» Such conditions are mostly found in relatively cool or hilly areas such as Madanapalle, Mysore, Kolar in Karnatka; Sangamner and Narayangaon in Maharashtra, or Solan and Mandi in Himachal Pradesh.

- **Why increase in Prices:**
  - » **Dip in overall tomato production due to**:
    - i. **Lower acreage of tomato**
    - ii. **Extreme Weather Conditions**
      - i. **Heatwaves and High temperatures** in April and May along with delayed Monsoon showers in southern India and Maharashtra led to attack on tomato crops.
        - ▪ Farmers in Maharashtra have said their tomato crop was impacted by attacks of the **Cucumber Mosaic Virus (CMV)** and growers in Karnataka ad other South Indian States have blamed the Tomato Mosaic virus (ToMV) for crop loss.
      - ii. Later, incessant rains in tomato-growing regions further affected the new crop and also made transportation to non-growing regions difficult.
    - iii. **Low commercial realization of the crop for farmers** in the months of June as well as the last year.
    - iv. **Seasonal Fluctuation**: July and August are the lean tomato production.

- **Other general challenges:**
  - » **Perishability of tomato** is much higher than Onion and Potato.
  - » **Supply chain issues** in transporting the vegetable from areas where it is grown to regions where it is not compounds the problem.

C) CUCUMBER MOSAIC VIRUSE AND TOMATO MOSAIC VIRUS (JULY 2023)

- Farmers in Maharashtra have said their tomato crop was impacted by attacks of the **Cucumber Mosaic Virus (CMV)** and growers in Karnataka ad other South Indian States have blamed the **Tomato Mosaic virus (ToMV)** for crop loss.

- The two plan pathogens have similar names and cause similar damage to crops, but they belong to different viral families, and spread differently.

- **About Tomato Mosaic Virus (ToMV):**
  - » It belongs to **the Virgaviridae** family and is closely related to **the Tobacco Mosaic** Virus (TMV).
  - » **Hosts:** ToMV hosts include tomato, tobacco, peppers, and certain ornamental plants.
  - » **Spread**ing mechanism: It mainly spreads through infected seeds, saplings, agricultural tools and often, through the hands of nursery workers who have failed to sanitize themselves before entering the field. It would require only few infected saplings for virus to take over an entire field in matter of days.
  - » **In the present case**, farmers have blamed seed manufacturers and nurseries.

- **About Cucumber Mosaic Virus (CMV)**
  - » It was first identified in cucumber in 1934, which gave the virus its name.

- **Hosts**: It has much larger host pool that include cucumber, melon, eggplant, tomato, carrot, lettuce, celery, cucurbits (member of gourd family, including squash, pumpkin, zucchini, some gourds, etc.) and some ornamentals.
- **Spreading mechanism**: They spread by aphids, which are sap-sucking insects. CMV too can spread through human touch, but the chances of that are extremely low.

- **Impact of these viruses**:
  - Both viruses can cause almost 100% crop loss unless properly treated on time.
    - The foliage of **plants infected by ToMV** shows alternating yellowish and dark green areas, which often appears as blisters on the leaves**.** Distortion of leaves and twisting of younger leaves are also symptoms. The fruit develops necrotic spots, which leads to overripening. Younger plants are dwarfed, and fruit setting is affected.
    - **CMV** too causes distortion of leaves, but the pattern is different. Often leaves at the top and bottom are distorted while those in the middle remain blemish free. Overall, it causes stunting and lower production.

- **Controlling these viruses:**
  - Following biosafety standards in nurseries, and compulsory seed treatment to stop spread of ToMV.
  - Awareness among farmers**:** Farmers who buy trays of saplings should check before planting and discard any visible infected material. They should also look for signs of infection during cropping cycle and remove any infected plants without allowing it to touch the healthy ones.
  - Any eye must be kept on aphid migration so that measures can be taken while planting the crop.

3) SPICES

A) SPICE BOARD OF INDIA

- Spices Board (**Ministry of Commerce and Industry, Government of India**) is the flagship organization for the development and worldwide promotion of Indian spices.
  - The Board is an international link between the Indian exporters and the importers abroad.
  - The Board has been spearheading activities for excellence of Indian spices, involving every segment of the industry.
  - The Board has made quality and hygiene the corner stones for its development and promotional strategies.
- It was established in 1987 under Spices Board Act, 1986 with the responsibility of production/development of cardamom and export promotion of 52 spices.
- **Key activities**:
  - Spice export promotion.
  - Quality control
  - Guiding farmers to get better yield.
  - Provisions for financial and material support to farmers.

- **Headquarter: Kochi**
  - Regional laboratories in Mumbai, Chennai, Delhi, Tuticorin etc.

B) TURMERIC AND TURMERIC BOARD

- **Turmeric** (Curcuma longa) is used as condiment, dye, drug and cosmetic in addition to its use in religious purpose.

- **India** is not only the leading producer and consumer but also the largest exporter of turmeric in the world.
  - » In the year 2022-23, a total of 3.24 lakh hectare was under turmeric cultivation with a production of 11.61 lakh tonnes (over 75% of the global production)
  - » **More than 30 varieties** of the turmeric are grown in India in more than 20 states.
  - » **Telangana (+Andhra Pradesh)** alone has 35.0% of the turmeric area and 47.0% of production.
    - ▪ **Telangana** (28.09%)
    - ▪ Andhra Pradesh (6%)
  - » **Maharashtra** (22.04%) of production comes second. I
  - » **Odisha, Karnataka, WB, Gujarat, Meghalaya, Assam**, etc. are some other major turmeric producing states.

- **Climate and Soil**:
  - » Turmeric can be grown in **diverse tropical conditions from sea level to 1500 m above sea level**, at a temperature range of 20-35oC with an annual rainfall of 1500 mm or more, under rainfed or irrigated conditions. Though it can be grown on different types of soils, it thrives best in well-drained **sandy or clay loam soils with a pH range of 4.5-7.5 with good organic status**.

NATIONAL TURMERIC BOARD (NOTIFIED IN OCT 2023)

- **GoI** notifies establishment of National Turmeric Board.
  - » The board will work towards development and growth of turmeric and turmeric products in the country.
  - » It will provide leadership in turmeric related matters, augment the efforts, and facilitate greater coordination with Spice Board, and other government agencies in the development and growth of turmeric sector.
  - » The board will also work towards usefully extracting turmeric's full potential for humanity.
- **Under Ministry of Commerce and Industry**

4) LOTUS – NAMOH 108

- **News:** Science Minister Jitender Singh unveiled a variety of lotus called '**Namoh 108'** at a function in the CSIR-National Botanical Research Institute, Lucknow. He described it as a "grand gift to the relentless zeal and innate beauty of Shri Narendra Modi, coming as it does in the 10th year of his tenure as the Prime Minister."

- **About the lotus**:
  - » It has 108 petals and was discovered several years ago in Manipur. It was kept at the National Botanical Research Institute (NBRI) as part of its collection of flowers and plants, on which the institute conducts research. However, it wasn't until four years ago that one of the scientists discovered that it had 108 petals. This number has religious significance in Hinduism.

- » Other features of the flower on initial inspection was ordinary. It's fibre quality was less and it bloomed only in one season.
  - » Recently, it has become the first (and only) lotus variety whose gene has been sequenced. The only other lotus variety to be sequenced in the world was from China and it was completely different.

- **Scientists have also worked on its germplasm** and modified its characteristics in a way that it could be cultivated relatively easily outside the Manipur.
- **Note:** At the launch of Namoh 108, minister also launched several fibres and perfumes made from NAMOH 108.
- **CSIR: NBRI** would be soon initiating a '**Lotus Mission**' as part of larger ongoing horticulture mission to have more of the 108 Namoh flowers grown in other part of India.

5. FARMER PRODUCER ORGANIZATION (FPOS)

- **Introduction:**
  - » FPOs are collectivization of primary producers (farmers, dairy farmers, fishermen, weavers etc.), especially small and marginal farmers, to collectively address their key challenges and ensure economies of scale viz improved access to investment, technology, input and markets.
  - » While FPOs work under the **principle of cooperative societies**, their **registrations under Company's Act** provides more accountability and professionalism.
  - » Small Farmers Agri-business consortium (SFAC) has been mandated by Ministry of Agriculture, to support state governments in the formation of FPOs.

- **Aims behind FPOs/ Advantages of FPOs**
  - » **Enhance bargaining power** of farmers.
  - » **Increase farmers competitiveness** and their profits in emerging market economies.
  - » FPOs enable farmers to **enhance productivity** through efficient cost-effective and sustainable resource use and realize higher returns of their produce.
  - » FPO's also enable **integration of small farmers to the value chain**, **generating higher incomes** and **employments.**
- **Steps taken to promote FPOs/FPCs**
  - » **Central Sector Scheme** titled '**Formation and Promotion of 10,000 FPOs'**
    - ▪ Launched in Feb 2020 at Chitrakooot (Uttar Pradesh) with a budgetary provision of Rs 6865 crores.
    - ▪ Under the scheme, formation of 10,000 FPOs across the country is targeted in five years till 2023-24, while providing adequate handholding to each FPO for five years from the formation, for which the support will continue till 2027-28.
  - » **Budget 2018-19: Exemption from Income Tax** for FPOs with a turnover of upto Rs 100 crore.

6. SPECIAL AGRICULTURE PRACTICES AND ADVANTAGES

1) CROP DIVERSIFICATION

- **Introduction**
  - Crops diversification refers to **shift in cropping pattern from one or a few crops to other crops** which are more profitable, sustainable or less resource intensive.

