

UPSC PRELIMS

Prelims Sample Notes



One complete topic from each subject, exactly as it appears in the full notes.

Decodepedia

UPSC PRELIMS

Ancient History

Sample topic · The Vedic Age

Vedic Age

Rivers

- Indus : Sindhu
- Ghaggar : Drishadvati
- Sutlej : Shutudri
- Beas : Vipas
- Ravi : Parushni
- Chenab : Asikni
- Jhelum : Vitasa
- Ghaggar : Saraswati

Vedas

- 4 Vedas
 - i. Rigveda: Collection of 1028 hymns
 - ii. Samveda: Verses of Rigveda arranged in poetic form to facilitate singing
 - iii. Yajurveda: Hymns as well as rituals
 - iv. Atharveda: Magic Spells and Charms
- Each Veda is subdivided into 4 major sub texts:
 - i. Samhitas (Collection of Hymns or Mantras)
 - ii. Brahmanas (Rituals)
 - iii. Aranyakas (Rituals, Ceremonies, Sacrifices)
 - iv. Upanishads or Vedanta (Last part of Veda)

Vedic Age

Vedangas

- Shiksha: Phonetic Education
- Kalpa: Rituals
- Vyakrana: Grammar
- Nirukt: Etymology
- Chhanda: Metrics
- Jyotish: Astrology

Upaveda

- Ayurveda
- Dhanurveda
- Gandharvaveda
- Shilpveda

Rig Vedic Age (1500 to 1000 BCE)

Economy

- Most of Early Vedic Age people were pastoralists. Cattle Rearing was their main occupation.
- Gomat: Wealthy Person
- Duhitri: Daughter of Gomat
- Gaveshna: Battle for cows
- Gopati: Raja or Chief who protects the cows
- Godhuli: Term for a measure of time
- Gavyuti: Distance
- Gotra: Kinship Units

Society

- Leader of Grama: Gramini
- Group of Villages: Vis or Clan
- Group of vis or clan: Jana or Tribe

Polity

- Rajan: Chief of the unit
- Sabha: Meeting of Great men
- Samiti: Meeting of all free tribesmen
- Vidhata: Assembly
- Parishad: Sovereign General Assembly

Later Vedic Age (1000 to 600 BCE)

Economy

- Agriculture was widely practiced

Society

- General Decline in Status of women.
- Restrictions were placed on women.
- Varna System appeared

Some Important Terms

- Ayas: Bronze
- Yava: Barley
- Takshak: Carpenter
- Dhumvakrit: Maker of Bows
- Vrihi: Rice
- Hiranyakata: Goldsmith
- Bheesaj or Mishak: Doctor or Vaidya
- Pani: Traders

Vedic Age

PYQ Prelims Exam:

With reference to the difference between the culture of Rigvedic Aryans and Indus Valley people, which of the following statements is/are correct?

- (1) Rigvedic Aryans used the coat of mail and helmet in warfare whereas the people of Indus Valley Civilization did not leave any evidence of using them.
- (2) Rigvedic Aryans knew gold, silver and copper whereas Indus Valley people knew only copper and iron.
- (3) Rigvedic Aryans had domesticated the horse whereas there is no evidence of Indus Valley people having been aware of this animal.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Solution: Option C

Medieval History



Sample topic · The Vijayanagar Empire

Vijaynagar Empire

Introduction

- The Vijayanagar Kingdom and Bahmani Kingdoms were formed by the officers who rebelled against sultanate.
- Both arose when the control of sultanate became weak over the Deccan.
- By the early 16th century the Sultanate given away a series of kingdoms viz. Gujarat, Malwa, Jaunpur, Delhi and Bengal.
- In the Deccan and Peninsular India, the existing sultanate incursion had slackened, opening the way for new kingdoms to emerge.

Vijaynagar Empire

- Founded in 1336 AD- contemporary to Mohammad Bin Tughlaq
- Founded by Harhara & Bukka- officers under Kaktiyas (Warangal)
- Guided by Guru Vidyaranya
- Existed for over 3 centuries, ruling over large part of Southern India
- Named after capital city- Vijayanagar (Present day- Hampi in Karnataka)

Vijaynagar Empire

Vijaynagar Empire

- Vijayanagar was ruled by 4 major dynasties
 - a. Sangam Dynasty - Shaivaites
 - b. Saluva Dynasty - Vaishnavites
 - c. Tuluva- Dynasty - Vaishnavites
 - d. Aravidu Dynasty - Vaishnavites

Krishna Deva Raya

- Greatest ruler belonged to Tuluva Dynasty
- Defeated Bijapur Sultan and Gajapati kings of Orissa
- Good relationship with Portuguese
- Also known as Andra Bhoja
- Patronised 8 eminent poets and scholars (Astadiggaj)
- Tenalirama was a part of Astadiggaja
- Greatest of them was Peddana (Also known as Andhra Kavita Pitamah)

Vijaynagar Empire

Literature- Golden age of Telugu Literature

- Pedanna wrote:
 - a. Manucharitam (Telegu)
 - b. Harikatha saram (Telegu) Krishnadeva Raya wrote
 - c. Amukhamaldaya (Telegu)
 - d. Jambavti kalyanam (Sanskrit)

Administration

- Absolute Monarchy
- Provinces were called **Mandalam**- Mandaleshwara/nayaks
- Empire-->Mandalams-->Nadus-->Sthalas-->Grama
- Land tax was known as, '**Sist**' was 1/6th of the produce
- Gold Coin- **Varaha**
- Army was strong and well organised- constant war with Bahmani

Vijaynagar Empire

Nayak System- Top Grade Army Officers

- Also known as Poligars
- Granted land in Lieu of service- amaram
- Later when the kings became weak Nayaks took over rule in Madurai, Tanjore etc, in 17th and 18th century

Economy

- Many foreign travellers visited Vijayanagar and wrote good things like:
- Wealthy society
- Advance agriculture reforms - tanks, irrigation canal, dams across Tungabhadra
- Well-developed crafts and metallurgy
- Trade with Arabia, Persia, Portuguese, China etc, brought a lot of prosperity plus taxes for kingdom

Vijaynagar Empire

Foreign Traveller

- Ibn Batuta → Morocco
- Nicolo-de-Conti → Venice (Italy)
- Abdul Razzak → Persia
- Barossa → Portugal
- Domingos Paes → Portugal
- Nuniz → Portugal

Cultural Contributions

- Popularized vernacular languages like Telegu, Kannada, Tamil and Sanskrit
- Vijayanagar Style of Temple architecture have features like: tall Gopurams, kalyanmandapam with large number of pillars
- Varadhraja & Ekambaranathar temple at Kanchipuram
- Elephant chariot at Vithala temple - Hampi
- The Vijayanagar capital was destroyed after Battle of Talikota ,1565
- Although the capital was abandoned and Vijayanagar empire lost all its power and glory but the kingdom continued to exist till 1670s

Modern History



Sample topic · Anglo-Mysore Wars

Anglo-Mysore Wars

1st Anglo-Mysore War (1767-69)

- Causes-
 - i. Haider Ali wanted to expel British from South India
 - ii. EIC wanted to expand its territory from Carnatic to Mysore.
- Events-
 - i. EIC made triple alliance- EIC + Nizam + Marathas and attacked Mysore.
 - ii. The war went on for 18 months.
 - iii. One night, suddenly, Haider Ali marched up on Madras and forced the English in a humiliating treaty.
- Result-
 - i. Mysore won.
 - ii. Treaty of Madras - Defensive alliance.
 - Between Mysore & English. Each one had to come to defend others in time of war.

Anglo-Mysore Wars

2nd Anglo-Mysore War (1780-84)

- Causes-

- i. 1771: Marathas attacked Mysore, but EIC didn't come to help according to Treaty of Madras
- ii. 1780: EIC captured Mahe, a French port vital to Haider Ali
- iii. American war of Independence (Patriots + French vs. Britishers)

- Events-

- i. Haider Ali formed an alliance with Marathas and Nizam, but they left him soon (British diplomacy)
- ii. Then, Haider Ali captured Arcot, but was later defeated by Sir Eyre Coote.
- iii. 1782: Haider Ali died due to Cancer
- iv. Then, Tipu Sultan carried on struggle with French assistance

- Result-

- i. Treaty of Mangalore, 1784, which brought an end to second Anglo-Mysore war.
- ii. Stalemate (psychological defeat for English as Tipu dictated terms of Treaty)

Anglo-Mysore Wars

3rd Anglo-Mysore War (1790-92)

- Causes-
 - i. Tipu strengthened his army, brought reforms
 - ii. Sought help from France against English
 - iii. He pre-emptively attacked Travancore, an English ally, sparking the war
- Events-
 - i. Cornwallis, then Governor General, attacked and defeated Tipu in Travancore
 - ii. Triple alliance - English + Maratha + Nizam, attacked Tipu at his capital, Srirangapatnam.
- Treaty of Srirangapatnam-
 - i. Half of the territories of Tipu were snatched away and divided among Marathas, Nizam and English.
 - ii. The Raja of Coorg got independence from Tipu
 - iii. War indemnity of 3 crore rupees
 - iv. 2 sons on Tipu was taken as hostages by
 - Cornwallis to ensure 3 crores were paid in regular instalments.

