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FORESTRY

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UTTARAKHAND PUBLIC SERVICE COMMISSION

STATE FOREST SERVICE

2025

Detailed Syllabus Based study material + **Linkage of Concepts with PYQs** + **Infused with Infographics & Maps**

Module - 4

- Forest Economics
- Forest valuation
- Forest legislation
- Wood Science & Technology
- Non-Timber forest produces (NTFP)
- Forest Protection
- Environment & Pollution

MPPSC STATE FOREST SERVICE 2023


Rank – 1

Shashank Jain

Comprehensive Forestry Course + CIGP


Rank – 3

Jyoti Thakur

Comprehensive Forestry Course + CIGP


Rank – 4

Shivam Gautam

Comprehensive Interview Guidance Programme


Rank – 5

Nitin Patel

Comprehensive Forestry Course + CIGP


Rank – 6

Ravi Kumar

Comprehensive Interview Guidance Programme + Test Series


Rank – 7

Ankur Gupta

Comprehensive Forestry Course


Rank – 8

Deependra Lodhi

Comprehensive Interview Guidance Programme


Rank – 9

Kapil Chauhan

Comprehensive Forestry Course


Rank – 10

Alok Kumar Jhariya

Comprehensive Forestry Course + CIGP


Rank – 11

Tarun Chouhan

Comprehensive Interview Guidance Programme + Test Series


Rank - 12

Raghvendra Thakur

Comprehensive Forestry Course + Test S. + CIGP

11 Out of 12 Total Selections in

Assistant Conservator of Forest (ACF) 2023

108 Out of 126 Total Selections in

Range Forest Officer (RFO) 2023


Rank – 1

Arvind Ahirwar

Comprehensive Interview Guidance Programme + Test Series


Rank – 2

Pushpendra Singh Ahirwar

Comprehensive Forestry Course + CIGP


Rank – 3

Narendra Gunare

Comprehensive Interview Guidance Programme + Test Series


Rank – 4

Jitendra Kumar Verma

Comprehensive Forestry Course + CIGP


Rank – 5

Jaishrish Barethiya

Comprehensive Forestry Course + CIGP


Rank – 6

Bhavna Sehariya

Comprehensive Forestry Course + CIGP


Rank – 7

Pradeep Ahirwar

Comprehensive Forestry Course + CIGP


Rank – 8

Anil Kumar Gour

Comprehensive Forestry Course + CIGP


Rank – 9

Aakash Kumar Malviya

Comprehensive Forestry Course + CIGP


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Rajesh Kumar Jatav

Comprehensive Forestry Course + CIGP


Rank - 12

Veerendra Prajapati

Comprehensive Interview Guidance Programme + Test Series


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Dinesh Kumar

Test Series


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Niranjan Dehariya

Comprehensive Forestry Course + CIGP


Rank - 15

Abhinay Chouhan

Test Series


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Comprehensive Forestry Course + CIGP


Rank - 19

Pradeep Jatav

Comprehensive Forestry Course + CIGP


Rank - 21

Amit Sisodiya

Comprehensive Interview Guidance Programme


Rank - 22

Abhishek Barodiya

Comprehensive Interview Guidance Programme


Rank - 24

Golu Goyal

Comprehensive Interview Guidance Programme + Test Series


Rank - 25

Pawan Raje

Comprehensive Interview Guidance Programme + Test Series

FORESTRY

UKPSC STATE FOREST SERVICE (MAIN) 2025

EDITION : 2025

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Gole ka mandir, Morar, Gwalior (MP) 474005

SYLLABUS

Uttarakhand PSC Assistant Conservator of Forest, Logging Officer & Forest Range Officer Combined Examination–2025 [Paper 2]

Forest Economics and Legislation

◈ ***Forest economics*** : fundamental principles, cost benefit analysis, estimation of demand and supply. ◈ Role of private sector and cooperatives in forestry and corporate financing. ◈ Valuation of forest products and services, commercial control. ◈ ***Legislation*** : History of forest development. National forest policies of 1894, 1952 and 1988. Forest policies and issues related to land use. Timber and non-timber products. Institutional and structural changes. Forest laws, necessity and general principles. Indian Forest Act, 1927. Indian Forest (Uttaranchal Amendment) 2001, U.P. forest conservation Act, 1976. Forest (Conservation) Act, 1980. Wild Life (Conservation) Act, 1972 and Amendment, Environment (Protection) Act, 1986.

Forest Resources and Utilization

◈ Environmentally sound forest harvesting principles, logging and extraction techniques and principles. ◈ Transportation system and sale of forest products: definition and scope of NTFPS. Collection of gums, resins, oleoresins, fibres, oil seeds, nuts, rubber, canes, bamboos, medicinal plants, charcoal, lac and shellac, bidi leaves. Importance of wood seasoning, general principles of seasoning methods, necessity of protection. ◈ Properties and uses of wood. Status of supply of raw material to pulp, paper and rayon industry. Wood plantation, substitution and wood utilization.

Forest Conservation

◈ Needs and limitations, agencies responsible for destruction of forests – human beings, pet animals, wild animals, illegal hunting, bad management, encroachment, illegal felling, forest fire types of forest fire, damage and control over them and environmental factors. ◈ Prohibitory and protective measures. ◈ Responsible factors for destruction of forests for human development. Substitutional tenancy and mining. Grazing pressure, its impacts and control methods. ◈ Important insects and diseases of nursery and plantation fields, integrated insects and disease management.

Environment and Bio-diversity change

◈ Environment : components and importance, impact of deforestation, forest fires and various human activities like mining, construction, development projects. ◈ Pollution growth, types, impact and controlling standards for pollution. ◈ Global warming, greenhouse effects, ozone layer depletion, acid rain, impact and control measures. Role of trees and forests in environmental conservation. Control and prevention of air, water and noise pollution. ◈ Environmental test, environmental effect analysis. Biodiversity protection, rational methods of protection with special reference to protected regions / areas. ◈ Protection of forest ecology and sustained development.

Module - 4

CONTENTS

MODULE 4

UKPSC STATE FOREST SERVICE (MAIN) EXAMINATION

Previous year Questions (PYQs)