- **Advantages**:
  - **Risk Mitigation**: Farmers growing multiple crops are less vulnerable to adverse weather conditions, pests, diseases, or **market fluctuations** affecting a particular crop.
  - **Sustainability**:
    - **Improved Soil Health**
    - **Reduce use of water and chemical fertilizers**.
    - **Planting diverse crops disrupts pest, weed and disease cycle**.
      - For e.g. Certain crops have allelopathic properties or growth habits that suppress weeds. By including such crops in a diversified cropping system, weed growth can be effectively controlled without heavy reliance on herbicide.
    - Improves the availability of fodder for livestock animals.
    - **Fighting the challenges of Monoculture**:
    - **Supports biodiversity**: By providing habitats for beneficial insects, birds, and pollinators.
    - **Resilience to climate change** as different crops will have varying level of tolerance to changing climatic conditions.
  - **Food Security and Nutrition** - Crop diversification will promote healthier diets and reduce risk of nutritional deficiency.
  - **Increased income for farmers** - By diversifying to high value horticulture crops.

- **Steps taken to promote diversification.**
  - **Crops Diversification Program (**a sub scheme under RKVY) is being implemented by government in **original green revolution states** viz. Punjab, Haryana, and in Western Uttar Pradesh to diversify paddy areas towards less water requiring crops like oil seeds, pulses, coarse cereals, agro-forestry, and **shifting of tobacco farmers to alternative cropping system** in tobacco growing states viz. Andhra Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Odisha, TN, Telangana, Uttar Pradesh and West Bengal wef from 2015-16.
    - Under CDP, assistance if provided to states for conducting cluster demonstration on alternate crops, promotion of water saving technologies, distribution of farm machineries, setting up of value addition facilities, awareness through training etc.
  - **Crop Diversification through Price Policy** -> Increasing MSP for crops which need to be promoted.
- **Status in India**
  - India has tremendous potential for crop diversification and to make farming a sustainable and profitable economic activity.

  - **The Index of Crop Diversification** (used by ESI 2017-18) analysis shows:
    i. **Declining inter-temporal behaviour** in crop diversification for the states like Chattisgarh, Haryana, MP, Odisha, Punjab and Uttar Pradesh. The decline has been sharp in Odisha (from 0.74 in 1994-1995 to 0.34 in 2014-15).
    ii. **Two states - Himachal and Jharkhand** have seen increasing crop diversification.
    iii. **For India as a whole** the crop diversification scenario appears to be stable throughout the period.

- **Factors behind decreasing crop diversification in some states**
  - **Minimum Support Price**
  - **Lack of awareness among farmers**.
  - **Limited Input Availability**:
  - **Risk Perception and Market Volatility**

2) INTEGRATED FARMING SYSTEM

- **Introduction**
  - » Integrated Farming System (IFS) is a comprehensive farming approach that c**ombines multiple agricultural activities and components within farming system** to optimize resource utilization, increase productivity, and improve sustainability. It involves the integration of crops, livestock, fisheries, agroforestry, and other allied enterprises (renewable energy - biogas generation) in a synergistic manner.
- **IFS** is helpful in sustaining agricultural production in the following ways:
  - i. **Resource Optimization and Enhanced Productivity**: Integration of various components like crops and livestocks can make efficient use of resources and minimize waste.
    - **For example**, crop residues and agricultural by-products can be utilized as livestock feed, while animal waste can be recycled as organic fertilizer for crops.
  - ii. **Nutrient Cycling and Soil health**:
    - Livestock manure and crop residues serve as organic fertilizers, improving soil fertility and nutrient availability.
    - The integration of leguminous crops in crop rotations adds nitrogen to the soil through biological nitrogen fixation.
    - Soil Conservation Practices like contour ploughing and agroforestry, help prevent erosion and maintain soil health.
  - iii. **Pest and Disease management**:
    - i. Diversity of crops and livestock reduces the risk of pest and disease outbreaks.
    - ii. Crop rotation, inter-cropping, and mixed cropping help disrupt pest life cycles and reduce pest pressure.
  - iv. **Climate Resilience**:
    - The integration of trees and agro-forestry practices help mitigate climate risks by providing shade, reducing wind speed, improving water filtration, and sequestering carbon.
    - Diverse Crop pattern is also more adaptable to climate variability.
  - v. **Economic security through income diversification**: IFS offers multiple income stream (crops, livestock, etc.) which reduces income risk associated with single crop.
  - vi. **Environmental Sustainability**:
    - **Reduced Pollution and land degradation:** IFS reduces the need for synthetic fertilizers, mitigates nutrient runoff and pollution, and enhances soil health and long-term sustainability.
    - **Biodiversity Protection**: The integration of diverse components helps conserve biodiversity, protect natural habitats, and provide ecological niche for beneficial organisms.

3) PRECISION AGRICULTURE

- **About Precision Agriculture**
  - » Precision Agriculture is a technique of agriculture which uses technology to determine the exact amount of input (water, fertilizers, pesticides etc.) required to ensure crops and soil receive exactly what they need for optimum health and productivity.

- » This kind of agriculture is highly dependent on technology - Specialized equipment, software and IT.
  - It requires accessing real time data about the conditions of crops, soil and ambient air. It also needs hyper local weather predictions, labor costs, and equipment availability.
  - **Sensors** in the field measure the moisture content and temperature of the soil and surrounding air.
  - **Satellites** and **Robotic drones** provide real time images of individual farmers.

- **Advantages**
  - » **Economic Benefits**
    - Increase agri-productivity.
    - Improve the quality and reduce the cost of production
    - Improved socio-economic condition of farmers
  - » **Improve Sustainability of Agriculture**
    - Prevent Soil Degradation
    - Reduce Chemical application.
    - Efficient resource use (water, fertilizers etc.)
      - E.g. Drip Irrigation used with PA technology can reduce the amount of water used in crops.
  - » **PA** enables **Climate-Smart Agriculture**

4) MULTILAYERED FARMING

- It comprises of growing compatible plants of different heights on the same field at the same time. It is mostly practiced in orchards and plantation crops for maximum use of solar energy even under high planting density.

- **Advantages**
  - » **Efficient Land Use**
  - » **Diversification and Risk Reduction**
    - By growing variety of crops, farmers can diversify their produce, accessing different markets, and reducing price risks.
    - **Better Income**: The sale of high value crops, such as fruits, vegetables, herbs, and spices can generate higher returns compared to traditional mono-croppng.
  - » **Resource Efficiency:**
    - For e.g. different layers of crops create micro-climates that reduce water evaporation and help retain soil moisture.
    - The **crops complement each other** - for e.g. by providing shade canopy, litter, increasing moisture holding capacity of soil while nurturing microflora.
  - » **Nutrient Cycling and Soil Health**: it promotes the recycling of nutrients within the system, enhancing soil fertility and reducing the need of synthetic fertilizers
  - » **Biodiversity Conservation**: MLF creates diverse and complex habitats, supporting a range of beneficial organisms, including pollinators, beneficial insects and natural predators. Multiple crops and flowering plants provide food and shelter for a variety of beneficial organisms.
  - » **Income generation and livelihood improvement**:

- **E.g.**
    - **Coconut based multilayered farming** (Coconut, pepper, nutmeg, banana, cinnamon, turmeric, ginger) is more remunerative than traditional systems.

- **Steps being taken in India to promote Multi-Layered Farming**
    - The Indian Institute of Farming Systems Research, Modipuram, Meerut, is **undertaking research (on-station) and technology validation** through farmer's participatory research (on-farm research) on Integrated Farming Systems and Cropping systems in 24 states.
    - **Multi-layer Farming Models on high-value vegetable cultivation** under a three-tier system was introduced in the backward districts of Bihar by ICAR and farmers were able to grow three different vegetables on the same piece of land at a time**.**

7. NEXT CA BOOKLET

- Storage Issues
- MSP and Subsidy Issues
- Income Support: PM-KISAN
- Food Security
- FCI and its function
- PDS System
- Agri-market Reforms
- E-Technology
- Agri-Exports
- Animal Husbandry, Fishery etc.

TARGET PRELIMS 2024
BOOKLET-23; ECONOMY-4
AGRICULTURE AND RELATED ISSUES-3

1. TABLE OF CONTENTS

2. FOOD GRAIN STORAGE ISSUES

- The Food Corporation of India is the main agency for procurement, storage and distribution of food grains.

- **The requirement of Storage Capacity** in Food Corporation of India (FCI) depends upon the level of procurement, requirement of buffer norms, and Public Distribution System (PDS) operations for rice and wheat mainly.

- **Objectives**:
  - » **Feed TPDS** and other welfare schemes.
  - » **Ensure food security** during production shortfalls.
  - » **Stabilize prize.**

- **FCI** continuously assesses and monitors the storage capacity and based on the storage gap assessment, storage capacity is created/hired through following schemes:
  - i. **Hiring of godowns** from Central Warehousing Corporation (CWC)/ State Warehousing Corporation (SWCs)/ State agencies.
  - ii. **Hiring of godowns** through Private Warehousing Scheme (PWS)
  - iii. **Central Sector Scheme** (CSS):
    - ▫ Government is implementing a central sector scheme for construction of godowns with focus on augmenting storage capacity in the States of the NE region and a few other states.
  - iv. **Construction of SILOs** under PPP mode
  - v. **Private Entrepreneurship Guarantee (PEG)** Scheme

- This is used for storage of food grains procured for central pool by the government agencies.

- **Current Storage Capacity** (Feb 2024)
  - » As per the latest data (Feb 2024), the total storage capacity with **FCI** is **361.62 lakh tonnes**. Of this 146.86 lakh tones is owned by FCI and remaining 214.76 lakh tonnes is hired.
  - » The storage capacity with state government agencies is another **400.74 lakh tonnes**.
  - » Together it adds up to **762.36** lakh tonnes. (76 million tonnes)
  - » In addition, a capacity of around 15 million tonnes have been created by Private Entrepreneurs Guarantee Scheme.