Anglo-Mysore Wars

4th Anglo-Mysore War (1799)

- Causes-

- i. Tipu tried to set alliance with Arab, Turks, and Afghanistan to defeat the British but failed.
- ii. He started a **Jacobin club** with planting a tree of liberty - this made Britishers cautious if French revolution spreads to India.
- iii. Tipu got a letter of friendship from **Napoleon Bonaparte** (he was in Egypt that time - planning to come to India). Napoleon was most famous army general at that time, never lost any battle.
- iv. Richard Wellesley, then General Governor (1798- 1805), asked Tipu to join Subsidiary alliance, but he declined. Because, he knew it was nothing but slavery.

- Events-

- i. Wellesley allied with Nizam to attack Mysore
- ii. Tipu died fighting at Srirangapatnam

Anglo-Mysore Wars

4th Anglo-Mysore War (1799)

- Result-
 - i. British and Nizam divided parts of his empire
 - ii. Tipu's family was sent to Vellore
 - Later, Tipu's son instigated the **Vellore Mutiny** in 1806, the first ever large-scale Sepoy mutiny under company rule
 - iii. 5-year-old boy, **Krishanraja III** from Wodeyar kingdom, was made king
 - iv. Mysore accepted subsidiary alliance.

Some Facts about Tipu Sultan

- Wrote a military manual - **Fathul Mujhahidin**
- Manufactured rockets, artillery and firearms
- Used Frenchmen to train his army according to European standard
- Introduced new weights and measures
- Set up a '**Jacobin club**' and planted '**Tree of Liberty**' at his capital
- Capital- Srirangapatnam, on the Kaveri river

UPSC PRELIMS

Art & Culture



Sample topic · Sufism

Sufism

Introduction

- The word 'Sufi' derives its name from another Arabic word 'Suf' which means wool. The Muslim saints who wore garments of coarse wool began to be called Sufi saints.
- Sufism entered India in the 12th century with Muslim invaders and became popular in the 13th century.
- The Sufi's main theme was Wahadut-ul-Wajud (Unity of God).
- It developed first in Iraq. The first Sufi saint was Begum Rabia of Bashera in Iraq.
- Sufi orders were called as Silsilas
- Maximum number of orders were found in Afghanistan

Salient features related to Sufism

- Sufis were a group of religious-minded people who turned to asceticism and mysticism in protest against the growing materialism of the Caliphate as a religious and political institution.
- Sufism derives its inspiration from Islam.
- These Sufis had a deep study of vedantic philosophy and had come in contact with great sages and seers of India.

Sufism

- Sufism emphasized upon leading a simple life. Sufi saints preached in Arabic, Persian and Urdu etc.
- The Sufis were divided into 12 orders each under a mystic Sufi saint like Khwaja Moinuddin Chisthi, Fariuddin Ganj-i-Shakar, Nizam-ud-din Auliya etc.
- While the orthodox Muslims depend upon external conduct and blind observance of religious rituals, the Sufi saints seek inner purity.
- They were critical of the dogmatic definitions and scholastic methods of interpreting the Qur'an and Sunna (traditions of the Prophet) adopted by theologians.
- Instead, they laid emphasis on seeking salvation through intense devotion and love for God by following His commands, and by following the example of the Prophet Muhammad whom they regarded as a perfect human being.
- The Sufis thus sought an interpretation of the Qur'an on the basis of their personal experience
- Devotion is more important than fast (Roza) or prayer (Namaz).
- Sufis bridged the communal divide as is evidenced by the reverence the Subcontinent's non-Muslim population exhibited for Sufi saints. Sufism around the world and in the Subcontinent had the depth to connect beyond caste, creed and gender

Sufism

Liberal outlook associated with Sufism

- It does not believe narrow societal classification such as caste
- They awakened a new sense of confidence and attempted to redefine social and religious values.
- Their stress on social welfare led to the establishment of works of charitable nature, opening of orphanages and women service centres.
- A notable contribution of the Sufis was their service to the poorer and downtrodden sections of society. Nizamuddin Auliya was famous for distributing gifts amongst the needy irrespective of religion or caste.
- At a time when struggle for political power was the prevailing madness, the Sufi saints reminded men of their moral obligations. To a world torn by strife and conflict they tried to bring peace and harmony.
- Other ideas emphasized by Sufism are meditation, good actions, repentance for sins, performance of prayers and pilgrimages, fasting, charity and suppression of passions by ascetic practices.

Sufism

Some of the important Sufi orders are:

Chisti

- It was founded by Sheikh Abdul Chisti
- It was introduced in India by Sheikh Moinuddin Chisti. His Dargah is at Ajmer
- Qutubuddin Bakhtiar Kaki was the chief disciple of Moinuddin.
- Iltutmush dedicated Qutub Minar to Bakhtiar Kaki
- Sheikh Nizamuddin was the most popular Sufi saint in India. Amir Khusro, the greatest musician and literary giant was also the disciple of Sheikh Nizamuddin.
- A system called Nadasampradaya was followed which meant burying disciples near as one family
- Sheikh Salim Chisti was the last great saint of this order. He was held in great respect by Akbar.
- Qamkhana were hermitages of Chisti saints outside the city

Suhrawardi

- It was founded by Shihabuddin Shuhrawardi
- It was introduced in India by Bhauddin
- It was the richest order and very soon became unpopular

Sufism

Firadausia

- It was the only Sufi order which was founded and developed within India
- It was founded by Sharafuddin, it was confined to Bihar
- He composed Maqtubat and Mulfazat literature
- The above dealt with the lives and teachings of Sufi saints

Qadri

- It was the most secular Sufi silsila
- It was founded by Sheikh Jilani Qadri
- Dara Shikoh, son of Shah Jahan followed this order
- Naqshbandi
- It was founded by Sheikh Biqabullah
- It was introduced into India by Sheikh Pirsai
- Sheikh Niyamtulla was the greatest scholar of this school
- It was the most conservative of the orders.
Aurangzeb followed this order
- By educating the masses and deepening the spiritual concerns of the Muslims, Sufism has played an important role in the formation of Indian society

