general and resources in particular are on the verge of extinction

Thank You