1) IMPORTANT SCHEMES

B) WORLD'S LARGEST AGRI-STORAGE PLAN (FEB 2024)

- **Need** of such initiative**:**
  - » **Low food grain storage capacity in India**: Currently India has a storage capacity of **47% of its total food grains production**. In states like UP and Bihar this storage capacity is below 50%. But other countries like **China, USA, Brazil, Russia, Argentina, Ukraine, France** etc have storage capacity higher than the food grain production.

- » **Multiple agencies involved in food grain management i**ncluding the Food Corporation of India (FCI), Central Warehouse Corporation, Warehouse Development Regulatory Authority, Railways, and the civil supply departments of states.

- In Feb 2024, PM Modi has announced a plan to set up the "World's largest grain storage plan **in the cooperative sector**".
  - » **Pilot project** is being undertaken in 11 Primary Agriculture Credit Societies (PACS) in 11 states.
    - ▫ **What will an integrated facility look like?**
      - The facility built at a cost of Rs 2.25 crore. The integrated modular PACs will have a custom hiring centre, a multi-purpose hall - procurement centers, primary processing units for cleaning and winnowing - a storage shed, and container storage and silos.
  - » Eventually the aim is to cover more PACs.

What are PACS? Primary Agricultural Credit Societies (PACS) are grassroots-level institutions and their membership encompasses individual farmers, artisans, and members of other weaker sections of the society as shareholders. They form the **lowest tier of the federated short-term cooperative credit structure** with District Cooperative Banks (DCCBs) and/or State Cooperative Banks (StCBs) in their upper tiers. They are involved in short term lending - or what is known as crop loans.

- **What is the plan expected to do?**
  - » **Set up storage infrastructure of 70 million tonnes** over the next five years at a cost of Rs 1.25 lakh crore.
    - ▫ The scheme will work on Hub and Spoke model.
      - Of the 63,000 PACS across the country, **55,767 will function as spoke** and will have a grain storage capacity of 1,000 metric tonnes each, while the remaining 7,233 PACS, which will function as hubs, will have a storage capacity of 2,000 metric tonnes each. Thus, all the 63,000 PACs will have a combined grain storage capacity of 70 million tonnes.
  - » This will enable farmers to store their produce and sell it at the right time and right price. These efforts should reduce post harvest losses; bring down food grain handling and transportation costs;
  - » This will also enable farmers to get loan from banks.
  - » The scheme will also enable PACS to undertake various other activities like Functioning as Procurement centres for State Agencies/ Food Corporation of India (FCI); Serving as Fair Price Shops (FPS); Setting up custom hiring centers; Setting up common processing units, including assaying, sorting, grading units for agricultural produce, etc.

- **Note**: Earlier in June 2023, the Union Cabinet has approved he constitution of an Inter-Ministerial Committee (IMC) to facilitate the world's largest grain storage plan in the cooperative sector. It was chaired by Amit Shah. The IMC modified guidelines/ implementation methodologies of the schemes of respective ministries.

- **Budgetary Allocation**: The plan doesn't have a separate allocation; it will be implemented by the convergence of **8 Schemes**:
  - » **4 schemes under MoA&FW:** Agriculture Infrastructure Fund (AIF), Agricultural Marketing Infrastructure Scheme (AMI), Mission for Integrated Development of Horticulture (MIDH), and Sub Mission on Agricultural Mechanisation (SMAM)
  - » **2 Schemes under Ministry of Food Processing Industries**: Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PMFME), and Pradhan Mantri Kisan Sampada Yojana (PMKSY).
  - » **2 Schemes under Ministry of Consumer Affairs, Food and Public Distribution**: Allocation of food grains under the National Food Security Act, and Procurement operations at MSP.

C) PRIVATE ENTREPRENEURSHIP GUARANTEE (PEG) SCHEME

- Launched in 2008
- **Aims**: Augmenting the covered storage capacity in the country.
- **Details:**
  - » Under the scheme godowns are constructed in PPP mode and the land and construction cost is borne by selected partners.
  - » FCI on its part **guarantees 10 year usage of storage capacities to the private investors** and 9 years to CWC and SWCs.
  - » Locations for construction of godowns are identified by FCI on the basis of recommendations of state level committees to cover the gaps in the storage.

3. MSP, SUBSIDY AND RELATED ISSUES

1) MINIMUM SUPPORT PRICE (MSP)

- **Introduction**
  - » **What is MSP:** It is the minimum price set by the Government at which farmers can expect to sell their produce for the season. When market prices fall below the announced MSPs, procurement agencies step in to procure the crop and 'support' the prices.
  - » **Beginning:** The Minimum Support Prices (MSP) were announced by the Government of India for the first time in **1966-67 for Wheat** in the wake of the Green Revolution and extended harvest, to save the farmers from depleting profits.

- **How is MSP decided and Who takes final decision.**
  - » The Cabinet Committee of Economic Affairs (**CCEA**) announces MSP for various crops at the beginning of each sowing season based on the recommendations of the Commission for Agricultural Costs and Prices (**CACP**).
  - » The CACP takes into account demand and supply, the **cost of production (A2 + FL method)** and price trends in the market, inter-crop parity, implication for MSP on consumers, a minimum of 50% as the margin over cost of production; etc.

- » The CACP calculates **three types of costs — A2, A2+FL and C2** — for each mandated crop for different states. The lowest of these costs is A2, which is the actual paid-out cost incurred by a farmer. Next is A2+FL, the actual paid-out cost plus imputed value of family labour. The highest of the three costs is **C2, defined as 'Comprehensive Cost including Rental Value of Own Land** (net of land revenue and interest on value of own fixed capital assets (excluding land))

- MSP is announced for 22 mandated crops and FRP is announced for sugarcane (**total 23 crops**)
  - » **Crops Covered under MSP:**
    - ▫ MSP is announced for **22 mandated crops** and **FRP** for Sugarcane. (**Total 23 crops)**
      - ▪ **Mandated Crops are:** 14 crops for Kharif season, 6 Rabi crops (except Toria) and 2 crash crops (Copra and Raw Jute).
      - ▪ In addition MSP for **Toria** and **De husked coconut** are fixed on the basis of MSP for rapeseed/mustard and Copra.
    - ▫ **Note:** Coffee, tea etc are not covered under MSP.
    - ▫ **7 Cereals**, **8 oilseeds**, 5 pulses, 5 cash crops - Copra, Raw cotton, Raw Jute, Virginia Flu cured (VFC) tobacco, Sugarcane.
    - ▫ **Note:** For Sugarcane Fair and Remunerative Prices (FRP) is announced that has to be paid by sugar mill owners.

Kharif Crops	**Rabi Crops**
1. Paddy	15. Wheat
2. Jowar	16. Barley
3. Bajra	17. Gram
4. Maize	18. Masur/lentil
5. Ragi	19. Rapeseed/mustard
6. Arhar (Tur)	20. Safflower
7. Moong	21. Toria (an oilseed similar to rapeseed)
8. Urad	**Other Crops**
9. Cotton	22. Copra / Dehusked Cotton
10. Groundnut	23. **VFC Tobacco**
11. Sunflower seed	24. Raw Jute
12. Soyabean black	25. Sugarcane(FRP)
13. Sesamum	
14. Nigerseed	

- **Need of MSP/ Rationale Behind MSP**
  - Protecting farmers from price volatility

- Incentivizing farmers to grow crops in short supply
- MSP also ensures easy procurement for food security schemes

- **From FY19** the MSP has been **pegged at more than 50% of cost of production for most of the Kharif and Rabi crops**. This is another step towards ensuring **income inclusiveness**.
  » Accordingly, the Government has been increasing the MSP for all 22 Kharif, Rabi and Commercial crops with a margin of at least 50% over the all-India weighted average cost of production since the agricultural year 2018-19.
  » Swaminathan Commission had recommended this way back in 2006.

- **Various Mechanisms under MSP to procure crops and ensure remunerative prices for farmers (Before PM-AASHA)**
  1. **For wheat and paddy -> Open Ended Procurement by FCI**
  2. **Coarse Grains -> Purchased by state government** with permission of central government, **upto the extent it is required** in their Target Public Distribution System (TPDS).
  3. **Price Support Scheme (PSS) - for oil seeds, pulses and cotton** - at the request of concerned states
  4. **Market Intervention Scheme (MIS)** for perishable horticulture commodities - at the request of states - when there is excess supply or low prices.

- **Some shortcomings in MSP Procurement Program**
  » **Procurement is limited to few crops, few geographies and few farmers ->** only wheat and rice under open procurement -> Punjab, Haryana, Coastal Andhra benefitted a lot -> mostly big farmer benefitted
  » There has been delays in establishment of procurement centre.
  » Lack of awareness about MSP among large section of farmers. This leads to they getting exploited at the hands of commisison agent.
  » **Inadequate MSP** (MSP calculation is not based on A2 + FL + C2 which was recommended by MS Swaminathan committee). It uses **A2 + FL** method.

- **Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA):**
  » The scheme is aimed at increasing the MSP procurement of pulses, oilseeds, COPRA etc. This is expected to ensure remunerative price to farmers.
  » **Three components of PM AASHA - Price Support Scheme; Price Deficiency and Payment Scheme; and Private Procurement & Stockist Scheme**
    ▪ Note: For Oilseeds, the states will be allowed to choose between the PSS or two other schemes.
- **Note: AASHA is complementing (not replacing) complementing other schemes**
  » Other existing schemes of Department of Food and Public Distribution (DFPD) for procurement of paddy, wheat and nutri-cereals/coarse grains and of Ministry of Textile for Cotton and Jute will be continued for providing MSP to farmers to these crops.