Polity & Governance



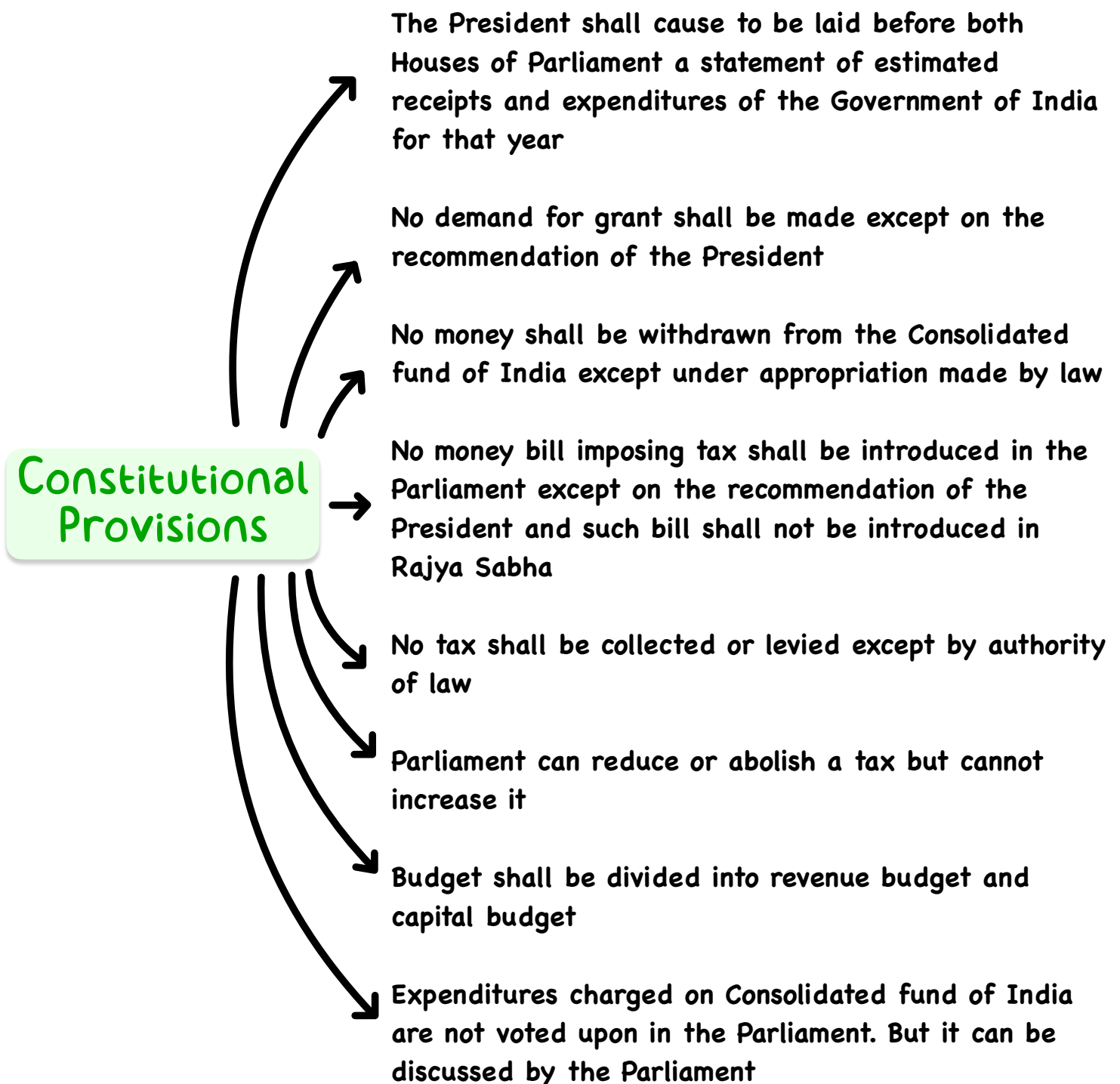
Sample topic · Budget in Parliament

Budget in Parliament

The Constitution refers the budget as 'Annual Financial Statement' under Article 112.
In other words, the term budget is nowhere used in the Constitution

The Budget is a statement of estimated receipts and expenditures of the Government of India in a financial year which begins on April 1 and ends on March 31

In case the annual Union Budget is not passed by the Lok Sabha, no confidence motion is deemed to have been passed and the Prime Minister submits the resignation of Council of Ministers



Charged Expenditures

(Charged Expenditure is non votable by the Parliament; It can only be discussed in the Parliament)

Emoluments and allowances of the President and other expenditure relating to his office

Salaries and Allowances of Chairman, Deputy Chairman, Speaker, Deputy Speaker

Salaries, allowances and pensions of judges of Supreme Court

Pensions of judges of high courts

Salary, allowances and pension of CAG

Salaries, allowances and pension of chairman and members of UPSC

Administrative expenses of office of:

- CAG
- Supreme Court
- UPSC

Debt charges for which Government of India is liable including interest, sinking fund charges and redemption charges and other expenditure relating to raising of loans and the service and redemption of debt

Any sum required to satisfy any judgement, decree or award of any court or arbitrary tribunal

Any other expenditure declared by the Parliament to be so charged

Stages in Enactment of Budget

Stage I: Presentation of Budget

The budget is presented by the Finance Minister on 1st February every year in Lok Sabha with a budget speech. At the end of the speech, the budget is laid before Rajya Sabha which can discuss it but has no power to vote on demand for grants. The budget documents comprise the following:

- Budget Speech
- Annual Financial Statement
- Demand for Grants
- Appropriation Bill
- Finance Bill
- Statements mandated under FRBM Act:
 - a. Macro Economic Framework Statement
 - b. Fiscal Policy Strategy Statement
 - c. Medium Term Fiscal Policy Statement
- Expenditure Budget
- Receipts Budget
- Expenditure Profile
- Memorandum explaining the Provisions in Finance Bill
- Budget at a Glance
- Outcome Budget

Stage II: General Discussion

It begins a few days after the presentation of budget. It takes place in both the Houses of Parliament and lasts usually for 3-4 days

Stage III: Scrutiny by Departmental Committees

After the General discussion is over, the House is adjourned for 3-4 weeks. During this time, 24 departmental standing committees of Parliament examine the demand for grants and prepares report on them which is submitted to both the Houses for consideration

Stage IV: Voting on Demand for Grants

In the light of reports of standing committees, Lok Sabha takes up voting of demand for grants. A demand becomes a grant after it has been duly voted. It should be noted that voting of demand for grants is the exclusive privilege of Lok Sabha and voting is confined to votable part of the budget

During this stage, MPs can also move motions to reduce any demand for grant. Such motions are called cut motions which are of 3 kinds:

- **Policy Cut Motion:** It states that amount of demand be reduced to Rs 1 and It represents disapproval of the policy underlying the demand
- **Economy Cut Motion:** It states that demand be reduced by a specified amount to ensure economy in expenditure
- **Token Cut Motion:** It states that amount of demand be reduced by Rs 100

Stage V: Appropriation Bill

- Appropriation Bill authorises withdrawal of funds from Consolidated fund of India for Grants voted by Lok Sabha and Expenditure charged on Consolidated Fund of India
- No amendments allowed at this stage
- After Presidential assent, the bill becomes an Act
- This process takes time and usually goes on till the end of April. But the government needs to carry out its normal activities which requires use of funds
- To overcome this functionality, Constitution has authorised the Lok Sabha to make any grant in advance in respect to the estimated expenditure for the month of April and May pending the enactment of appropriation bill. This provision is known as vote on account. It is generally granted for 2 months for an amount equivalent to 1/6th of the total estimation

Stage VI: Passing of Finance Bill

- **Finance Bill:** Implements government financial proposals for the next year, treated as a Money Bill
- **Amendments allowed:** Can reject or reduce taxes
- **Provisional Collection of Taxes Act, 1931:** Finance Bill must be passed within 75 days
- **Finance Act:** Legalises government income side of the budget completing budget enactment

Other Grants

The provisions of Grants available in Constitution can be used by both regular as well as a caretaker government and it only deals with the expenditure in the Government's budget and not the receipts

Supplementary Grant

It is granted when the amount appropriated for an existing service in the budget is found to be insufficient for that year

Additional Grant

It is granted when additional expenditure is required for some new service not contemplated in the budget for that year

Excess Grant

It is granted when the money has been spent on any service during a financial year in excess of the amount originally granted. It is voted by Lok Sabha after the financial year

Votes on Account

The process of passing Appropriation Bill takes time usually till April 30. Till such period, the expenses of the government can be made through Votes on account. It is generally granted for 2 months.

Exceptional Grant

It is granted for a special purpose and forms no part of the current service of any financial year

Token Grant

It is granted when funds to meet the proposed expenditure on a new service can be made available by reappropriation. A demand for grant of a token sum is submitted to the vote of Lok Sabha and if assented, funds are made available. Reappropriation involves transfer of funds from one head to another. It does not involve any additional expenditure

Vote of Credit

It is granted for meeting an unexpected demand upon resources of India when on account of the magnitude or the indefinite character of the service, the demand cannot be stated with the details ordinarily given in a budget. It is like a blank check given by Lok Sabha to the Executive

FUNDs

```
graph TD; A[FUNDs] --> B[Consolidated Fund of India (Article 266)]; A --> C[Public Account of India (Article 266)]; A --> D[Contingency Fund of India (Article 267)];
```

Consolidated Fund of India (Article 266)

Consolidated Fund of India

- It is the primary account for all government receipts and expenses
- **Sources of Funds:** All revenues received by Government of India; Loans raised via treasury bills, bonds or other means; Repayment of loans given by the government
- **Usage:** All legally authorised government expenditures are made from this fund
- No money can be withdrawn without parliamentary approval

Public Account of India (Article 266)

Public Account of India

- It holds funds other than those in the Consolidated Fund of India
- **Sources of Funds:** Provident Fund deposits; Judicial deposits; Saving bank deposits; Departmental deposits; Remittances, etc.
- **Usage:** Operated by executive action, primarily for banking transactions
- Payments from this account do not require parliamentary approval

Contingency Fund of India

- Constitution authorises the Parliament to establish a Contingency Fund of India for unforeseen expenditures
- Accordingly, Parliament enacted the **Contingency Fund of India Act, 1950**
- This fund is placed at the **disposal of the President** and he can make advances out of it to meet unforeseen expenditure pending its authorisation by the Parliament under Article 115 or 116
- Like Public account of India, it is also **operated by executive action**

Economy



Sample topic · Monetary Policy

Money

Q. The money multiplier in an economy increases with which one of the following?

- a) Increase in the cash reserve ratio
- b) Increase in the banking habit of the population
- c) Increase in the statutory liquidity ratio
- d) Increase in the population of the country

Monetary Policy Of RBI

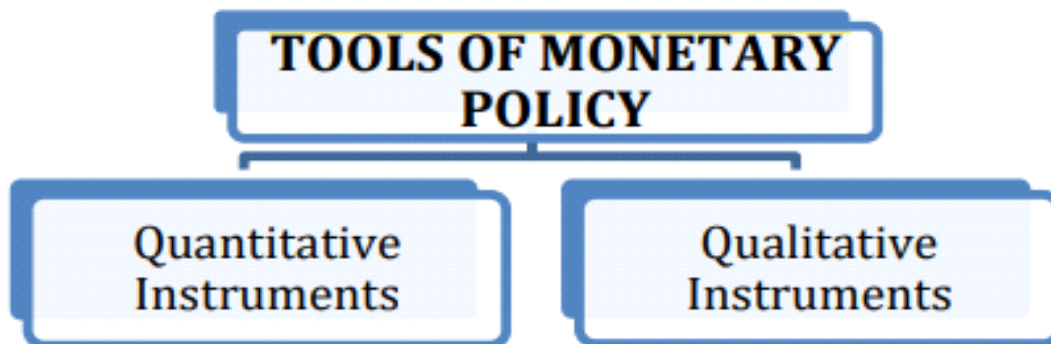
- Monetary policy refers to all those operations, which are used to control the money supply in the economy.
- The RBI implements the monetary policy through instruments like open market operations, bank rate policy, CRR, SLR, reserve system, credit control policy, moral suasion etc.