RFO 2021	• Explain the term Biodiversity. Discuss the levels in which it can be studied. What are the different measures employed to assess the biological diversity? / जैव विविधता की व्याख्या कीजिए। इसके अध्ययन के स्तरों का वर्णन कीजिए। जैव विविधता के आकलन के विभिन्न उपाय क्या हैं? [5(a) | 20 M]. • What are the main differences between forest policy and forest laws? Write the salient features of National Forest Policy, 1988 / वन नीति एवं वन विधि (वन कानून) में क्या मुख्य विभिन्नताएँ (अंतर) हैं? राष्ट्रीय वन नीति, 1988 की प्रमुख विशेषताएँ लिखिये। [7(a) | 20 M]. • Describe various channels for marketing of forest produce or products / वनोपज (वन उत्पादों) के विपणन की विभिन्न माध्यमों (प्रणालियों) का वर्णन कीजिए। [7(b) | 10 M]. • Write the causes of deforestation. What are the measures to be taken for the control of deforestation? / निर्वनीकरण (डिफोरेस्टेशन) के कारण क्या हैं? निर्वनीकरण (वन विनाश) के नियंत्रण के क्या उपाय किये जाने चाहिए ? [7(c) | 10 M]. • Define Global Warming. Write the consequences of Global Warming on forest, wildlife and human health / भूमण्डलीय तापक्रम वृद्धि (ग्लोबल वार्मिंग) को परिभाषित करें। भूमण्डलीय तापक्रम वृद्धि का वनों, वन्य जीवों एवं मानव स्वास्थ्य पर पड़ने वाले प्रभावों का वर्णन कीजिए। [8(b) | 15 M]. • What is wood seasoning? Write in detail the aims of wood seasoning and explain the salient steps in the manufacturing of plywood / काष्ठ शुष्कीकरण क्या है ? काष्ठ शुष्कीकरण के उद्देश्यों/ध्येय का विस्तृत विवरण देते हुये प्लाईवुड़ के विनिर्माण (उत्पादन) के विशिष्ट चरणों का उल्लेख कीजिए। [8(c) | 15 M].
ACF 2019	• How the valuation of forest products and forest services is done? / वन्य उत्पादों और वन सेवाओं का भूल्यांकन कैसे किया जाता है ? [6(a) | 15 M]. • Throw light on the salient features of Environment Protection Act, 1986 / पर्यावरण संरक्षण अधिनियम, 1986 की प्रमुख विशेषताओं पर प्रकाश डालें। [6(b) | 10 M]. • What are the general principles of wood seasoning? Compare air and kiln seasoning / काष्ठ शुष्कीकरण के सामान्य सिद्धांत क्या हैं? वायु तथा भट्ठी शुष्कीकरण की तुलना करें। [6(c) | 15 M]. • What do you mean by forest fire? Explain its effects on forests / आप वन्य आग के बारे में क्या जानते/समझते हैं ? इसके वनों पर प्रभाव के बारे में लिखें। [7(a) | 15 M]. • "Himalayas are rich in biodiversity." Comment / "हिमालय जैव विविधता में सम्पन्न है।" व्याख्या करें। [7(b) | 10 M]. • Explain the role of rotational and controlled grazing to overcome damage due to grazing / घास चराने से होने वाली हानियों को चक्रीय और नियंत्रित चरान द्वारा काबू किये जाने के बारे में बतायें। [7(c) | 15 M]. • Write short notes on / संक्षिप्त टिप्पणियाँ लिखें [8(b) | 2 X 10 = 20 M].

	(a) Rayon making / रेयॉन बनाना (b) Extraction of oleoresin from chir-pine / चीड़ से लीसा निकालना
RFO 2015	• Write short note on the followings / निम्नलिखित पर संक्षिप्त टिप्पणी लिखें (a) Chemical pulping process in paper making / कागज बनाने के लिये रासायनिक लुगदी प्रक्रिया [6(a) | 10 M]. • What are the economic analysis methods of evaluating a forest plantation ? / वन वृक्षारोपण के मूल्यांकन का आर्थिक विश्लेषण के क्या-क्या तरीके हैं? [7(a) | 20 M]. • Write down the principle and methods of insect-pest control in forestry. Write two major pests of Teak / वानिकी में कीट और बीमारियों के नियन्त्रण के सिद्धांत और तरीके लिखें। सागवान के दो प्रमुख परोपजीवी लिखें। [7(b) | 20 M]. • Describe the main characteristics of National Forest Policy 1894. How is it different from National Forest Policy 1952 / राष्ट्रीय वन नीति 1894 की मुख्य विशेषताओं का वर्णन करें। यह राष्ट्रीय वन नीति 1952 की राष्ट्रीय वन नीति से कैसे भिन्न है? [8(a) | 10 M]. • Controlled fire is beneficial to forest vegetation. Discuss / नियंत्रित आग वन वनस्पति के लिये फायदेमंद है। इस पर चर्चा करें [8(b) | 10 M]. • Explain the air pollution and write down the steps that could be taken to prevent air pollution / वायु प्रदूषण के बारे में लिखें और इसे रोकने के लिये कौन-कौन से कदम (स्टैप्स) लिये जा सकते हैं? [8(c) | 10 M]. • Enlist various Non-wood forest products found in Indian forests / भारतीय वनों में पाये जाने वाले विभिन्न गैर-लकड़ी वन उत्पादों के बारे में लिखों। [8(d) | 10 M].
RFO 2012	• Give salient features of demand and supply curves in reference to forest products / वन उत्पाद के संदर्भ में माँग और आपूर्ति रेखाओं की मुख्य विशेषताएँ बतलायें। [5(b) | 20 M]. • Write short notes on the following / निम्नलिखित पर संक्षिप्त टिप्पणियाँ लिखें [6 | 10 X 4 = 40 M]. (a) Salient features of National Forest Policy, 1988 / राष्ट्रीय वन-नीति, 1988 की प्रमुख विशेषतायें। (b) Oleoresin tapping techniques / लीसा निकालने की प्रमुख विधियाँ (c) Salient features of Environment Protection Act, 1986 / पर्यावरण संरक्षण अधिनियम, 1986 की प्रमुख विशेषतायें। (d) Forest harvesting principles / वन कटाई के सिद्धांत

CHAPTER

1

FOREST ECONOMICS

[INTRODUCTION]

SYLLABUS : Fundamental principles, cost-benefit analyses. Estimation of demand and supply

► **FOREST ECONOMICS** : Application of the principles and practice of economics to the management of forestry (Biological resources).

Application

* Managing the demand and supply of forest products.
* Planning and development of forest operations from the harvesting to the marketing & sale of forest products.
* Capital budgeting and resource allocation.
* Sustainable management and exploitation of forest resources.
* Economic management of Human resources (including forest labor), Infrastructure & associated problems, and forest operations.
* Value addition in forest products.

► **PRODUCTION** : it means transforming inputs into outputs such as planted saplings growing into a tree and being harvested after a specific time period.

Factors of production : production factors mean inputs required for the production of a good or service. In the case of forestry, we required -

1. Land
2. Labour : The form of human resources that work in the forest during the production of goods (*i.e.,* Timber) or forest-based service (*i.e.,* Ecotourism).
3. Capital : the monetary resources that are used for the production of something
4. Planting material
5. Technical inputs

► **PRODUCTION FUNCTION** : a production function is a technological or engineering relation between quantities of physical inputs and quantities of the output of goods. As long as the natural laws of technology remain unchanged, the production function remains unchanged.

Example : Consider a manufacturer who produces shoes. She employs two workers – worker 1 and worker 2, two machines – machine 1 and machine 2, and 10 kilograms of raw materials. Worker 1 is good in operating machine 1 and worker 2 is good at operating machine 2. If worker 1 uses machine 1 and worker 2 uses machine 2, then with 10 kilograms of raw materials, they can produce 10 pairs of shoes. However, if worker 1 uses machine 2 and worker 2 uses machine 1, which they are not good at operating, with the same 10 kilograms of raw materials, they will end up producing only 8 pairs of shoes. So with efficient use of inputs, 10 pairs of shoes can be produced whereas inefficient use results in production (*Source* : NCERT).