- **What was expected out of PM-AASHA:**
  » Better remuneration for farmers; reduced storage and procurement requirement for government; increased private participation -> more investment in storage etc; improved food security

- **But, PM-AASHA has also not been able to increase MSP procurement a lot due to following reasons:**
    - **Budgetary support for PM-AASHA** has been too minimal (around Rs 15,000 crore in the first year)
    - **A number of factors preventing PM-AASHA to be inclusive:**
        - **Agri-Marketing reforms** are incomplete
        - **Poor infrastructure**: This has led to farmers remaining out of MSP regime, remaining out of MSP regime.
        - Further**, ineffective supply chain management**, has rendered the whole scheme trivial.
            - For e.g. NAFED has a stock of 4 million tonnes of pulse and oilseeds, but their distribution policy is non-existent.
    - **State Financial condition** may not be strong enough for the program.

- **Other Criticism of MSP mechanism in general**
    - **MSPs causes market distortion**
    - **Cropping pattern** is affected and farmers tend to grow high MSP crops rather than the most suitable crop for the region.
        - **Excess fertilizer and water guzzling crops** makes agriculture unsustainable.
    - **Higher inflation**
    - **Cost Plus Pricing** is risky as it ignores the demand side, i.e. demand-supply, domestic and international price trends, terms of trade, inter-crop price parity etc.
    - **Leads to less focus on non-price factors** like technology, inputs, services, institutions and infrastructure
        - High fiscal burden on government
    - **Bigger stock exceeds the stock holding norms of FCI**
    - **WTO' AOA issues** (discussed with WTO issues separately)

2) FARMER'S PROTEST: A LAW GUARANTEEING PROCUREMENT AT MSP: IS IT VIABLE

- **Background**:
    - According to Shanta Kumar Committee report, **only 6% of the farm households sell wheat and rice to the government at MSP rates**.

- **What are the different ways in which MSP guarantee can be ensured?**
    - **Force traders to buy at MSP:** Any buying of agri-produce (be it by private traders), would be on MSP (something similar happens in case of sugarcane).
        - Something like this happens in case of sugarcane farmers.
        - But there are **implementation hurdles** - delay and arrear in price payment; distortion of market;
    - Government can make MSP procurement itself.
        - **Criticism:** If government buys all produce this will be **unsustainable** - both physically and fiscally.
    - Government can go for price deficiency payment mechanism.
        - Something similar was implemented in Madhya Pradesh (Bhavantar Bhugtan Yojna) during the 2017-18 Kharif season for eight crops: urad (black gram), soyabean, maize,

Arhar (pigeon pea), Moong (green gram), groundnut, sesame, and nigerseed. But **scheme couldn't be continued** due to lack of support from central government.

» **Haryana** is implementing **Bhavantar Bharpai Yojna (BBY)** mainly for Bajra (pearl millet), mustard, and sunflower seeds. Technically it also covers groundnut, chana, moong, and 16 vegetables and 3 fruit crop.
    - The scheme operates on the Haryana Government's '**Meri Fasal, Mera Byaura portal**' in which farmers have to register themselves along with details of their land (village name, khasra plot no, holding size tc) and area sown under different crop.

» and Haryana (Bhavantar Bharpai Yojna).

- **Need of guaranteeing MSP:**
    - » It would **improve opportunities of fair prices** by farmers. It would encourage farmers to invest more in agriculture and increase productivity.
        - ▪ **Note:** As per census and National accounts data, the percentage of farmers benefitting from MSP is **5.6%** and the value of agri-produce benefitting from the MSP regime is a **paltry 2.2%**.
    - » **Promote crop diversity** as under guaranteed MSP, other crops would also fetch the MSP.
    - » **Other advantages of MSP**

- **Is it feasible?**
    - » Various estimates show that government will have to bear an additional **5 lakh crore** rupee of fiscal burden. This will be a logistical nightmare at best, and fiscal disaster at worst.
    - » **FCI stocking operations** is full of flaws and losses -> Wastage, corruption,
    - » **Discourage market forces**
    - » **Other problems associated with MSP** (discussed in the above topics)

A) DEMANDS FOR WHICH FARMERS ARE PROTESTING

1. Full debt waiver for farmers and labourers;
2. Implementation of the Land Acquisition Act of 2013, with provisions for written consent from farmers before acquisition, and compensation at four times the collector rate;
3. Punishment for the perpetrators of the October 2021 Lakhimpur Kheri killings;
4. India should withdraw from the World Trade Organization (WTO) and freeze all free trade agreements;
5. Pensions for farmers and farm labourers;
6. Compensation for farmers who died during the Delhi protest, including a job for one family member;
7. Electricity Amendment Bill 2020 should be scrapped;
8. 200 (instead of 100) days' employment under MGNREGA per year, daily wage of Rs 700, and scheme should be linked with farming;
9. Strict penalties and fines on companies producing fake seeds, pesticides, fertilisers; improvements in seed quality;
10. National commission for spices such as chili and turmeric;
11. Ensure rights of indigenous peoples over water, forests, and land

1) FOOD SUBSIDY BURDEN OF GOVERNMENT

- **FY25 (BE)** Food subsidy bill 2.05 lakh crore (less than Rs 2.12 lakh crore in FY24)
- For FY23, government had spent Rs 5,32,446 crore on subsidy.
  - This includes Food Subsidy (Rs 2.8 lakh crores), Fertilizer Subsidy (Rs 2.1 lakh crores), and Petroleum subsidy (Rs 30,756 crore).
  - It was the 2nd highest ever after the 7.06 lakh crores of FY 2021.

2) MSP ANNOUNCED FOR VARIOUS RABI CROPS (OCT 2023)

- **Crop (MSP per quintal, Increase from last year):** Wheat (2275, 150), Barley (1850, 115), Mustard & Rapeseed (5440, 105), Safflower (5,800; 150); Gram (5,440; 105) and Lentil (masur) (6,425; 425)

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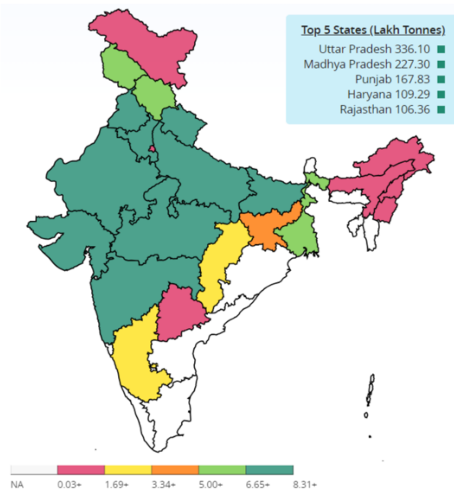
<td>Wheat Production, 2022-23 (Final Estimate): UP> MP> Punjab> Haryana>Rajasthan

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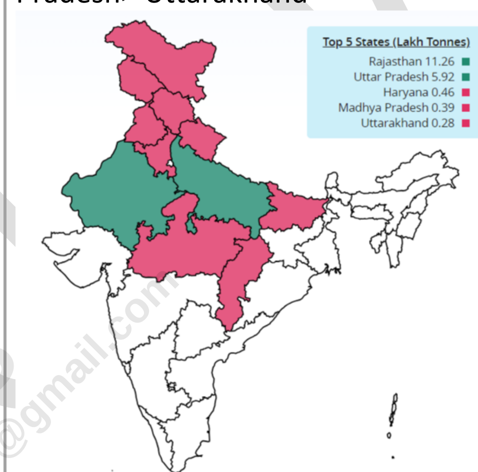
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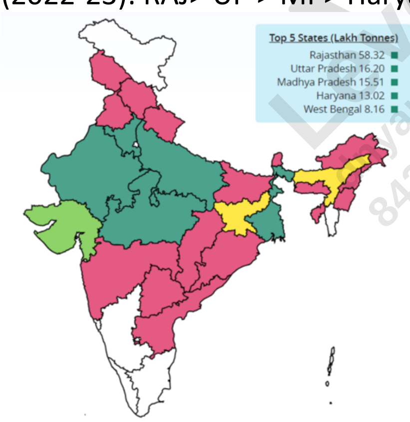
<td>Mustard & Rapeseed Production Final Estimate (2022-23): RAJ> UP > MP> Haryana > WB

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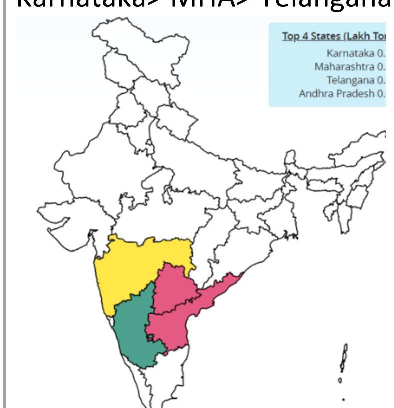
<td>Safflower Production 2022-23 (Final Estimate): Karnataka> MHA> Telangana> Andhra Pradesh