Objective of Monetary Policy

- To maintain economic and financial stability - by targeting healthy inflation range.
- To ensure adequate financial resources for the purpose of development
- Ensuring price stability in market by maintaining optimum inflation level.
- Adequate flow of credit to productive sectors.

Money

- Promotion of productive investments & trade by ensuring conducive monetary policy, E.g. by credit rationing tool.
- Promotion of exports and economic growth - by providing timely credit and favourable monetary stimulus through various monetary policy tools.



Quantitative Instruments	Basis	Qualitative Instruments
These are the instruments of monetary policy that affect overall supply of money/credit in the economy.	Meaning	These instruments are used to regulate the direction of credit.
Traditional methods of control	Alternative Name	Selective methods of control
(i) Bank rate (ii) Repo Rate (iii) Reverse Repo Rate (iv) Open market operation (v) Cash reserve ratio (vi) Statutory liquidity ratio	Instruments	(i) Marginal requirement (ii) Moral suasion (iii) Selective credit control

Money

Monetary Policy Committee (MPC)

- Monetary policy refers to the credit control measures adopted by the central bank of a country. RBI is the sole monetary authority which decides the supply of money in the economy.
- MPC is a statutory body created under Monetary Policy Framework Agreement 2015 between the RBI and Government in 2016.
- MPC is entrusted with the responsibility of fixing the benchmark repo rate (policy rate) required to contain inflation as defined in the Monetary Policy Framework Agreement.
- The meetings of the MPC are held at least 4 times a year and it publishes its decisions after each such meeting.
- MPC is 6-member body including 3 members from RBI and 3 members to be nominated by the Central Government.
- Chairperson of MPC - RBI Governor
- Quorum for meeting - 4 members
- Decisions are taken by majority with the Governor having the casting vote in case of a tie.
- To ensure transparency - Govt can send message only in writing.

Money

Inflation Targeting

- It is a monetary policy where a central bank follows an explicit target for the inflation rate for the medium-term and announces this inflation target to the public.
- The Government of India has notified a medium term inflation target of 4 %, with a band of $\pm 2\%$.
- If Target fail: If inflation not kept in 4% $\pm 2\%$ zone for 3 consecutive quarters then the Committee must send report to Govt. with reasons and remedies.

Objective of MPC

- **Price Stability** for promoting economic development through ensuring optimum inflation level which will drive economic growth in long run.
- **Controlled Expansion of Bank Credit** with special attention to seasonal requirement (E.g. for agricultural purposes) for credit without affecting the output.
- **Promotion of Fixed Investment** to increase the productivity of investment by restraining nonessential fixed investment.

Money

- **Promotion of Exports and Food Procurement Operations** by paying special attention in order to boost exports and facilitate the trade. It is an independent objective of monetary policy.
- **Desired Distribution of Credit:** Monetary policy decides over the specified percentage of credit that is to be allocated to priority sector and small borrowers.
- **Equitable Distribution of Credit** to all sectors of the economy and all social and economic class of people.
- **To promote economic efficiency** in the financial system and tries to incorporate structural changes such as deregulating interest rates, ease operational constraints in the credit delivery system, to introduce new money market instruments etc.
- **Reducing the Rigidity** and encouraging more competitive environment and diversification.

Environment



Sample topic · Mangroves & Coral Reefs

Mangroves

A mangrove is a shrub or small tree that grows in coastal saline or brackish water. The term is also used for tropical coastal vegetation consisting of such species.

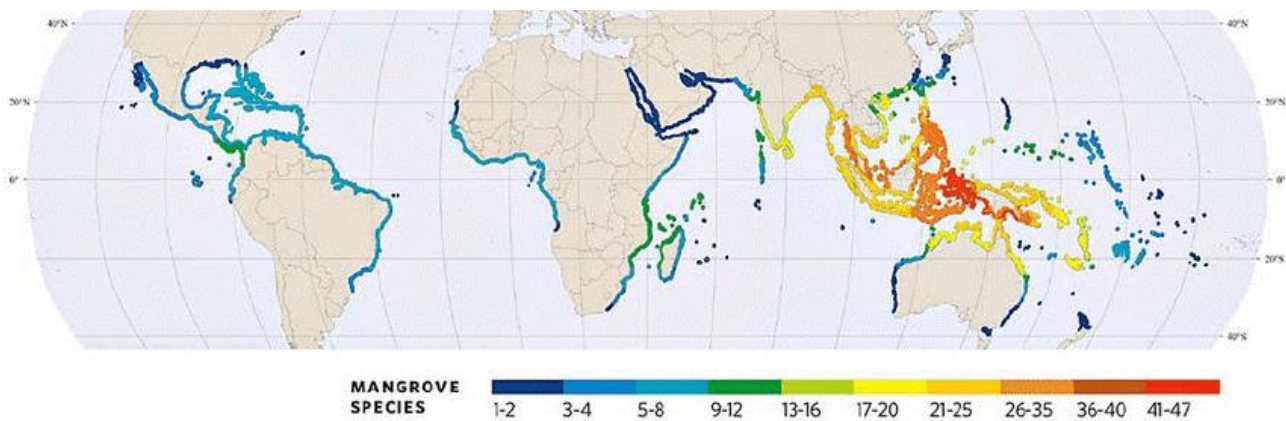
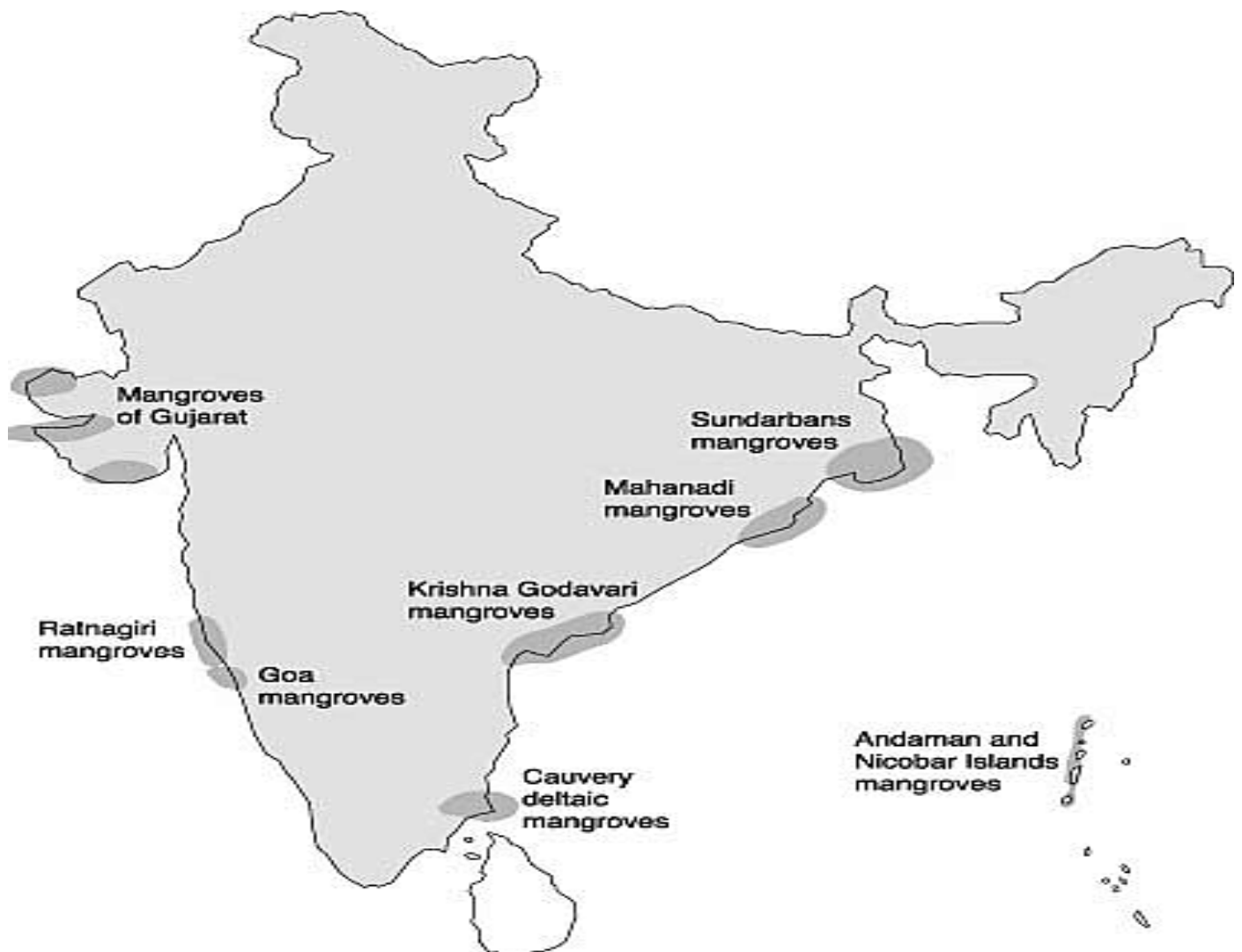
Mangroves are salt-resistant and heat-resistant plant groups found in tropical and subtropical intertidal zones around the world.