- Conversion, Transportation, and marketing cost.
- Protection cost

➲ BENEFITS : including

Tangible	(a)	Intermediate and final Yield,
	(b)	Non-timber forest products like food, leaf fodder, fuelwood (Energy security), seed, gum, resin etc. during the project period.
	(c)	Environmental and ecological benefits, *i.e.*, Controlling pollution.
Intangible	(d)	Rural employment generation = socia-economical upliftment
	(e)	Alternative investment option

► SWOT Analysis : Analysing the Strength, Weaknesses, Opportunities, and threats of an upcoming planned forest project.

► INFLATION : the increase in the price of a commodity over a specific period of time.

IFoS 2020 : How does *inflation influence forest goods*? Briefly explain the type of inflation that directly affect the price of forest goods (8 marks)

Hint : Inflation is the rate at which price levels of goods and services rise. It influences every sector as inflation help in predicting the growth of the economy.

- Inflation in labour and transportation cost increased the cost of extraction = influencing forest goods selling
- It increased the Maintenance cost perishable forest produce.
- High inflation = high market rate = Higher extraction of NTFPs = Over exploitation of forest resources = Deforestation/Depletion
- It influences people's ability to spend on luxury goods, thus reducing the demand for high-quality finished goods.

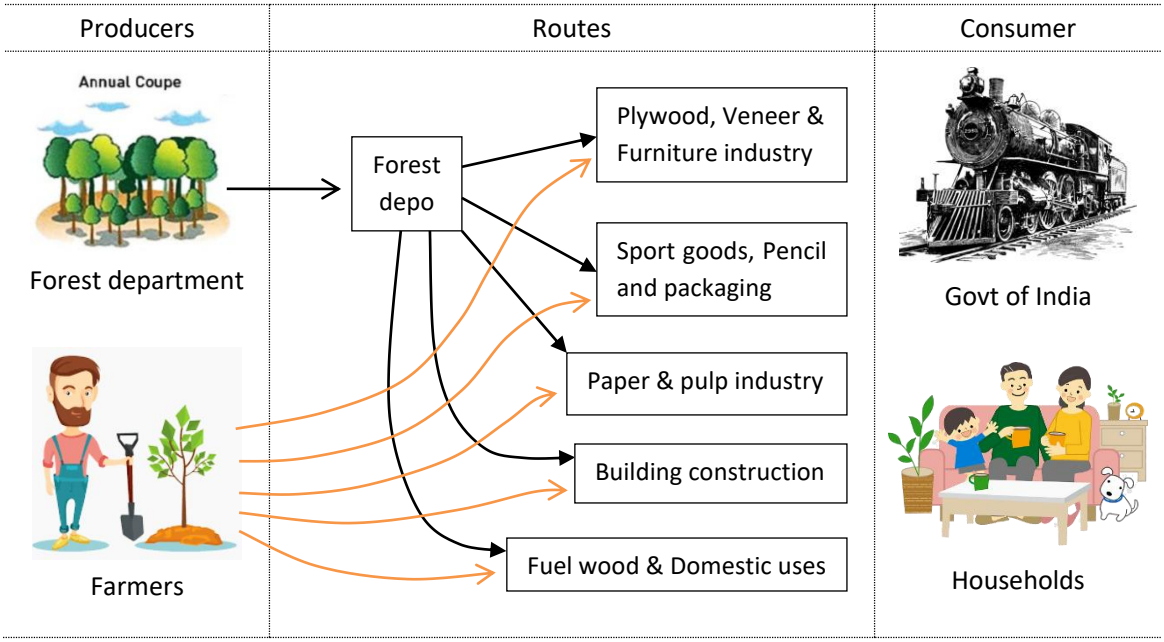
Type of inflation

- *Demand side inflation* - If demand increases due to external factors, keeping supply constant, then demand side inflation occurs. E.g., an increase in demand for bamboo-based products as the government promotes the bamboo industry.
- *Supply-side inflation* - if supply decreases, keeping demand constant, then supply-side inflation occurs. E.g., Reduction of forest production due to pest attacks, forest fire, etc.
- *Built-in inflation* - occurs due to changes in the wages of the worker.

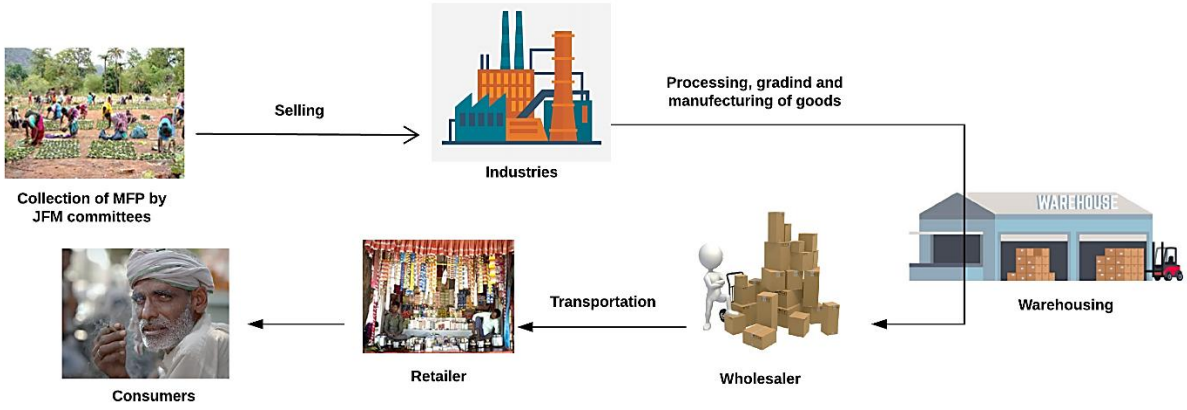
Give salient features of demand and supply curves in reference to forest products / वन उत्पाद के संदर्भ में माँग और आपूर्ति रेखाओं की मुख्य विशेषताएँ बतलायें। [UKPSC RFO 2012, 5(b) | 20 M].

* Farmer $\xrightarrow{\frac{Timber}{Fuel}wood}$ Consumers.

* Farmer $\xrightarrow{Timber}$ Industries $\xrightarrow{Manufecturing}$ Wholesaler $\xrightarrow{Transport}$ Retailers $\xrightarrow{Sell}$ Consumers.



MARKET CHANNELS FOR 'NTFP', *i.e.*, Tendu Patta



❖ **MARKET INTEGRATION :** Integration shows the relationship of the firms in a market. The extent of integration influences the conduct of the firms and consequently their marketing efficiency. The behavior of a highly integrated market is different from that of a disintegrated market

TYPES

1. Horizontal integration : This occurs when a firm or agency gains control of other firms or agencies performing similar marketing functions at the same level in the marketing sequence. In this type of integration, some marketing agencies (say, sellers) combine to form a union with a view to reducing their effective number and the extent of actual competition in the market. In most markets, there is a large number of agencies that do not effectively compete with each other. This is indicative of some element of horizontal integration

❖ MARKETING EFFICIENCY : Market efficiency means Whether it fulfills the objectives assigned to it or expectations from the system at minimum possible cost or maximizes the fulfillment of objectives with a given level of resources (or costs).

Example : Tribal expects quick market clearance and higher prices for their forest produce. They expect the market to buy the products when they are offered for sale at reasonable prices. Consumers expect ready availability of products in the form and quality desired by them at lower prices, and traders and other functionaries expect steady and increasing incomes.