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<td>Gram Production Final Estimate (2022-23): MHA> MP > Rajasthan> Gujarat > Uttar Pradesh</td>
<td>Lentil Production 2022-23 (Final Estimate): MP> UP> WB > Bihar> Jharkhand</td>
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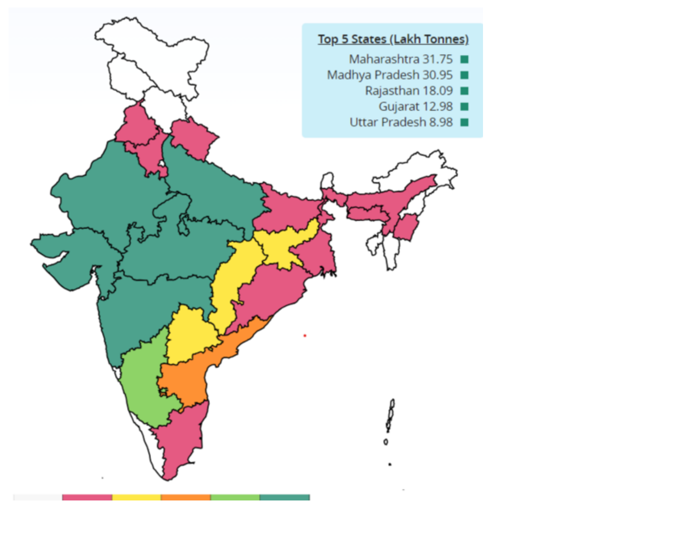
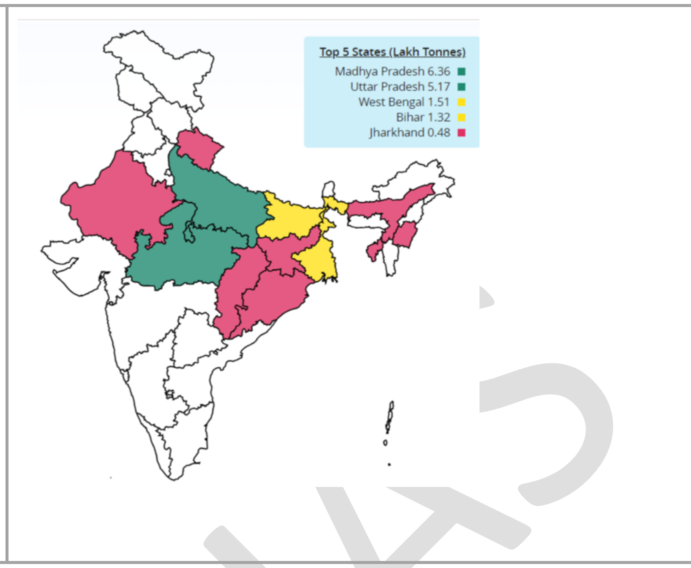




3) COMMISSION FOR AGRICULTURE COST AND PRICES (CACP)

- The commission for Agricultural Cost & Prices (CACP since 1985, earlier named as Agricultural Prices Commission) was formed in 1965 and is an attached office to Ministry of Agriculture and Farmers Welfare, GoI. It is also a **statutory body**.

- **Structure:**
  - » Chairperson
  - » Member Secretary
  - » One Member (official)
  - » Two Members (non-official) - representatives of farming community

- It is mandated to recommend minimum support prices (MSPs) to incentivize the cultivators to adopt modern technology, and raise productivity and overall grain production in line with the emerging demand patterns in the country.
- As of now CACP recommends MSP for 22 crops and FRP for Sugarcane:

- **Note:** the final decision for MSP of a crop is taken by Cabinet Committee on Economic Affairs (CCEA).

4) FAIR AND REMUNERATIVE PRICES (FRP)

- **FRP** is the minimum price sugar mills have to pay to farmers for sugarcane.
  - » In 2009, Sugarcane (Control) Order, 1966 was amended to replace statutory minimum price (SMP) of sugarcane with FRP.
  - » FRP is decided by Cabinet Committee on Economic Affairs on the recommendations of Commission for Agriculture Costs and Prices (CACP) and in consultation with state governments and industry.
  - » There is also a threat of action by cane commissioners, in case of failure to clear FRP dues within 14 days of the cane being sold to farmers. Non-clearance can also lead to attachment of mill properties as arrears of land revenue.

- **State Advised Price (SAP)**: Some states like Haryana, Uttar Pradesh, and Punjab offer higher prices for sugarcane under state advised price (SAP), which mills in those states must abide by.

- **Why FRP for sugars** (and MSP for other 22 crops)
    - » **Sugarcane** has very small shelf life and thus farmers are forced to sell immediately, which may bring prices very low.
    - » Further, **other crops can be sold at prices higher than MSP**, but this is very less likely for sugar as all the sugarcane is sold right after harvesting and thus market prices would be very low.

- Cabinet approves 'Fair and Remunerative Price' (FRP) of sugarcane payable by sugar factories for sugar season 2024-25 (Oct-Sep) **[Feb 2024:** Source PIB**]**
    - » FRP = Rs 340/ Quintal at sugar recovery rate of **10.25%**.
    - » This is about 8% higher than FRP of sugarcane in current season (2023-24). The revised FRP will be applicable w.e.f. 1st Oct 2024.
    - » It is also 107% higher than A2 + FL cost.
    - » **Note**: India is already paying highest price to sugarcane farmers in the world and at the same time ensuring cheapest sugar for Indians.
    - » Note: The new FRP will kick in from 1st Oct 2024.

- **Minimum Selling Price (MSP) for Sugar**:
    - » The central government had in**troduced Minimum Selling Price (MSP) for sugar in 2018**.
        - ▫ It was fixed at Rs 2,850 per quintal which was subsequently raised to Rs 3,100 per quintal. This was part of the measures announced to arrest the constant slide of sugar and to keep the demand and supply ratio to a safe limit.
        - ▫ The Centre had also fixed **mill-wise sales quota**. Mills which breached either of the conditions were liable for action under the Essential Commodities Act, 1955 which would include a fine as well as a jail term (ranging from 3 months to 7 years) or both.

5) PM KISAN (PRADHAN MANTRI KISAN SAMMAN NIDHI)

- **Why in news?**
    - » Interim Budget 2024-24 Speech: 11.8 crore farmers receive financial assistance

- **PM KISAN** is a central sector scheme to supplement the financial needs of landholding farmers. It was announced in the Budget 2019-20.
- **Purpose**
    - » Income Support to help declining income of farmers, supplement financial needs for input procurement etc;
- **Provisions of the Scheme**
    - » Under the scheme financial benefit of Rs 6,000 per year is transferred into the bank accounts of farmer families through **DBT** in three equal instalments of Rs 2,000 each.
    - » The scheme covers **all 14.5 crore landholder farmer families** in the country.
    - » **Exclusions**
        - All institutional landholders
        - Farmer families where one or more of its members belong to following categories

- Constitutional post holders, ministers, Member of Parliament, MLAs, MLCs, Mayor of Municipal Corporation, Chairpersons of District Panchayats (in past or presently)
- Serving or retired officers of Central/State governments (excluding Multi-Tasking staff/ Class IV/ Group D employees)
- All superannuated retired personnel whose monthly pension is Rs 10,000 or more (excluding Multi-Tasking staff/ Class IV/ Group D employees)
- Professionals like Doctors, Engineers, Lawyers, CAs, and Architects registered with professional bodies and carrying out profession by undertaking practices.

- **State/UT government** will be responsible for **identifying the eligible families**. List is published at village level to ensure transparency.

- **Progress So far:** Around 11.8 crore farmers were covered under the scheme in Jan 2024.

- **Analysis: Positives**
  1. **Reduce Agri-Distress**
  2. **Boost Productivity**
- **Key Concerns/ Limitations**
  1. **Funds -** Fiscal burden.
  2. **Small impact on farmer's income**
  3. **Withdrawing the scheme will be challenging** considering the political economy that comes into play

A) PM KISAN MOBILE APP WITH FACE AUTHENTICATION FEATURE (JUNE 2023: SOURCE - PIB)

- The PM-KISAN mobile app was launched in Feb 2020. The provision for e-KYC through face authentication introduced in June 2023.
- It will enable farmers to complete their e-KYCs effortlessly from their mobile devices. Farmer can also assist upto 100 other farmers in their vicinity with their e-KYCs. Additionally, state government officials, including district, block, and village level-nodal officers, can perform e-KYC for 500 farmers using their registered mobile number.
  - It will also resolve difficulties related to Aadhar verification and updating bank account details on PM KISAN portal through effective use of digital public goods.
- Note: The PM KISAN Scheme's services are also accessible through more than 4.0 lakh CSCs across the country.

1) INCOME SUPPORT TO FARMERS: STATE LEVEL SCHEMES

1. **Rajiv Gandhi Kisan Nyaya Yojna**
   - It is a **income support** scheme for farmers, Launched by Chhattisgarh government in May 2020.

2. **YSR Rythu Bharosa Scheme: Rs 13,500 for Farmers** (launched in 2019)
   - **Details about Rythu Bharosa**
     - The program is available for five years.
       - Every year, before the start of the Kharif season, an input assistance of Rs 7,500 will be provided to each farmer. Another Rs 4,000 will be provided at the time of

harvesting, just before the start of Rabi season. And the last instalment of Rs 2,000 would be provided at the time of farmers' festival of Sankranti.

- 54 lakh farmers have been identified for the scheme (including tenant farmers).
- Note: Rs 6,000 per head in the scheme comes from PM-Kisaan Samman yojna

3. **Ryuthu Bandhu** scheme of the neighbouring Telangana.
    - In Telangana the support was based on the size of land ownership (**Rs 4,000 per acre**). However, in AP every beneficiary will be given same amount, whereas in

4. **KALIA** (Krushak Assistance for Livelihood and Income Augmentation) of **Odisha government**
    - Covers 75 lakh farmers, including 25 lakh landless agricultural households.
        - It entitles each one of them Rs 10,000 per year payment for two crops (Kharif and Rabi**)**

5. **Krishak Bandhu Yojana** of **West Bengal**
    - Provides Rs 5,000 in two instalments to the state's estimated 72 lakh farmers and sharecroppers cultivating one acre or less.
6. **Mukhyamantri Krishi Ashirwad Yojna** of Jharkhand provides Rs 5,000 per acre (maximum Rs 25,000) annually to estimated 22.76 farmers owning up to five acres in land.
7. **Mukhyamantri Parivara Samman Nidhi Yojna** of Haryana limits the annual financial assistance at flat Rs 5,000 for agricultural families (including landless labourers) with less than five acres and also monthly income below Rs 15,000.