Mangroves are key habitats for coastal biodiversity. Many marine species, including shrimp, crabs, and fish, use mangroves as nursery habitat.

Characteristics of Mangroves

- Mangroves are part of the Littoral Forest ecosystem.
- Mangroves are found primarily between the latitudes of 25° N and 25° S in the tropics and subtropics all over the world.
- Mangroves have a complicated salt filtering system and a complex root system.
- Mangrove forest trees typically grow to be 8-20 meters tall.
- Mangroves have special roots called breathing roots or pneumatophores that collect oxygen from the atmosphere.
- Because the oxygen content in the soil is low in the mangrove habitat, the root system absorbs oxygen from the atmosphere.
- Mangroves survive in hostile conditions such as excessive salt, muddy water, low oxygen levels, high temperature and high water tides
- Mangrove Forest have viviparity mode of reproduction meaning tree seeds germinate within the tree before falling.
- Mangroves are highly productive ecosystems. They are usually evergreen woods that thrive in tropical and subtropical climate, sheltered low lying beaches, estuaries, mudflats, tidal creeks, backwaters, marshes, and lagoons.
- *Avicennia officinalis*, *Rhizophora mucronata*, *Sonneratia alba*, *Avicennia alba*, *Bruguiera cylindrica*, *Heritiera littoralis*, *Phoenix paludosa*, and *Morinda citrifolia* are all important species of mangrove forest in India.

Mangroves



Mangroves

Mangroves for Future Initiative

It is a unique partner led initiative for promoting investment in coastal ecosystem. It is led by IUCN and UNDP. It was launched in 2006 after Indian Ocean Tsunami. Its objective is conservation, restoration and sustainable management of coastal ecosystem as a natural infrastructure.

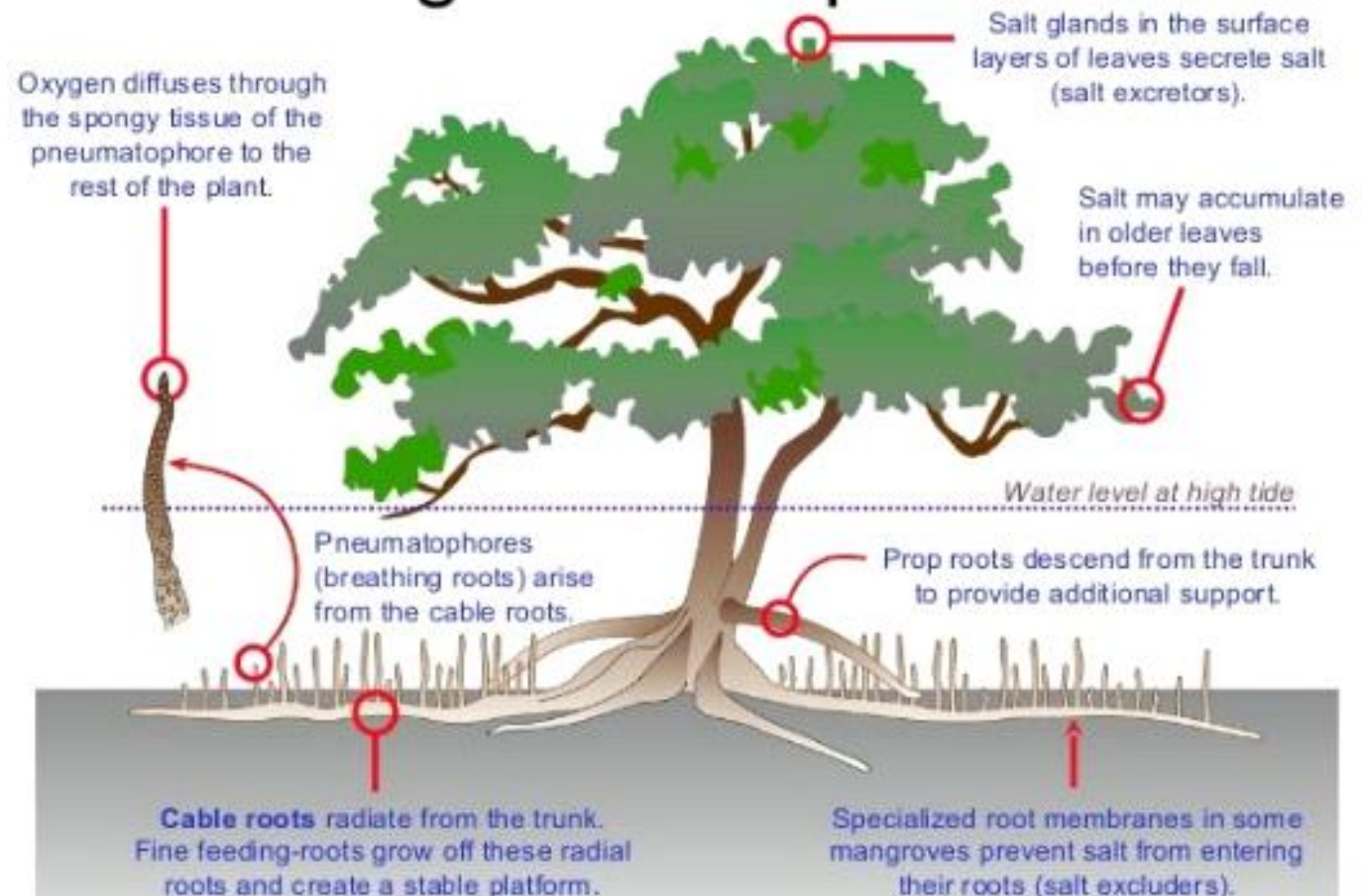
CRZ Rules

They also aim at protecting the coastal ecosystem.

Some Facts:

1. As per Indian State of Forest Cover Report 2021, mangrove cover in the country has increased by 17 sq km.
2. Maximum Increase in mangrove cover is observed in Odisha (8 sq km) followed by Maharashtra (4 sq km) and then Karnataka (3 sq km)