CONSTRAINS IN THE MARKET OF FOREST PRODUCTS

* Underdeveloped infra and supply chain.
* Poor financial support
* Legal hurdles (Acts, Policies, and red-tapism).
* The long gestation period for return (Rotation period).
* Absence/unavailability of the product certification process.

- Describe various channels for marketing of forest produce or products / वनोपज (वन उत्पादों) के विपणन की विभिन्न माध्यमों (प्रणालियों) का वर्णन कीजिए। [UKPSC RFO 2021, 7(b) | 10 M].

- Write a note on market analysis of forest produce [OPSC Civil (Main) 2011]
- Explain the problems and prospects of NWFP marketing in India [OPSC Civil (Main) 2011]
- Write a note on marketing of forest products and its role in national economy [HPSC Civil (Main) 2012]
- Write short notes - Discuss the marketing of forest products in India. [HPSC Civil (Main) 2014]
- Explain the market structures and its classification. What is the role of marketing of forest products in Indian economy? [HPSC Civil (Main) 2015]
- What do you mean by the term market structure? Explain briefly the components of market structure which determine the conduct and performance of the market [OPSC Civil (Main) 2015]
- What is Lerner's rule. What does it say about the ability of the market system to allocate resources efficiently? [OPSC Civil (Main) 2016]
- Describe the current scenario of trade in timber and non-timber forest products in India [OPSC ACF 2018-19]

CHAPTER

4

FOREST VALUATION

SYLLABUS : Valuation of forest goods and services.

Economic development is often associated with rising demand for environmental amenities. Forests are a particular focus of environmental concern, in many countries the value of non-timber forest benefits - many of them nonmarketed - may be increasing faster than the prices of wood products. One result is that certain forest areas are increasingly valued more for the environmental benefits they provide than for their timber. Hence the "set-side" of timber-rich areas for wildlife conservation, and the increasing attention of public agencies to managing forests for recreational or aesthetic values

4.1 FOREST GOODS AND SERVICE

Forest provides many goods and services, in this, the forest brings both tangible benefits like wood, and biomass and intangible benefits like controlling pollution, recreation, etc. Forest benefits are peculiar in the sense that their value may differ temporally and spatially. Its benefits may be valued according to the level of economic development of the host country. Ex: certain forest areas are increasingly valued, by the public as well as their political representatives, more for the environmental benefits these forests provide than for their timber.

IDENTIFYING THE FOREST BENEFITS

Forests provide a range of goods and services, some of which have significant economic value. These include fertile soil and timber, of course, but also non-timber products, recreation, landscape value and a wide range of environmental benefits such as climate regulation, watershed protection and the conservation of biodiversity. Forest benefits may be grouped into general categories

Use value (UV)			Non- Use Value (NUV)
Direct use	Indirect Use	Optional use	Existence
Wood product (timber and fuel)	watershed protection	Future direct and indirect use	Biodiversity (Wildlife)
Non- wood product (food, medicine, genetic material)	Nutrient cycling		Cultural heritage
Educational, recreational and cultural use.	Air pollution reduction		Intrinsic worth
Human habitat	Micro- climate regulation		Bequest value
Amenities	Carbon storage		

Table 1 : Classification of use of forest

CHAPTER 1 FOREST POLICIES

SYLLABUS : History of forest development**;** Indian Forest Policy of 1894, 1952 and 1988. National Forest Policy 1988 of People's involvement, Joint Forest Management, Involvement of women; Forestry policies and issues related to land use, timber and non-timber products, sustainable forest management; industrialization policies; institutional and structural changes. Decentralization and Forestry Public Administration.

1.1 HISTORY OF FOREST ADMINISTRATION

- *Chandragupta Maurya* was the first king who made an effort to look after the forest of his kingdom by appointing Kupyadhyaksha.

  Kautilya *Arthashastra* : head of forest dept "Kupyadhyaksha" assisted by several *vanpalas* (Forest guards). They classified forest into four parts (1) forest reserve for the king, (2) reserve forest for the state, (3) forest donated to the Brahmins, and (4) forest for the public.

- **GUPTA PERIOD** (4^{th} – 5^{th} Century AD)

- **DURING ISLAMIC RULE** : Religious persecution by Muslim rulers, threats of forced conversion, forcefully abducting their women, collapse of many empires, displacement of people to forests = increasing pressure on it.

- **BRITISH RULE** : The destruction of forests began during colonial rule, fuelled by the Industrial Revolution, politics, religion, and greed.

  In 1890, the colonial government appointed Dr. Volker to study Indian agriculture. This was due to the rise of Congress and nationalism. Dr. Volker presented his report "Reforms in Indian Agriculture" in 1893. The report included a separate chapter on forests (Chapter 8), which laid the foundation for the forest policy of 1894. The report aimed to suggest ways to improve Indian agriculture.

1.2 FOREST POLICY 1894

► **BACKGROUND** : Dr. Voelker's report (1893) on Indian agriculture.

► **SALIENT FEATURES**

- The main object of forest management is – to promote the general well-being of the country.
- The maintenance of adequate forests is dictated primarily for the preservation of the climatic and physical conditions of the country and also for meeting the basic requirements of the people.
- The government-owned forests have been classified in this forest policy as -
- Preservation of the climatic and physical conditions of the country

CHAPTER 2 FOREST ACTS

SYLLABUS : Forest Laws - necessity, general principles, Indian Forest Act 1927; Forest Conservation Act, 1980; Wildlife Protection Act 1972, and their amendments.

Laws are a body of principles recognized and applied by the state in the administration of justice.

Forest Law : All principles, regulations, or acts that govern the forest and its related activities either inside or outside of the forest.

- Law is a generic term, whereas 'Acts' pertains to a specific situation.
- Forest law is a **Special law**

IFoS 2018 : What are the main differences between forest policy and forest laws ? Give *salient* points of the National Forest *Policy of 1952* and *1988* (15 m).

Forest Policy : policy is a purposeful course of action, undertaken by an organisation that deals with the uses and management of forest resources.

Forest Law	Forest Policy
Laws or 'Acts' are related to regulating and governing a particular situation or act. If you violate it you will be punished.	The policy is a guiding principle and is related to our future Goal where we want to go. If someone violates it, there is a provision for punishment.
Passed by Parliament	By Executive decision, no need to go through parliament

2.1 INDIAN FOREST ACT (1927)

- *21st September* 1927
- Act to consolidate the law relating to forests, the transit of forest produces and the duty leviable on timber and other forest produce.

Chapter : 1 **Preliminary**	Section 1 : This act may be called the Indian Forest Act of 1927 Extent – Whole India. Section 2 : Definitions –
	[2.1] Cattle includes elephants, camels, buffaloes, horses, mares, geldings, ponies, colts, fillies, mules, asses, pigs, rams, ewes, sheep, lambs, goats and kids. **[2.2] Forest officer** **[2.3] Forest offences** - offence punishable under this Act or under any rule made thereunder

2.4 EXERCISE

IFoS 2023 : Discuss the salient features of the *Wildlife (Protection) Act, 1972* and write its significance in dealing with wildlife offences [15 M]

IFoS 2019 : Write in detail regarding the appointment of authorities and restrictions of hunting of wild animals under the wildlife (Protection) Act of 1972 (Marks 15).

IFoS 2015 : Discuss the important role of The *Wildlife Protection Act, 1972* in forest management. Give salient points only (10 m).