4. PM KISAN MANDHAN – PENSION SCHEME FOR FARMERS

- It is a government scheme meant for old age protection and social security of **Small and Marginal Farmers** (SMF).
    - **Eligibility:**
        - All SMF in the age group of 18-40 years, and whose name appears in the land records of the state as of 1st Aug 2019.
    - **Benefits:**
        - Minimum assured pension of Rs 3,000/- pm after attaining the age of 60 and 50% of the pension amount to spouse after the death of the farmer. (Family pension is applicable only to spouse)
    - **Other features to note:**
        - It is a voluntary and contributory pension scheme (monthly contribution between Rs 55 to Rs 200 per month till the age of 60)
        - Matching contribution will be made by the government.
        - **LIC** will be the pension fund manager of the scheme.
    - **Synergy with PM-KISAAN ->** Farmer can ask for withdrawal form PM-KISAAN for this scheme
    - **Exceptions**
        - SMFs already covered under any other social security schemes like NPS, ESIC, EPFO etc.
        - Who opted for Shram Yogi Maandhan Yojana or Vyapari Maandhan administered by Ministry of Labour and Employment.
        - Other exceptions similar to PM-KISAN
    - **Should Possess**
        - Aadhaar
        - Saving Account/PM-KISAAN Account
- **Need:**

» 90% of Indian workforce not covered under old age pension initiative

5. FOOD SECURITY

- **What is Food Security?**
    - As per the Committee on World Food Security, the food security exists when all people, at all times, have **physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences** for an active and healthy life.
    - The **Four Pillars** of food security are availability, access, utilization, and stability (both price and supply).

- **Key Initiatives to Promote Food Security in India**:
    - » **National Food Security Act, 2013:** It seeks to provide subsidized food grains to approximately 2/3rd of India's population.
        - Other than this, Mid-Day Meal Scheme, Integrated Child Development Program, and the PDS system are focused on ensuring nutritional security.

    - » **Various initiatives at state level include:**
        - '**Indira Canteen**' initiative by the state of Karnataka, which serves breakfast, lunch and dinner at very low prices.
        - **'Amma Unavagam'** (Mother's Canteen) is an initiative by TN.

    - » **Government also takes** several initiatives to control food inflation:
        - **Maintaining Buffer stocks**
        - **Controlling** Exports in case of scarcity
        - **Using MSP** mechanism to encourage farmers to grow crops which are in shortage.

2) NATIONAL FOOD SECURITY ACT, 2013

- **Introduction:**
    - The NFSA, 2013 seeks to provide for food and nutritional security in human lifecycle approach, by ensuring adequate quantity and quality of food at affordable prices to people to live a life with dignity and for matters connected therewith and incidental thereto.

- **Salient Features of the Act are:**
    - It gives legal entitlement to **75% rural and 50% of the urban population** (which come to 2/3rd of country's population) for subsidized grains under TPDS.
    - It moves from **'household food entitlement' to 'individual food entitlement'**. Every individual is entitled to 5 kg of rice, wheat, or coarse cereals a month at Rs 3, Rs 2 and Rs 1 per kg. The beneficiary is identified by the state government based on the parameters decided by centre.
    - The entitlement for Antyodaya Anna Yojna (AAY) will remain at Rs 35 kg per household.
    - **For pregnant and lactating mothers**, the act provides for free meal at the local anganwadi (during pregnancy and upto six months after child birth) as well as maternity benefits of Rs 6,000 in instalments.
    - **For Children:**
        - Below 6 months: 'Exclusive breast feeding shall be promoted)

        - **Six month to six years**: The age guarantees an age appropriate meal, free of charge, through the local anganwadis.
        - **Six years to 14 years:** One free mid-day meal, shall be provided everyday (except on school holidays) in all school run by local bodies, government and government aided schools, upto Class VIII.
    - The act also provides for the Creation of State Food Commissions which will monitor and evaluate the implementation of the act, give advice to state governments and will enquire into violations of entitlement.
    - **Food Security Allowance** in case of non-supply of the entitled quantities of foodgrains or meals to entitled persons under the act.
    - **Schedule 3 of the act** also lists various provisions for advancing food security, under three broad categories:
        - Revitalization of Agriculture; reforming procurement, storage and movement; other provisions like drinking water, sanitation, health care, adequate pensions for senior citizens, persons with disability and single women.

- **Progress:**
    - » NFSA has been implemented in all 36 states/Uts covering more than 80 crore persons.
    - » Direct Benefit Transfer: In Chandigarh, Puducherry, and Urban areas of Dadra and Nagar Haveli, the act is being implemented in the cash transfer mode.

- **How has it contributed in reducing Hunger:**
    - Increased food availability for weaker section. It is visible in increased government food subsidy burden.
    - By taking a lifecycle approach, it has ensured the right from the time women get pregnant to the death of a person, if the person is vulnerable, she would get food security support.
    - With improved used of technology, like Aadhar based authentication, leakage has reduced.
    - **One Nation One Ration Card (ONORC)** will also ensure that migrants are able to enjoy the benefits of NFSA.

- **Challenges:**
    - Fiscal Burden; Leakages and Siphoning; Identification of Beneficiaries issues; Infrastructural issues; Aadhar Related Issues; Social and Cultural Factors;

6. PUBLIC DISTRIBUTION SYSTEM AND ASSOCIATED ISSUES

- **Introduction**
    - The Public distribution system (PDS) evolved as a system of management of scarcity and for distribution of food grains at affordable prices. Over the years, PDS has become an important part of Government's policy for management of food economy in the country.
    - **Note**: PDS is supplemental in nature
    - **Responsibility:** PDS is operated under the **joint responsibility of the Central and the State Government**.
        - » **Central Government**, through Food Corporation of India (FCI), has assumed the responsibility of procurement, storage, transportation and bulk allocation of food grains to the state governments.

- **State government** own the operational responsibilities including allocation within state, identification of eligible families, issue of Ration Cards and supervision of the functioning of the fair price shops (FPSs).

- **Commodities:**
  - Under the PDS, presently the commodities namely **wheat, rice, sugar and Kerosene** are being allocated to the States and UTs for distribution.
  - **State governments** also distribute additional items of mass consumption through the PDS outlets such as pulses, edible oils, iodized salts, spices etc.

- **Evolution of PDS**
  - Emanated in critical food shortages of 1960s. Initially began with focus on **urban scarcity area**. It contributed to containment of price rise and ensured access to food grain to urban consumers.

  - With increase in food production, primarily due to green revolution, the outreach of PDS was extended to **tribal blocks and high poverty incidence areas** in 1970s and 1980s.
  - Till 1992, it remained a general entitlement.

  - In 1992**, Revamped PDS** was launched in 1775 blocks throughout the country - where a substantial number of poor lived.

  - **Targeted PDS (TPDS)** was started in 1997 with focus on the poor.
    - **Three core TPDS categories:** Under the TPDS, households are classified in accordance with a set of socio-economic parameters and provided with a ration card on this basis. Across India, the three core PDS card categories are above poverty line (APL), below poverty line (BPL) and Antyodaya (poorest of the poor) (**AAY** was started in 2000).

  - **Antyodaya Anna Yojana (AAY)**
    - In order to take TPDS more focused and targeted this category of population, the AAY was launched in December 2000 for 1 crore poorest of the poor families among the number of BPL families covered under TPDS within the states and providing them food grains at **highly subsidized rate of Rs 2 per Kg for wheat, Rs 3 per Kg for rice**. The states/UTs are required to bear the distribution cost, including margin to dealers and retailers as well as the transportation cost.
    - **The scale of issue** was initially **25 Kg per family per month** and was increased to **35 Kg per family per month with effect from April 1 2002**.

  - **TPDS under National Food Security Act, 2013**
    - NFSA, 2013 was notified on 10th Sep 2013.
    - It covers 2/3rd of the entire population (75% of rural population and 50% of the urban population) under two categories of beneficiaries: 1) **Antyodaya Anna Yojana** (AAY) and 2) **Priority Households (PHH)**. .

- Under the NFSA, 2013, the **priority households** are entitled to receive food grains **@5 Kg per person per month** at the issue price of Rs. 3.00, Rs. 2.00 and Rs. 1.00 per Kg for rice, wheat and coarse grains respectively. **The existing AAY households**, however, continue to receive 35 Kg of food grains per household per month.

- **Pradhan Mantri Garib Kalyan Anna Yojna**
  - A Part of Atmanirbhar Bharat Abhiyan.
  - It was launched to provide additional allocation of foodgrains from the Central Pool at the rate of 5 kg per person per month **free of cost** for all the beneficiaries covered under TPDS (AYY & PHH) including those covered under DBT for a period of 3 months i.e. April - June 2020.
  - It has continued to be extended since then.
  - In **Nov 2023**, the government has declared the extension of PMGKAY for an additional **five years till 2028**. The implementation of this extension began from 1st Jan 2024.

- **Key Challenges faced by the PDS system**
  1. **Corruption and Leakage**; **Inaccurate targeting of beneficiaries**; **Heavy losses in storage and transportation**; **Later and Irregular arrival of grains in fair price shops**; **WTO's Agreement on Agriculture**; **Nutritional challenges due to lack of focus on food diversity**; **Digitization of PDS**

- **REVAMPING PDS**
  - **Steps being Taken.**
    a. **Decentralization of Procurement Process**
    b. **Integrated Management of Public Distribution System -** (IM-PDS): Integrate PDS system/portals of states/UTs with Central Systems/portals with and aim to introduction of national portability, and de-duplication of ration cards/beneficiary etc.
    c. **One Nation One Ration Card (ONORC) -** To ensure that even migrant workers are able to enjoy the benefit of Public Distribution system.

3) ONE NATION ONE RATION CARD (ONORC)

- **What is a Ration Card?**
  - PDS families are **issued Ration Cards** to access this benefit. Currently, around 23 crore ration cards have been issued in all states and UTs.
  - **Before the ONORC system,** a ration card could be used to access subsidized grains from the fair price shop assigned in the **locality**. A migrant was not able to access subsidized grains in new locality.