Mangrove Adaptations



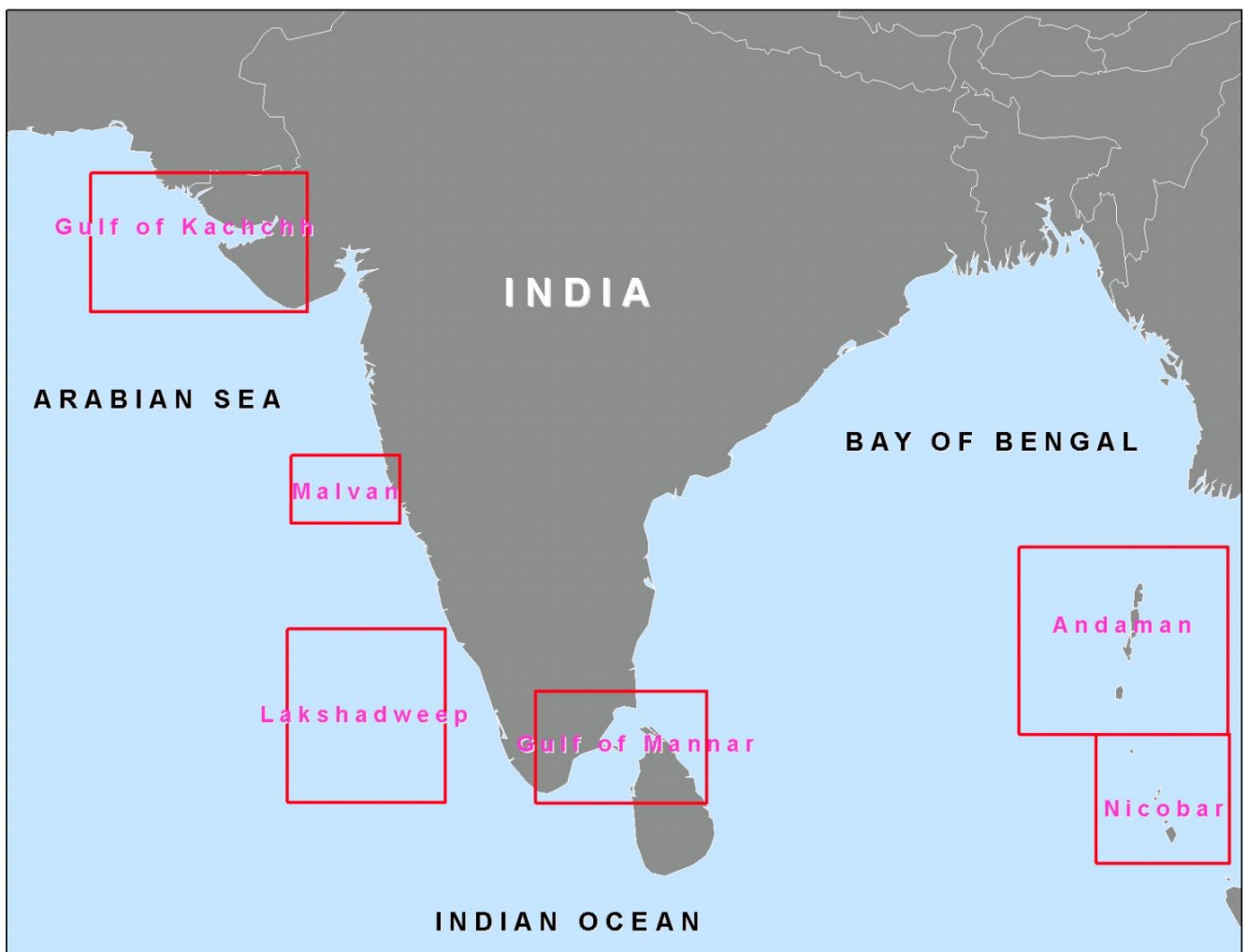
Corals

They are the most **biologically diverse ecosystems** of the planet. They are formed when Coral polyps, the animals primarily responsible for building reefs, develop a **symbiotic relationship** with photosynthetic algae called zooxanthellae, which live in its tissues.

The coral provides a protected environment and the compounds zooxanthellae needs for photosynthesis. In return, the algae produce carbohydrates that the coral uses for food, as well as oxygen. The algae also help the coral remove waste.

Favourable Conditions for Formation

- Warm tropical oceans with minimum temperature of 20 degree (30 degree north and 25 degree south latitudes)
- Oceanic water free of sedimentation.
- Transparent parts of ocean bodies.
- Relatively low salinity ocean bodies



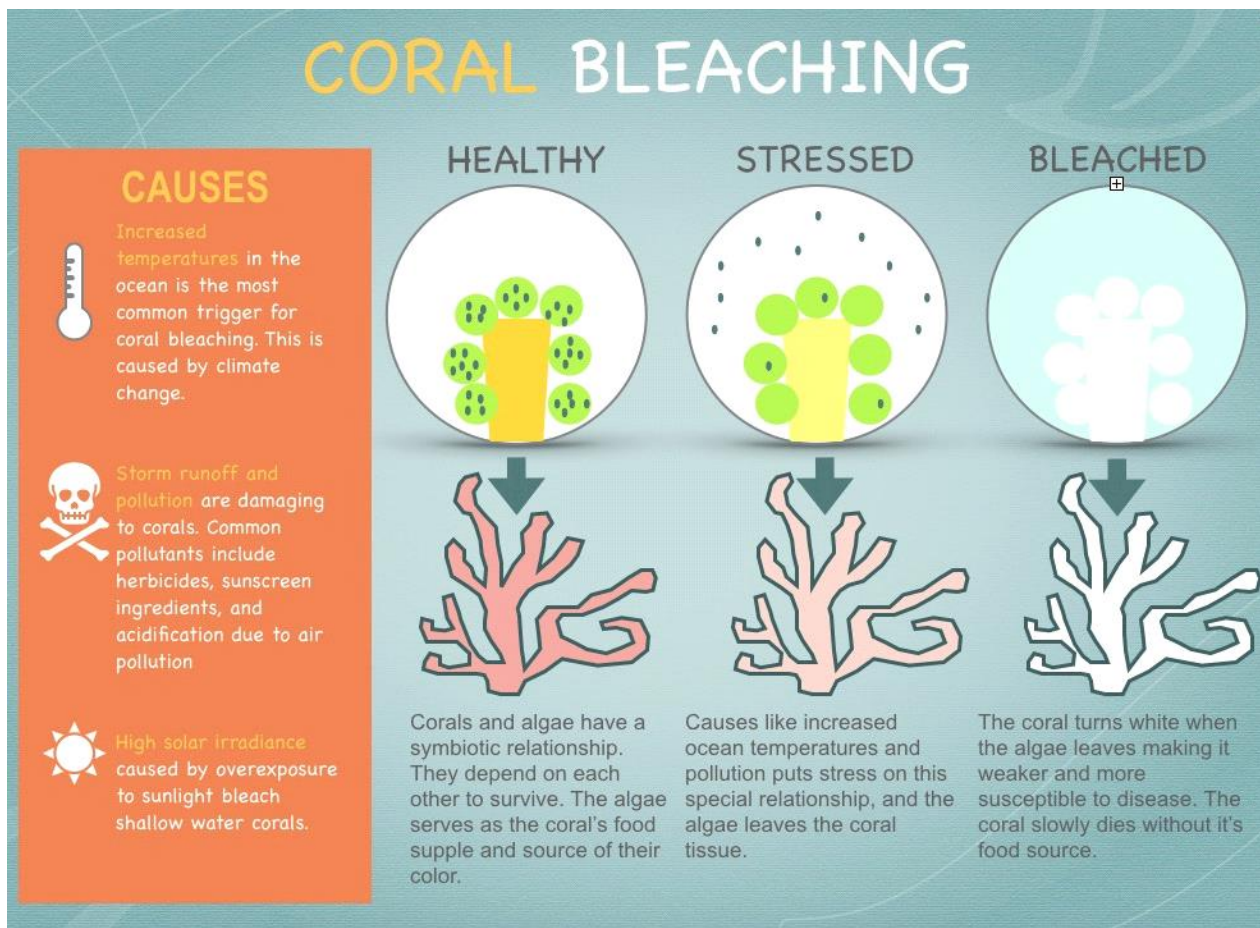
Corals

Threats to Coral Reefs

- Ocean Acidification
- Sea Level Rise
- Global Warming
- Destruction of Habitats
- Pollution
- Overfishing
- Cyclones
- Invasive Species
- Diseases like White band disease, Yellow band diseases, etc.

Coral Reefs Protection

- Global Fund for Coral Reef Protection- \$500 million
- CRZ Rules
- Marine Protected Areas
- Global Coral Reef Monitoring Framework
- Biorock Technology for coral reef restoration