IFoS 2011 : Write the composition of National board of wildlife. Explain the provisions of the Sections of wildlife (Protection) Act 1972, Used to declare an area as 'Sanctuary' (20 m).

IFoS 2010 : What are the functions of Indian board for wildlife with regard to conservation of wildlife ? (10 m).

IFoS 2008 : Describe the amendments in brief in the wildlife protection act, 1972 (10 m).

- Throw light on the salient features of Environment Protection Act, 1986 / पर्यावरण संरक्षण अधिनियम, 1986 की प्रमुख विशेषताओं पर प्रकाश डालें। [UKPSC (ACF) 2019 Forestry Optional, 6(b) | 10 M].
- Write short notes on the following / निम्नलिखित पर संक्षिप्त टिप्पणियाँ लिखें [6 | 10 X 4 = 40 M].
  (a) Salient features of Environment Protection Act, 1986 / पर्यावरण संरक्षण अधिनियम, 1986 की प्रमुख विशेषतायें । [UKPSC (RFO) 2012 Forestry Optional, 6(c) | 10 M].

The Environment Protection Act, 1986 was enacted by the Government of India in the aftermath of the Bhopal Gas Tragedy (1984). It provides a comprehensive legal framework to safeguard and improve the environment. The Act empowers the central government with wide powers to regulate all forms of environmental pollution and to enforce measures necessary for environmental protection.

- Objective : **Protection and improvement of the environment** and prevention of hazards to human beings and other living beings.
- **Broad definition of Environment** – includes water, air, land, and their interrelationship with living beings.
- **Empowers Central Government** to take measures for:
  - Laying down standards for emissions and effluents.
  - Regulating industrial operations and hazardous substances.
  - Restricting areas for industrial activity in the interest of environmental safety.
- **Power to issue directions** – including closure, prohibition, or regulation of industries, and stoppage of supply of electricity or water.
- Provides **penalties** for non-compliance: imprisonment up to **5 years** or fine up to **₹1 lakh**, or both.
- Introduces the concept of **strict liability** for environmental hazards.
- Serves as an **umbrella legislation**, supplementing other environment-specific acts (Water Act, 1974; Air Act, 1981).
- Enables **public participation** indirectly, as any person can approach courts with prior government notice regarding violations.

CHAPTER 1

WOOD SCIENCE & TECHNOLOGY [Introduction]

INTRODUCTION

Forest utilization is defined as the *process of harvesting, conversion, transportation and disposal of forest produce. It includes the market and manufacturing of various usable commodities*[***] from it.

1.2 HISTORICAL BACKGROUND

Upto 1860s

Until this time, Forest clearing was common, and timber extraction was common for fuel and construction purposes. It was largely unorganized and merchants only had to pay a nominal fee for timber extraction. The extraction itself was limited to a few specific species such as Teak, Sal, Sandalwood, and Rosewood (*Dalbergia latifolia*). Axes served as the primary tools for cutting, resulting in significant wastage.

From 1860s to 2nd World War

During this time, *forest departments were established* in all states to ensure systematic working and conservation efforts. The period witnessed a *significant increase in the demand for timber, driven by both infrastructural needs such as railway sleepers and domestic requirements*. Additionally, advancements in forest engineering allowed for logging in previously inaccessible areas.

IFoS 2022 : Trace the *History of logging* in India. Explain how mechanization in harvesting and extraction helps in reducing the wastage and improving efficacy of logging (15 m)

The *introduction of modern tools for timber extraction greatly improved efficiency in the process*. Furthermore, the demand for timber escalated during the World Wars, leading to an increase in its price. This shift in the market

CHAPTER 2

TIMBER TRANSPORTATION & STORAGE

2.1 TIMBER TRANSPORTATION

► TYPES

Based on the Distance of transportation

- *Minor* or *Off-road* transport : for a short distance
- *Major* transportation : for long-distance

Medium of transportation

- *Land* transport, *i.e.,* by road
- *Water* transport, *i.e.,* by river, canals or coastal routes
- *Overhead* transportation, *i.e.,* By ropeway, chopper

► CHOICE OF METHODS OF TRANSPORTATION

- Cost of transportation and labour requirements
- Damages or losses to the products during this
- Volume of timber available in Local area + Size of Market & Sawmill
- Topography + Available transportation facilities, *i.e.,* Land, Water, Air

TRANSPORTATION by **LAND**

- Human-powered : Uphill terrain + small to medium-sized timber + Short distances. This method is the costliest but causes the least damage.
- Animal-assisted : Mules, Elephants, Camels, etc.
- Bullock carts
- Dragging
- Rolling
- Sliding
- Motorized methods : Trucks and Trackers

What are the rules followed in the felling of trees? Explain the different methods of land transportation of timber followed in India [OPSC Civil (Main) 2011].

TRANSPORTATION by **WATER**

The oldest and cheapest mode of transportation, particularly in the *Forest* area. Widely practiced in the Himalayan region, Peninsular India, Eastern & Western Ghats.

Types : (1) Floating, (2) Rafting and Boom, and (3) Wet slide

CHAPTER 3 TIMBER GRADING

AIM

- Quality regulation as per market demand
- Developing a clear definition of classes for timber
- Identifying the causes, influencing the quality, utilization, and price structure of timber.

Defects in timber can occur naturally or as a result of various environmental and processing factors. These defects can affect the strength, appearance, and overall quality of the wood.

IFoS 2017 : Briefly write about the *natural defects* observed in wood (8 m).

DEFECTS DUE TO INSECT ATTACKS

- **Borer Holes** : Caused by insects, Birds, marine borer, etc.

DEFECTS DUE TO FUNGAL ATTACKS

- **Rot or decay** : when fungi feed both soft and heartwood, *i.e.,* White rot, Brown rot, red rot, etc.

The fungi group that digests/Attacks on	Type of rot
Cellulose, but not lignin	Brown rot
Both Cellulose and lignin (All components of cell wall)	White rot
Cellulose in the secondary cell wall makes it brittle	Soft rot

Note **:** *Dry rot* – Decomposition of *felled timber* caused by the action of *various fungi* (Lack of proper ventilation).

Wet rot – Decay of timber caused by *alternate wetting and drying* [RPSC AE 2013; Nagaland PSC CTSE 2017].

- **Stain** : When fungi attack and feed sapwood portion only, where food material is stored, it causes strains (markings). This activity only affects the sapwood, leaving the heartwood unaffected. As a result, the strength of the wood remains unchanged; however, the colour will be changed.