- **One Nation, One Ration Card (ONORC)**
  - ONORC is being implemented under NFSA, 2013. it allows beneficiary to buy subsidized food grains from any FPS shop in the country, by using the same ration card after biometric/Aadhar authentication on electronic Point of Sale (ePOS) devices.

- **How does ONORC work?**
  » Integrated Management of Public Distribution System (IM-PDS) portal, provide the technical platform for the inter-state portability of ration cards.
  » **Biometric authentication** on ePOS devices enable beneficiary to purchase the entitled food grains under the NFSA.
  » **Annavitran.nic.in** hosts the data of distribution of foodgrains through E-PoS devices within a state.
    - It allows availing of PDS benefit outside the district but within the home state.
  » **Standard Format of ration cards** which ensures an unique ID of each customer.

- **How much foodgrains cane be procured?**
  - Only the migrants' entitlement, the rest of the grains would be procured by the family back home.

- **Steps being taken**
  - **Seeding of Ration Cards** with Aadhaar numbers, **Installation of ePOS devices** at all FPS
  - Once 100% target of both these are reached, the all-India portability of ration cards will become a reality.

- **Needs/Advantages of One Ration Card**
  - **Right to Food:** Enable **migrant families to access PDS benefits** from any Fair Price Shop in the country.
  - **End Discrimination and Improve the quality of service**
  - **Aadhaar seeding** would also **weed out duplicate ration cards**
  - It could be highly crucial for emergencies like the COVID-19 crisis.

7. AGRI-MARKETING REFORM

- **Efficient Agri-marketing is crucial for:**
  1. **Ensuring proper prices for farmers; Lower prices for consumers**; Stimulating **agro-based and food processing industrial growth.**
  2. **Reduced subsidy burden for government.**

- However, the Agri development in India has ignored the potential of marketing and has continued to follow its old trajectory. Since, agri-marketing is a state subject, it is stuck in a tussle between Centre and states.

- **How has the system functioned so far? -> The APMC System and its issues**
  - The Agri markets in India are mainly regulated by the state Agriculture Produce Marketing Committee (APMC) laws. These laws enable state governments to regulated wholesale markets and marketing practices. APMC Acts make in mandatory for farmers to sell their produce only to licensed merchants (can also be called government approved merchants) at Mandis set up by State Agriculture Market Boards.

- **What was the need of APMC Laws / Regulated Markets (Mandis)**

- In the absence of any market regulations, the farmers were being exploited by traders and intermediaries.
- The regulated Mandis prevented the exploitation by ensuring **fair prices through bidding process** at these regulated markets.

- **Current Situation**
  - India currently has around 2500 principle regulated primary agricultural markets in the country which are governed by state APMC Acts and administered by a separate Agricultural Produce Marketing Committee.
  - APMCs regulate the trade of farmers by
    - Providing **licenses** to buyers, commission agents, and private markets.
    - Levy **market fees** or any other charges on such trade.
    - Provide **necessary infrastructure** within their market to facilitate trade.
  - Trade is allowed withing the APMC mandis or between two APMC mandis situated in the same state.

- **How these Mandis have served farmers**: These APMCs have ensured that fruits of Green Revolution reach farmers.
  - **Reduction in exploitation by intermediaries** - not allowed to sell products outside the mandi
  - **Good Price: Sale through auction** -> best possible prices available.

- **But, present APMC structure has led to many challenges/limitations**
  - **Price Fixing, Cartelization** by licensed traders;
  - **Information asymmetry** and opaque process for price discovery.
  - **Undue deduction** in the form of commission charges and market fees.
  - **Fragmentation of agri-market**
  - **Hindered private investment in agri-marketing -> Poor Infrastructure and low use of technology**
    - As according to APMC acts, only state governments could set up these Mandis.

- **To remove the above limitations, the central government has taken many steps:**
  1. **Model APMC Acts**
  2. **Bihar** has completely done away with APMC act and **Kerala** had never implemented it. **Maharashtra** is also trying to liberalize the state APMC law.
  3. Promotion of **e-NAM** by central government for promotion of unification of markets both at state and national level.
  4. Development primary markets / submarkets as **GrAMs** (Gramin Agriculture Markets) with improved infrastructure
  5. Creation of **Agri Market Infrastructure Fund (AMIF)** for development and upgradation of Gramin Agriculture Markets.

- **The three farm laws and their repeal** [2020 and 2021]
  1. **The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 [FPTC]**
     - It sought to create an ecosystem where farmers and traders enjoy the freedom of choice to sale and purchase of farmer's produce. The law granted freedom to farmers and buyers to transact in agriculture commodities even outside APMC mandis ensuring

competitive alternative trading channels to promote efficient, transparent, and barrier free inter-state and intra-state trade.

- It also allowed electronic trading and abolished market fees, cess or levy.
- It allowed electronic trading and e-trading platform could be set up by companies, partnership firms, or registered companies.

2. **The Farmers' (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act [FAPAFS], 2020**
    - The act provided for national framework for contract farming which protects and empowers the farmers in their engagement with agri-business firms, whole sellers, processors etc.
    - The act regulated the farming agreement and ensured a guaranteed price and mechanism for determining the guaranteed price.
    - It had also established a well-defined, fast tracked, dispute settlement system with SDM as adjudication authority and DM as the appellate authority.

3. **the Essential Commodities (Amendment) Act, 2020 [ECA]**
    - It sought to remove commodities like cereals, pulses, oilseeds, edible oils, onion and potatoes from the list of essential commodities. The amendment was aimed at ending the era of frequent imposition of stock-holding limits except under extraordinary circumstances.
        - As per this law stock limit could be imposed only if there was huge prize fluctuations (100% price rise for horticulture crops or 50% increase in retail price on non-perishable agri-good).

- **Some committees/reports which had recommended similar changes in the APMC** system.
    - Expert Committee on Strengthening and Development of Agriculture Marketing - Chairman: **Shri Shakerlal Guru (**June 2011)
    - Report on Task Force on Employment Opportunities - Chairman: Shri **Montek Singh Ahluwalia** (2001)
    - Model Act on Agriculture Marketing Reforms - Chairman: Shri R.C.A Jain (July 2001)
    - Model Act on Agriculture Marketing (Sep 2003)
    - Serving Farmers and Saving Farmers - First Report - **National Commission on Farmers - Chairman: Dr. M.S. Swaminathan (2004)**
    - Final Report of Committee of State Ministers, in-charge of Agriculture Marketing to Promote Reforms
    - Budget 2017-18
    - **Standing Committee on Agriculture,** Ministry of Agriculture and Farmers Welfare : Agriculture Marketing and Role of Weekly Graamin Haats (2018-19)
    - **Several Economic Surveys**

- **Why farmers protested?**
    - **Doubts about MSP regime weakening** due to private markets and players
    - **Unregulated markets may be problematic for farmers.**

- **Lack of Focus on Marketing Infrastructure -> APMC Mandi infra may deteriorate** -> the changes may have resulted in gradual erosion of the quality of trading infrastructure as was seen in case of Bihar after APMC Act was repealed in 2006.
- **In Contract Farming** it had been seen that small and marginal farmers are generally on the losing side with highly one-sided contracts, delayed payments, undue rejections and outright cheating besides poor enforcement of contracts. Further, the adjudication of dispute was left in the hands of executive.

- There was a **gross communication failure** on the part of the Central government to explain to farmers what these laws are, and how they are intended to benefit them.

4) E-NAM

- **Introduction: e-NAM**
  - e-NAM is a pan India **electronic trading portal** for farm produce which creates a **unified national market** for agricultural commodities by i**ntegrating existing APMC markets** and other market yards. It was launched in **April 2016**.

  - The **Small Farmers' Agribusiness Consortium (SFAC)** acts as the leading implementing agency of e-NAM. It operates and mantains the platform with the help of a strategic partner, NFCL
  - This portal provides a **single window service** for all APMC related services and information, such as commodity arrivals and prices, provision of responding to trade offers, buy and sell trade offers, among other services.

  - Under e-NAM, the Government provides free software and one time assistance of Rs 75 lakh per mandi for computer hardware and IT infrastructure.
    - The hardware includes quality assaying equipment and creation of infrastructure for cleaning, grading, sorting, packaging and compost unit, etc.

- **Salient Features**
  - It provides for a **national e-market** platform for transparent sale transaction.
  - It **enables farmers to showcase their produce** through their nearby markets and **facilitate traders from anywhere to quote price**.
  - **Liberal licensing** of traders / buyers and commission agents by state authorities.
  - There are **no preconditions for physical presence** or possession of shop/premises in the market yard.
  - **One license** for the trader would be valid all across the country.
  - **Single point levy of the market fee**, i.e. on the first wholesale purchase from the farmer
  - **Harmonizing the quality standards of agricultural produce** and infrastructure for quality testing is made available in every market to enable informed bidding by buyers. At present, Common tradeable parameters have been developed in 25 commodities.
  - **States desirous to join** has to accordingly **enact suitable provisions in their APMC Act**.
    - The amendments include a single point levy of mandi fee, unified trade license valid across all mandis of the state, and provision for e-auction facilities.

» States can have their own electronic platform and can decide to link them to NAM.

Budget 2024-25: About E-NAM: There has been an integration of 1,361 mandis under e-nam, supporting trading volume of around 3 lakh crores.

5) GRAMIN AGRICULTURE MARKETS (GRAMS)

- **About GrAMs (According to Budget 2018-19)**
  - Existing 22,000 rural haats will be upgraded to **Gramin Agriculture Markets (GrAMs)**.
    - In these GrAMs physical infrastructure will be strengthened using MGNREGA and other government schemes.
    - These GrAMs will be electronically linked to e-NAM and exempted from regulations of APMCs. This will provide farmers with facilities to make direct sale to consumers and bulk purchasers.
    - An **Agri-Infrastructure Fund** with a corpus of Rs 2000 crore will be set up for developing and upgrading the agricultural market infrastructure in the 22000 Grameen Agricultural Markets (GrAMs) and 585 APMCs.
    - Prime Minister Gram Sadak Yojana Phase - III will ensure these GrAMs are connected to major link roads.