UPSC PRELIMS

Geography

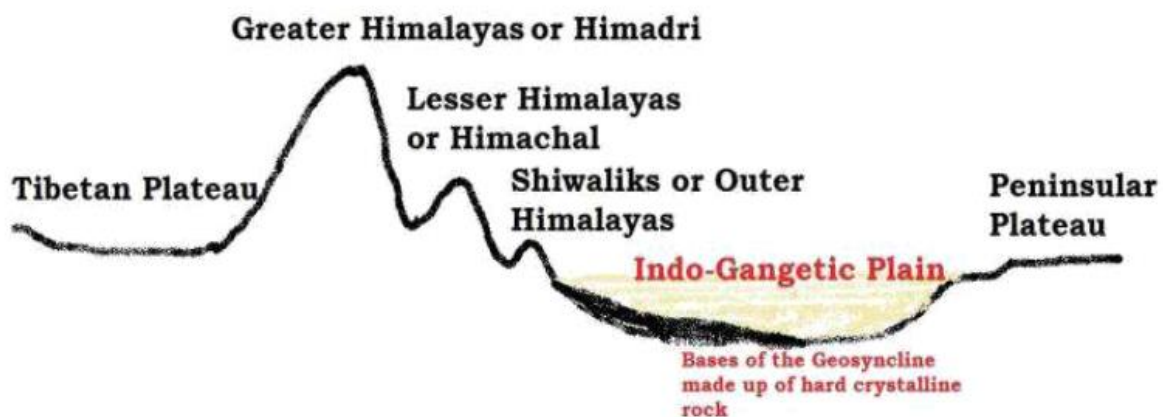
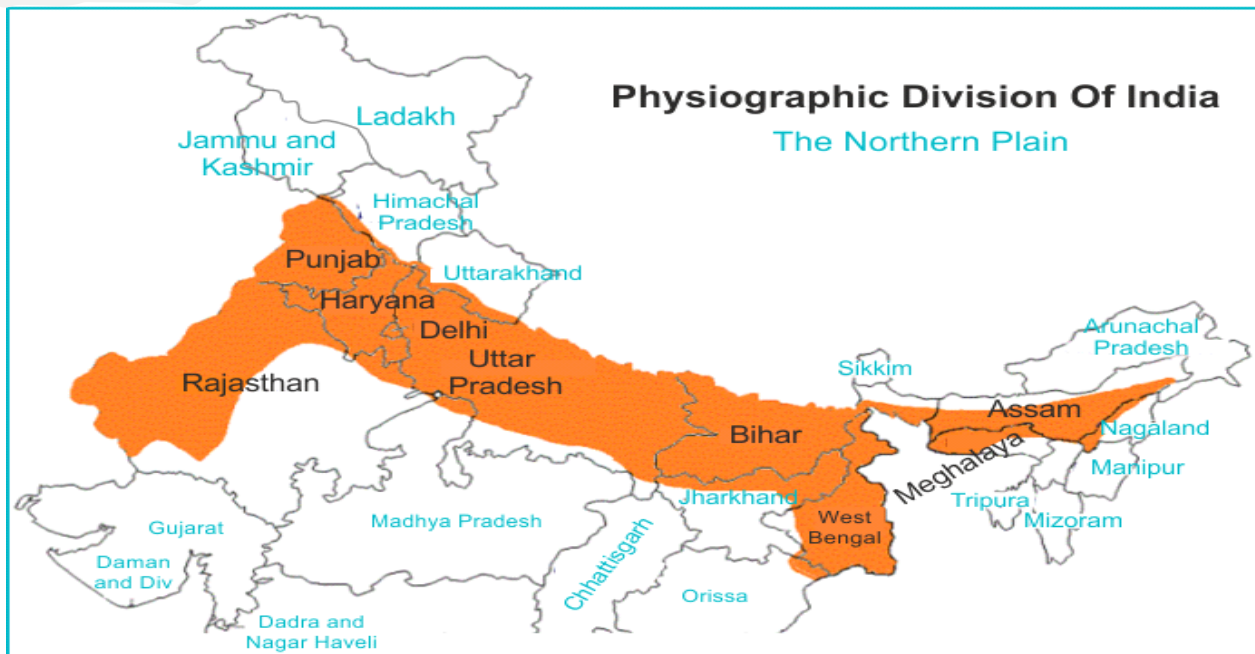


Sample topic · The Northern Plains

Northern Plains

The great Northern Plains of India are an **aggradation surface** of extraordinary degree formed after the Himalayas.

They are relatively of recent origin and are accepted to have formed by the filling up of a depression resulting from the elevation of the Himalayas, by **deposition of silt** brought by swift-flowing Himalayan rivers, started in Himalayas.



Elevation of the major physiographic divisions of India

Northern Plains

Development of Northern Plains

The formation of the Indo-Gangetic plain is firmly identified with the the formation of Himalayas.

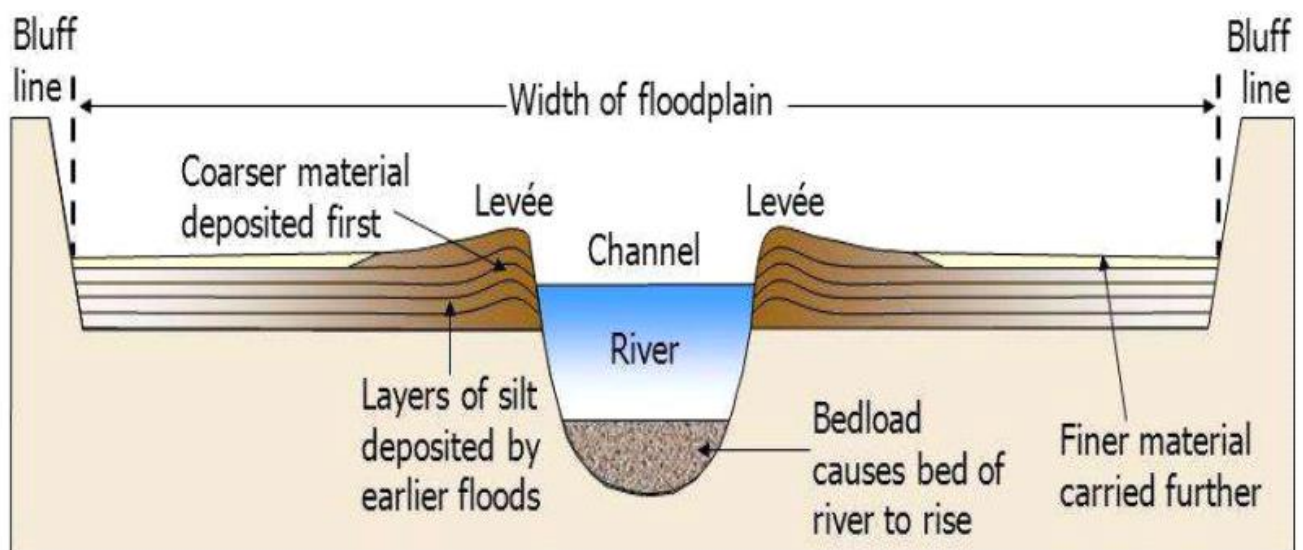
- Due to the uplift of the Himalayas in the Tethys Sea, the northern part of the Indian Peninsula got subsided and formed an enormous basin.
- That basin was loaded up with sediments from the rivers which originated from the mountains in the north and from the peninsula in the south.
- During recent times (since a few million years), depositional work of three major rivers viz., the Indus, the Ganga and the Brahmaputra have become transcendent.
- Consequently, this plain is also known as Indo Gangetic-Brahmaputra Plain

Highlights of Northern Plains

- The northern plain of India is shaped by three river systems, i.e. the Indus, the Ganga and the Brahmaputra; alongside their tributaries.
- Northern Plains are the biggest alluvial tract of the world.
- It extends for around 3,200 km from the mouth of the Indus to the mouth of the Ganga.
- The average width of these plains shifts in the range of 150 and 300 km. In general, the width of the northern plains increments from east to west (90-100km in Assam to about 500km in Punjab).
- The northern boundary is well marked by the Shiwaliks and the southern boundary is a wavy spotadic line along the northern edge of Peninsular India
- The western fringe is set apart by Sulaiman and Kirthar ranges.
- The thickness of the alluvium deposits also varies from place to place.
- The maximum depth of the alluvium up to the basement rocks is about 6,100m

Northern Plains

- Extreme horizontality of this tedious plain is its main feature
- Its normal elevation is about 200 m above mean sea level.
- The dreariness of the physical landscape is broken by the river bluffs, levees etc.
 - **Floodplain:** That part of a river valley, contiguous to the channel, over which a stream flows in times of a flood.
 - **Levee:** A raised bank flanking the channel of the river and remaining above the level of the flood plain.
 - **Bluff:** A river cut cliff or steep slant on the outside of a meander. A line of bluffs often denotes the edge of a previous floodplain.



Physiographic Division of Northern Plain

The Great North Indian plain is divided into following subdivisions on the basis of relief features:

- Bhabar Plains
- Tarai Tract
- Bhangar
- Khadar
- Delta Plains

Northern Plains

Bhabhar Belt

- It is a narrow, permeable, northernmost stretch of Indo-Gangetic plain
- It is around 8-16 km wide running in an east-west direction along the lower regions (alluvial fans) of the Shiwaliks
- They show a striking continuity from the Indus to the Teesta river
- Rivers descending from the Himalayas deposit their load along the lower regions in the form of alluvial fans
- These alluvial pebbly soils have combined to develop the bhabar belt
- The streams vanish once they come to the bhabar region in light of this porosity
- Subsequently, the region is set apart by dry river courses except in the rainy season
- The Bhabar belt is nearly limited in the east and broad in the west

Terai Belt

- Terai is an ill-drained, moist (damp) and thickly forested narrow tract to the south of Bhabar running parallel to it
- The Terai is around 15-30 km in width
- The underground streams of the Bhabar belt reappear in this belt.
- The Terai is more set apart in the eastern part than in the west on the grounds that the eastern parts get comparatively higher measure of precipitation
- The terai soils are silty and rich in nitrogen and organic matter but are inadequate in phosphate