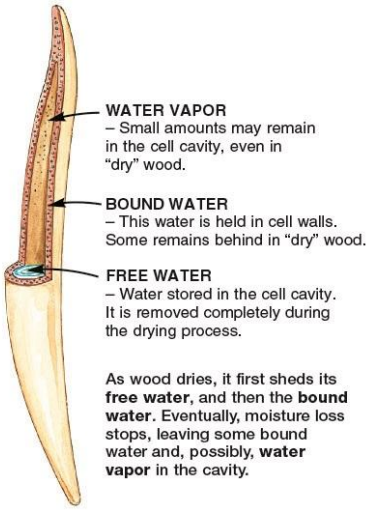
Soft – rot

Wood Stain

CHAPTER 5 WOOD SEASONING

Seasoning refers to the process of *removing excess moisture*[***] that is presented in timber in its green state. Green timber typically contains moisture content ranging from *50 to 200%.* In well-seasoned timber, *10 to 12 % (as per ISI code)*. [For doors and windows, the recommended moisture content for wood is between *10 – 20%.*]

► **HOW WATER IS HELD IN WOOD**



- **Free water**[***] : held by capillary action inside the free space in the cells and fibres
- **Bound water** : Absorbed by the chemical substance of cell walls.
- **Water vapours**

► **DETERMINATION OF MOISTURE CONTENT IN WOOD**

$$\text{Moisture Content} = \frac{wet\ weight - oven\ dry\ weight}{oven\ dry\ weight} \times 100$$

► **OBJECTS OF SEASONING** (Advantages)

- To reduce the risk of fungal and insect attacks
- To reduce weight = ↓ transportation cost
- To avoid seasoning defects like shakes, splits, and cracks = *More dimensional stability*[***]
- To secure proper penetration of preservatives.
- To make timber fit to receive painting and
- Controlling the drying rate and regulating it within limits so that the wood seasons with the least possible damage.

► **FACTORS AFFECTING THE SEASONING PROCESS**

- Temperature, Humidity, and Air Circulation
- Nature of woods and its staking pattern
- Adopted Seasoning methods
- Market/Industrial requirements & Size
- Availability of required infrastructure

5.2 SEASONING DEFECTS

➢ **Shrinking & Swelling** : Occur as the wood changes its moisture content in response to both daily and seasonal fluctuations in the relative humidity of the atmosphere, *i.e.,* when the air is humid, wood absorbs moisture and swells; when the air is dry, wood loses moisture and shrinks.

CHAPTER 7 MODIFIED TIMBER

7.1 COMPOSITE WOOD

Composite wood is a general term for built-up bonded products consisting either *wholly of natural wood or of wood in combination with metals, plastics, etc.*

Various processes and methods have been developed, most of them in recent years in building larger pieces from relatively small pieces or in treating and modifying wood by means of pressure, heat, and chemicals.

TYPES OF COMPOSITE WOOD

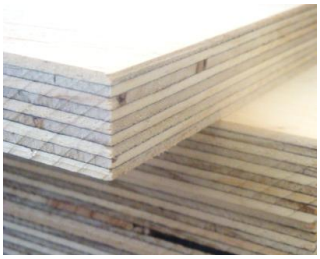
- Plywood
- Laminated wood
- Core boards
- Sandwich boards
- Fibreboards
- Particleboards

IFoS 2023 : Compare different types of composite wood. Name the tree species which are mainly preferred for it. Write the future prospects of composite wood industry in the country [15 M].

IFoS 2016 : Give an account of *composite wood* products and their utilities [10 M]

IFoS 2011 : What are the wood composites ? How they are prepared? What are the common gluing agents used in wood composites? [20 m]

► **PLYWOOD** : It is a glued wood construction built up of veneers in such a manner that the *grain of each veneer is at right angles* (called the *cross-bonded construction*) to that of the adjacent veneer in the assembly. The outer faces are called *Faces* and the center one is called *Core*. The number of veneers is always in *Odd Numbers* (usually *3 to 13*).



- Normal sheet size of plywood : **4 Foot** × **8 Foot** or **122 cm** × **244 cm**
- The minimum number of plies in plywood is = 3

PLYWOOD (COMPOSITE WOOD) PROPERTIES / ADVANTAGES

- The density of wood/ board is uniform = *Tensile strength is equal in all directions****
- All knots, twists, air pockets, bonding defects, and graining issues have been eliminated
- The smooth surface finish makes them ideal for carving and painting.
- There are no dimensional limitations in terms of *Size, Shape, and Thickness* and we can customize them to any required length and width.
- have *high resistance to impact****
- Can make them water-resistant, fire, or chemical-proof
- Do not show any swelling, shrinking, or wrapping properties.
- More durable than natural wood.

- Animal, Mineral, and Miscellaneous Products.
- Drugs, Spices, Edible Products, and Poisons.

8.1 FIBERS

Fibres are *sclerenchyma cells*[***] (elongated cells with thick walls) that are components of both the xylem and phloem. If its source is phloem (*Bast tissue*), then it is known as *soft fibre* and if the source is the surface of the stem or leaf which is known as *hard fibre* (Surface fibre). Method of fibre extracting from one another = *Retting*[***]

IFoS 2019 : Define Non-timber forest products (NTFPs). Explain their importance to human societies and economy (8m).

IFoS 2016 : Dry deciduous forests are rich in Non-Timber Forest Products (NTFPs). Justify the statement with examples (10 m)

IFoS 2015 : Indian forests are found to be rich in different kinds of non-timber forest products (NTFPs). Can you list at least 10 NTFPs? (10 m).

- What do you mean by minor forest produce? Give examples of important minor forest products contributing to national economy [OPSC ACF 2018-19].
- What do you mean by NWFPs? Give the classification and utilization of commercially important NWFPs with examples [HPSC Civil (Main) 2015]
- List the different types non wood forest products [OPSC Civil (Main) 2006].

FIBRES FROM STEMS (Means, from Bast Tissue)

- *Sterculia villosa* (udal) - Yields a course, strong, whitish-pink fibre.
- *Hardwickia binata* (Anjan)[****] - Fibre obtained from young shoots (branches), which are red in colour and used in rope making.
- *Bauhinia vahlii* : A gigantic size climber.
- *Acacia leucophloea* (Hiwar)[***] : from its *bark* - which is used for fishing nets
- *Crotalaria juncea* (*Sunn Hemp*) : Substitute for true hemp
- *Colotropis gigantea*[***] (Asclepiadaceae) : Bark of stem yields a white silky, strong and durable fibre, which is superior to cotton in tensile strength.
- *Boehmeria nivea*[***] : *Rhea* or *Ramie Fiber*[***]
- *Cannabis sativa*[***]
- *Grewia optiva*[***] : A medium-sized Himalayan shrub, the bark of which is extracted to obtain strong white fibre, is utilized in rope making.

Coir[***] = *Coccus nucifera* (Coconut) = from *Mesocarp*[***]

FIBERS FROM LEAVES

- *Caryota urens*[***] (Indian Sago-palm) : yields *Kittul Fibre*[***] + used by fishermen in preparing their nets and fishing lines.
- *Musa textilis* : indigenous in the Philippines but cultivated in India. Fibres are known as *Manilla Hemp* (Addon : *Musa Paradisiaca*)
- *Pandanus tectorius* : a common shrub in the tidal forests of Sunder bans, Andaman's + W. coast
- *Agave Americana*[***] + *A. Sisalana* : obtained fiber is known as *Sisal Fibers*[***]

FIBERS FROM ROOTS

- *Butea monosperma* (Palas) : From *Young roots*[***] + Bark
- *Pandanus odoratissimus* : The roots of the plant are fibrous and are used by *basket makers* for binding purposes, *Paint brushes* and toothbrushes.

CHAPTER 11

PAPER & PULP MANUFECTURING

11.1 PULP

Pulp is a semi-finished product made from fibrous materials, typically wood or other plants, as well as waste paper. It is a crude fibrous material produced from cellulosic fibers and serves as the fundamental component for manufacturing paper, paperboard, and rayon

- Raw material for pulp making
  - Woods
  - Jute sticks
  - Mixed Grasses (Sabai Grass *Eulalippsis binata*)
  - Bamboos, *i.e.*, *B. vulgaris, B. tulda*
  - Agricultural residue
  - Rags and waste paper
- Factors affecting pulp material
  - Fibers should be long, strong, soft, and tender
  - The material should contain a large quantity of cellulose
  - It should be light in color, capable of being ground and free from knots
  - It should be free from gums, tannins, etc.
  - The cost of production, collection of material, and transport costs are minimal.
- Manufacturing : Mechanical process, Chemical process, and Semi- chemical

Mechanical process : Wood is disintegrated into a fibrous state entirely by mechanical means without adding chemicals. Materials suited for the mechanical process -

- Light colored conifers
- Hardwood like poplar and eucalyptus
- Uses for a cheap paper like newsprint

Advantage	Disadvantage
Cheaper process	Consume more power
Lignin content is present in the wood	Poor paper quality
East install	Low strength
	Less durable

Process flowchart

- Debarking
- Grounded into a fibrous mass

CHAPTER 1

FOREST PROTECTION
INTRODUCTION

1.1 FOREST DISASTERS

HAZARD : A dangerous event, natural or man-induced, that could cause injuries, loss of life, damage of property, livelihood, or environment in a definite area. Events may be –

- **Natural**, e.g., Tsunami, Volcanic eruption, Earthquake, etc.
- **Man-induced**, e.g., Pollution, Flood, Drought, etc.

DISASTER : When a *natural* or *human-induced event* causes *widespread human loss*, accompanied by loss of livelihood, property, and the environment *in a definite area*.

- Means that an event becomes a disaster only when it happens at such a wide scale that the forest ecosystem is unable to cope with it, causing complete disruption of the normal functioning of the forest ecosystem.

[A **forest disaster** is a large-scale event that causes significant damage to a forest ecosystem]

Mt. Merapi volcano erupts, Indonesia, March 2023

Bhopal gas tragedy

The U.S. military used **Agent Orange**, a herbicide and defoliant, during the Vietnam War from 1962 to 1971.

TYPES OF FOREST DISASTERS

Based on speed

- Slow onset : Takes months/Years – Drought, Environmental / Forest degradation.
- Rapid onset : Triggered instantaneous – Cyclone, Landslide, Forest fire, etc.

Based on the agency

- Natural : Tsunami, Cyclones
- Man-induced : Forest fire

Based on the area of damage

- Climatic disasters : Drought, Flood in the Low lying area, Cyclone, Hail storm, Heatwave
- Geological disasters : Landslides, Volcanic eruptions, etc.
- Hydrological disasters : Tsunami, Limnic eruptions, etc.
- Man-induced : Forest fire, Heavy metal poisoning, etc.

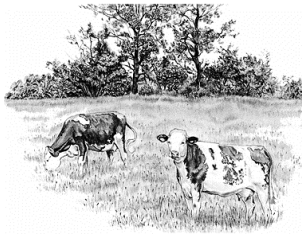
CHAPTER 3

PROTECTION AGAINST INJURIES BY ANIMALS

Animals cause damage to forests through grazing, browsing, debarking, trampling of plantations, and new growth.

Domestic animals often enter the forest to graze, which can have significant negative impacts on both the forest and its wild inhabitants. One major concern is the potential spread of diseases from domestic animals to wild animals. Additionally, domestic animals can inadvertently introduce new weed species by carrying the seeds on their bodies.

3.1 GRAZING



Grazing

Grazing refers to feeding leaves and twigs of plants such as grasses and herbs.

SIGNIFICANCE

- The backbone of the rural economy by providing milk, food, meat, and workforce.
- Contribute 6 % of GDP and 25 % of agricultural GDP.

Browsing

GRAZING PATTERN

(1) **Migratory grazing** : In this grazing, animals move from a higher to a lower altitude in winter seasons to avoid cool weather conditions and go back to hills in summer (*i.e.*, Bakarwals in HP, Van Gujjar in JK).

- *Kharak* system in Uttarakhand, *Gol* system in Rajasthan,

(2) **24 hour grazing** : In this, livestock remains inside the forest throughout the day. After the end of the designated period, animals are captured again for domestic use.

(3) **Day grazing** : Here, animals are allowed inside the forest in the daytime for grazing. In the nighttime, livestock is returned back to cattle sheds located near the human settlements.

(4) **Penning and stall feeding** : In this kind, fodder is collected from the forest and fed to the cattle in the cattle shed itself. Animals are not allowed to go out of the cattle shed.

► **GRAZING SYSTEM**

(1) **Continuous grazing** : In this grazing, the area subjected is *allowed for grazing throughout the year* without any control or regulation measures. This is not advisable because *continuous grazing decreases the palatable crops inside the forest* besides *increasing the weeds*. We can say that this type is a *low input – low output system* of grazing.

CHAPTER 4

PROTECTION AGAINST INJURIES BY AINSECTS

Insects are a significant threat to forests as they cause a lot of damage. They can harm plants at any stage of growth, from the time the seeds are planted until the final product is ready. Some insects like weevils and moths can even attack the seeds before they are collected. The deterioration of seeds due to insect infestation can continue during storage as well.

4.1 HARPFUL POLYPHAGOUS INSECTS

- **Termites (White ant)** : Species - *Odontotermis* obesus & *Microtermis* mycophagus
  - Order : *Isoptera*
  - Harmful stage : ~~Larvae~~ / ~~Pupae~~ / **Adult only** / ~~All~~
  - Caste responsible for all types of damages : ~~Larvae~~ / **Workers** / ~~Queen~~ / ~~Soldiers~~.
  - Termite problems are more serious in *Arid and Semi-arid* conditions/Sandy and Sandy loam soil.
  - Positive Role of Termite in *Nutrient Recycling*
  - Chemical control can be achieved by spraying *Aldrin* and *Chloropyriphos*.

Termite

White grub

- **White Grub** or **Chaffer Beetle** or **June Beetle** or **Cock Chaffer** : It is a ***soil-dwelling*** *root feeder polyphagous* larva.
  - Order : Coleoptera
  - Example : *Holotrichia Consanquinea****
  - Serious Nursery paste of ***Teak, Sal, Deodar***, *Babool*, *Ber* and *Khejari*.
  - Attackers stage : Grub (Root feeder, attack on seedlings), Adult (Leaf feeder).

Cut-worm

- **Cut-worm** (*Agrotis ipsilon*) : The *caterpillar* is mainly active *during the night* and *cut young shoots near the base* to suck sap.
  - It attacks primarily on - Acacia, Albizzia, Prosopis (AAP), and Eucalyptus.

Inderbela quadrinotata

- **Bark-eating caterpillar (*Xyleborous*)** : Caterpillars such as the *Inderbela quadrinotata* consume the bark of many species and form shelters around it.
  - Attacks on Acacia, Albizzia, Prosopis (AAP), and Ziziphus.

CHAPTER 1

ENVIRONMENT

CONCEPT & COMPONENTS

1.1 INTRODUCTION

The environment refers to everything that surrounds a living organism—people, places, objects, and phenomena—whether natural or man-made.