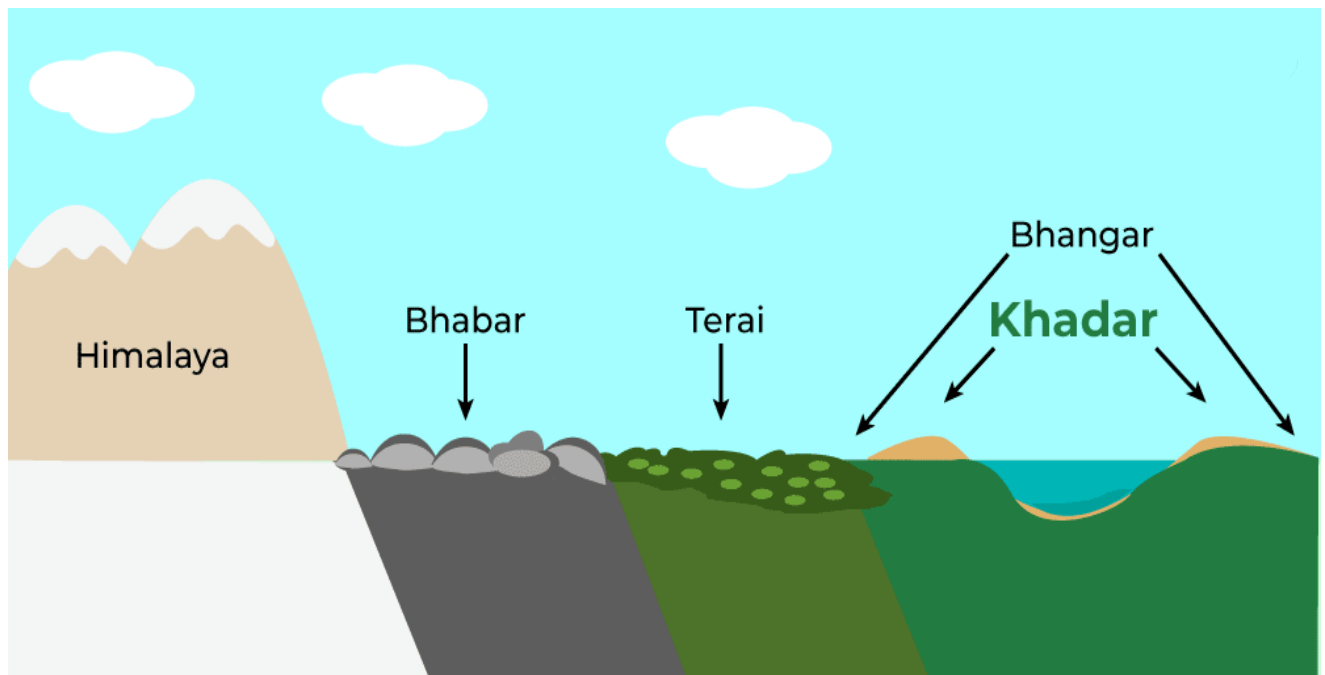
Bhangar Belt

- The Bhangar is the older alluvium along the river beds forming terraces higher than the floodplain
- The terraces are regularly impregnated with calcareous solidifications (beds of lime nodules) known as 'Kankar'
- Bhangar contains fossils of creatures like rhinoceros, hippopotamus, elephants and so forth.
- The soil is of an increasingly clayey sythesis and is generally dark coloured.

Northern Plains

Khadar Belt

- The Khadar is made out of **newer alluvium** and forms the floodplains along the river banks.
- A new layer of alluvium is deposited by river flood every year
- This makes them the **most fertile soils of Ganges Plains**
- They are **sandy clays and loams**, drier and more leached and less calcareous.



Science & Tech



Sample topic · Nuclear Reactors & India's Nuclear Programme

Nuclear Technology

Components of Nuclear Reactor

1. Core

- It is the main area where the fission reaction takes place.
- It contains the fuel rods and control systems. Fuel rods are made up of Zirconium metal.

2. Coolant

- This is the material which pass through the core and captures the heat and transfers it to turbine.
- Important Coolants:
 - i. Water (H₂O)
 - ii. Heavy Water (D₂O)
 - iii. Liquid Sodium
 - iv. Helium

3. Moderator

- It slows down the speed of neutrons to a level appropriate to cause the fission of uranium atom.
- It increases the neutron efficiency.
- Important Moderator:
 - i. Graphite
 - ii. Heavy Water (D₂O)
 - iii. Beryllium

Nuclear Technology

Components of Nuclear Reactor

4. Controlling Rods

- Fission reaction releases lot of neutrons, if unchanged, it can cause the reaction to go out of control and may cause explosion.
- Controlling Rods are used to control the rate of reaction by absorbing the excess neutrons.
- Example: Boron and Cadmium

5. Containment Structure

- It is the structure that separates the reactor from the environment
- It is made up of high density steel reinforced concrete.
- In case of a nuclear accident, it will prevent the radiation from going out.
- It is usually dome shaped.

Note: There are 22 nuclear reactors in India

Nuclear Technology

Types of Nuclear Reactor

1. Pressurised Heavy Water Reactor

- PHWR is a nuclear power reactor, commonly using unenriched natural uranium as its fuel. It uses **heavy water** (Deuterium oxide D₂O) as its coolant and moderator.
- The heavy water coolant is **kept under pressure**, allowing it to be heated to higher temperatures without boiling, much as in a typical pressurized water reactor.
- While heavy water is significantly **more expensive** than ordinary light water, it yields greatly enhanced neutron economy, allowing the reactor to operate without fuel enrichment facilities.

2. Light Water Reactor

- The light water reactor is a type of thermal-neutron reactor that utilizes **normal water** as opposed to heavy water.
- It is fuelled by **Low Enriched Uranium**.
- It uses water as both a **coolant and a neutron moderator**.
- It produces heat by controlled nuclear fission.

Nuclear Technology

Types of Nuclear Reactor

3. Fast Breeder Reactors

- A breeder reactor is a nuclear reactor that generates more fissile material than it consumes. These are designed to extend the nuclear fuel supply for electric power generation.
- Breeder reactors achieve this because their neutron economy is high enough to create more fissile fuel than they use, by irradiation of a fertile material, such as Uranium- 238 or Thorium- 232 that is loaded into the reactor along with fissile fuel.
- In these reactors, neutrons are not slowed down. They are allowed to move fast and hence the name fast breeder reactors.
- PFBR is a 500 MWe fast breeder nuclear reactor presently being constructed at the Madras Atomic Power Station in Kalpakkam (Tamil Nadu).

Nuclear Technology

India's 3 staged Nuclear Power Programme

Stage 1. Pressurised Heavy Water Reactors

- In the first stage, Pressurised Heavy Water Reactors would be developed.
- These reactors use unenriched natural uranium oxide as the fuel and heavy water as the moderator and coolant.
- In these reactors, coolant is kept under pressure and hence its name is Pressurised Heavy Water Reactors.
- In 1st stage, the residual fuel (spent fuel) would be treated. Uranium-238 and Plutonium-239 would be chemically separated. Rest of the fuel would be disposed-off after being subject to proper treatment.

Stage 2. Fast Breeder Reactors

- In these reactors, Plutonium-239 (obtained from 1st stage or from Transmutation of Uranium-238) is used as fuel and liquid sodium is used as the coolant.
- No Moderator is there in fast breeder reactors.

Nuclear Technology

- In the 2nd stage, a wall made up of Thorium-238 is made to hit by the electrons because of which Thorium (fertile material) transmutes into Uranium-233 (fissile material)
- This newly formed Uranium-233 is to be utilised in 3rd stage of India's Nuclear Programme.

Stage 3. Advanced Nuclear Power Systems

- In these reactors, Uranium-233 is used as a fuel (obtained from 2nd stage)
- Bhabha Atomic Research Center (BARC) is working on research and development of Advanced Nuclear Power Systems.
- It is a thorium fuel based (technically Uranium-233), heavy water moderated and boiling light water cooled reactor
- It is a 300MW capacity reactor intended to serve as a technology demonstrator for a range of technologies for thorium utilisation as well as several advanced safety features that have been incorporated.
- This reactor will provide impetus for the development of technologies for 3rd stage of India's Nuclear Power Programme.

Nuclear Technology

Nuclear Reactors in India

- Total: 22 operational nuclear reactors in India
- They have an installed capacity of 6780 MW
- Nuclear Power contributes 2-3% in total electricity generation.
- India's Nuclear Reactors
 - Tarapur: 2 reactors (Boiling Water Reactors)
 - Rajasthan: 6 reactors (PHWR)
 - Madras: 2 reactors (PHWR)
 - Kudankulam: 2 reactors (PWR)
 - Narora: 2 reactors (PHWR)
 - Tarapur: 2 reactors (PHWR)
 - Kaiga: 4 reactors (PHWR)
 - Kakrapur: 2 reactors (PHWR)
- Nuclear Reactors comes under jurisdiction of NPCIL (Nuclear Power Corporation of India Limited) which is a PSU under Department of Atomic Energy