In the early stages of human history, the environment was perceived only in terms of physical elements such as land, air, water, and living organisms. Over time, as society evolved, the concept of environment expanded to include social, economic, and political dimensions as well.

- *Definition* : The environment is the *sum of all external conditions surrounding an organism*, including *complex physical, chemical,* and *biological factors*, as well as social and cultural conditions, that influence its *growth, development*, and *survival*.

- The word “environment” is derived from the **French** term *Environ* or *Environer*, meaning ‘*to surround*’.

1.2 SCOPE / IMPORTANCE OF ENVIRONMENTAL SCIENCE

Importance highlights the "why" – why environmental science is crucial for our well-being and the planet's health. Scope emphasizes the "what" – what are the different areas and issues environmental science deals with.

Chapter Outline

CHAPTER 2

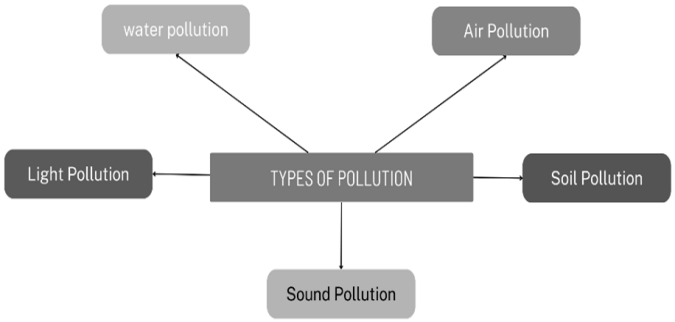
POLLUTION & RELATED ISSUES

2.1 POLLUTION

Environmental *pollution* is defined as the presence of any substance in the environment in such a concentration that it may tend or it may tend to be injurious to humans, plants, property, animals and the environment itself. The word 'such a concentration' is important because if some substances are present at a very low level, then it may not be harmful or injurious. Usually, the value of this concentration above which it is harmful is given in guidelines and standards. These substances whose presence causes pollution is called an *environmental pollutant.*

According to the Indian Environmental Protection Act (EPA), 1986, environmental pollution is defined as the 'presence in the environment of any environmental pollutant' Environmental pollutant can be defined as a solid, liquid, or gaseous substance present in such concentration as may be, or tend to be, injurious to the environment

TYPES OF POLLUTION



2.2 AIR POLLUTION

Definition : *The presence of one or more contaminants such as dust, gas, odor, smoke, smog, or vapor in the outdoor atmosphere, in quantities, of characteristics and of duration so as to be injurious to human, plant, or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life and property is known as air pollution.*

Chapter Outline

CHAPTER 3 CARBON CYCLE

3.1 EXERCISE

IFoS 2021 : What is the role of forest plantations in *Carbon Sequestration*? (10 m)

- Discuss the role of forest for *carbon sequestration* [Odisha Civil (Main) 2015 | 20 Marks]

IFoS 2020 : Why is *carbon cycle important* ? How do human activities affect carbon cycle? (10 m).

IFoS 2018 : What is *carbon sink* ? How do forest soils act as important carbon sinks? (8 m).

IFoS 2015 : Why is *carbon recycling important* ? What are its influences on climate? Discuss your points for or against (10 m).

IFoS 2012 : Write short notes on - *Source-sink relationship* with respect to carbon cycle (5 m).

- Explain the role of *afforestation* in *carbon sequestration* [Odisha Forest Service (Mains) 2015 | 20 Marks]

3.2 CARBON CYCLE

Carbon is the foundation of all life on Earth, required to form complex molecules like proteins and DNA. This element is also found in our atmosphere in the form of carbon dioxide (CO_2). Carbon helps to regulate the Earth's temperature, makes all life possible, is a key ingredient in the food that sustains us, and provides a major source of energy to fuel our global economy.

The carbon cycle describes the *process in which carbon atoms continually travel from the atmosphere to the Earth and then back into the atmosphere*. Since our planet and its atmosphere form a closed environment, the amount of carbon in this system does not change.

On Earth, *most carbon is stored in rocks and sediments*, while the rest is located in the ocean, atmosphere, and in living organisms. These are the reservoirs, or sinks, through which carbon cycles. Carbon is released back into the atmosphere when organisms die, volcanoes erupt, fires blaze, fossil fuels are burned, and through a variety of other mechanisms. In the case of the ocean, carbon is continually exchanged between the ocean's surface waters and the atmosphere or is stored for long periods of time in the ocean depths.

IMPORTANCE OF CARBON CYCLE

- The carbon cycle is *vital to life on Earth*. Studying the movement of *carbon energy* helps us to understand the *working of forest ecosystems* and the factors that influence it.
- Carbon dioxide *traps the long-wave radiation* from the Earth, *causing temperatures to rise*. Understanding the absorption and release of carbon dioxide is crucial in comprehending climate dynamics and predicting global warming.

INDIAN FOREST SERVICE (IFOS) 2023

Ritvika Pandey

Forestry Comprehensive Course

Swastic Yaduvanshi

Forestry Comprehensive Course

Vidyanshu Shekhar Jha

Forestry Comprehensive Course + Test Series

Rohan Tiwari

Forestry Comprehensive Course

Shashank Bhardwaj

Forestry Comprehensive Course + Test Series

Ankan Bohra

Forestry Comprehensive Course

Prachi Gupta

Forestry Comprehensive Course

Raj Patoliya

Forestry Comprehensive Course + Test Series

Vineet Kumar

Forestry Comprehensive Course

Jatin Babu S

Forestry Comprehensive Course

Gaurav Saharan

Test Series

Yash Singhal

Forestry Comprehensive Course

Nitish Pratik

Forestry Comprehensive Course

Vaasanthi P.

Test Series

Sourabh Kumar Jat

Forestry Comprehensive Course

Ekam Singh

Forestry Comprehensive Course + Test Series

Kunal Mishra

Forestry Comprehensive Course

Atul Tiwari

Forestry Comprehensive Course

Aman Gupta

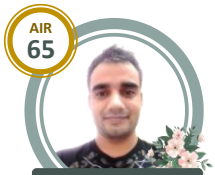
Forestry Comprehensive Course + Test Series

Sanket Adhao

Forestry Comprehensive Course

Preeti Yadav

Forestry Comprehensive Course



Nihal Chand

Forestry Comprehensive Course + Test Series

Shashikumar S. L.

Forestry Comprehensive Course

Dhino Purushothaman

Forestry Comprehensive Course

Diwakar Swaroop

Forestry Comprehensive Course

Rajesh Kumar

Forestry Comprehensive Course

Krishna Chaitanya

Forestry Comprehensive Course

Harveer Singh Jagarwar

Forestry Comprehensive Course

Akash Dhanaji Kadam

Forestry Comprehensive Course

Himanshu Dwivedi

Forestry Comprehensive Course

Sumit Dhayal

Forestry Comprehensive Course

Priyadarshini

Forestry Comprehensive Course + Test Series

64 Out of 147 Total Selections in

Indian Forest Service (IFoS) 2023

Congratulations

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Kanika Anabh

Forestry Comprehensive Course | Test Series

Anubhav Singh

Forestry Comprehensive Course

Sanskar Vijay

Forestry Comprehensive Course

Satya Prakash

Test Series

Chada Nikhil Reddy

Forestry Comprehensive Course

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