- **How will it benefit farmers?**
  - GrAMs will serve as multi-purpose platforms for assembly, aggregation and local retail; It will enable flow of market intelligence and thus better price realization for farmers; even small and marginal farmers will benefit from E-NAM; improved infrastructure;
  - Thus, GrAMs will provide systematic linkage access points to realize the vision of **Unified National Market** by bringing primary post production activities to farmers at village level.

6) AGRI-INFRASTRUCTURE FUND

- It is a central sector scheme which provide a medium to long term loans for investment in viable projects for **post-harvest management infrastructure and community farming assets**.
  - Loans to be disbursed for only 6 years (2020-21 to 2025-26)
  - Interest subvention and credit guarantee assistance will be given until 2032-33.

- **Intended beneficiaries:** Rs 1 lakh crore to be provided by banks and financial institutions to:
  - Primary Agriculture Credit Societies (PACS), Marketing Cooperatives Societies, FPOs, SHGs, Farmers, Joint Liability Groups, Agri-entrepreneurs, Startups, Central/State Agency or Local Body Sponsored PPP Projects.

- **Benefits**
  - **Interest subvention** of 3% per annum upto a limit of 2 crore. This subvention will be available for a max period of 7 years.
  - Further, **Credit Guarantee Coverage** will be available for eligible borrowers from this financing facility under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme for a loan of **upto Rs 2 crore**.

- FPOs created under FPO promotion scheme of Department of Agriculture, Cooperation, & Farmer Welfare (DACFW) will also get Credit Guarantee
  - The Fee for this coverage will be paid by the government.
  - **Moratorium** for repayment under this financing facility may vary subject to minimum of 6 months and a maximum of 2 years.

- **The implication** of government will not be of more than Rs 5,000 crore in the form of Interest Subvention subsidies.

  Budget 2021-22 have announced that APMCs can get access to Agriculture Infrastructure Funds for augmenting Infrastructure Facilities.

7) KRISHI UDAN 2.0

- **Introduction**:
  - The **integration of Agriculture and aviation** is possible **in three ways**:
    - Evolutionary possible use of biofuel for aircraft in future
    - Use of drones in agriculture sector
    - Greater integration and value realization of agricultural products through schemes like Krishi UDAN. Krishi UDAN 2.0 is focused on this third way.

- **Agri-UDAN 2.0:**
  - Krishi UDAN 2.0 lays out a **vision** of **improving value realization** by optimizing and integrating agri-harvesting and **air transportation**. This would contribute to agri-value chain sustainability and resilience under different and dynamic conditions.
  - It is focused on facilitating and incentivizing movement of Agri-produce by air transportation.
  - It would be **implemented at 53 airports** across the country mostly focusing on NE, tribal regions and Hilly region and is likely to benefit farmers, agri forwarders and Airlines.
  - **A pilot version** would run for 6 months and later changes would be implemented as per the learning.
  - **Key Highlights:**
    - **Promoting movement of agri-produce by air transportation** -> Waiver of landing, parking and some other charges on selected airports of AAI.
    - **Strengthening Cargo related infrastructure** at airports and off airports: Focus is on developing a hub and spoke model and a freight grid. Airside transit and trans-shipment infrastructure will be created at Bagdogra and Guwahati airports, and at Leh, Srinagar, Nagpur, Nashik, Ranchi and Raipur as part of the focus on NER, Tribal and Hilly districts.
    - **Other Concessions** have been sought: States have been requested to reduce Sales Tax to 1% on ATF for freighters/ P2C aircraft as extended in UDAN flights.
    - **Resources-Pooling** have been planned. It includes collaboration with other government departments and regulatory bodies to provide incentives and concessions to enhance air-transportation of Agri-Produce.
    - **Technological Convergence:** Development of **E-KUSHAL** (Krishi UDAN for Sustainable Holistic Agri-Logistics) platform to promote information dissemination to all stakeholders. This will also help in coordination, evaluation and monitoring of the scheme. Furthermore, integration of E-Kaushal with e-NAM has also been proposed.
    - **The strategic selection of airports** is primarily focused on northeast region.

- Airports have been selected keeping in mind the whole country.

8. FOOD PROCESSING SECTOR – THE SUNRISE SECTOR

1. **Infrastructure Improvement**
   a. **Pradhan Mantri Kisan SAMPADA Yojana** (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) - a central sector scheme with an allocation of Rs 6,000 crore for the period 2016-20 for creation of modern infrastructure with efficient supply chain in the food processing sector.
      - It has **incorporated other schemes** related to food processing under it including Mega Food Parks, Integrated Cold Chain and Value Addition Infrastructure, Creation/Expansion of Food Processing/Preservation Capacities, Infrastructure for Agro-Processing Clusters, Creation of Backward and Forward Linkages, Food Safety and Quality Assurance Infrastructure, and Human Resource and Institutions.

   b. **Mega Food Park Scheme, 2008**
      - It focuses on establishing mega food clusters for creating major infrastructure facilities in India to add value and reduce wastage at each stage of the supply chain (from farm to market). MoFPI provides a assistance of 50% of the project cost (excluding land), subject to a maximum of Rs 50 crore.

   c. **Modernization of Abattoirs Scheme:**
      - Enhance processing and preservation capacities to improve quality and reduce wastage.

2. **Production Linked Incentive Scheme for Food Processing Sector** (PLISFPS)
   - A central sector scheme for implementation during 2021-22 to 2026-27 with an outlay of Rs 10,900 crore.
   - Aimed at increasing the production capacity and improved international branding for the Food Processing Sector in India.

3. **One of the priority sector** under **Make in India initiatives**

4. **Steps to ensure Credit Availability**
   a. The government has set up a **Special Fund of Rs 2,000 crore in NABARD to** make available affordable credit at concessional rate of interest to designated food parks and agro-processing units.
   b. Food and Agro Processing Units and Cold Chain infra have been brought under the ambit of **Priority Sector Lending**
   c. **Subsidized credit through** PM FME

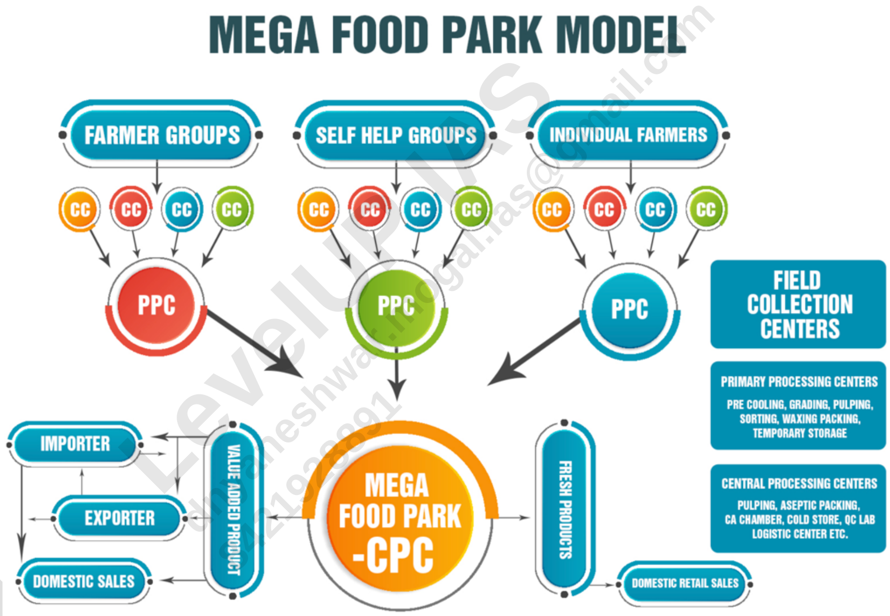
5. **Pradhan Mantri Formalization of Micro Food Processing Enterprise (PM FME)** provides **credit linked subsidies** to individuals/SHGs/FPOs etc. for food processing infra development. It also helps in development of common infrastructure like labs, warehouses etc.; support for marketing and branding; training; product development; packaging etc. it is based on **One District One Product (ODOP)** approach.

6. **Other steps for Attracting Investment in the sector:**
    - **100% FDI** is permitted under the automatic route for food processing sector.
        - **For e-commerce** in respect of food products manufactured and/or produced in India, 100% FDI through approval route is allowed.
    - **MoFPI**, GoI have signed MoU with Japan, Italy, Vietnam and Taiwan for promotion of investment in the Food Processing Sector. (July 2022)

8) MEGA FOOD PARK SCHEME

- **Ministry:** MoFPI
- This scheme is now a component of Pradhan Mantri Kisan Sampada Yojana (PMKSY).
- It focuses on **establishing mega food clusters** for creating major infrastructure facilities in India to add value and reduce wastage at each stage of the supply chain (from farm to market). MoFPI **provides a assistance of 50% [75% in NE and Hilly states] of the project cost** (excluding land), subject to a maximum of Rs 50 crore.

- The park is developed on **Hub and Spoke Model,** where Central Processing Centre acts as Hub and **PPCs** and **CCs** act as Spokes.
    - Facilities for **primary processing and storage** is created near the farm in the form of **Primary Processing Centre (PPC)** and **Collection Centre** (CC).
    - Common facilities and enabling infrastructure for providing **secondary and tertiary infrastructure and processing** services is created and **Central Processing Centre** (CPC).



- Under the scheme government has sanctioned setting up of **42 Mega Food Parks** in the country.
    - Of this final approval to 38 MFP have been given. Out of these, as of Aug 2021, 22 Mega Food Parks are operational.

- **Advantages**
    - Contributes to reduction of food wastage, increased income of farmers, better value addition etc.

- Gives boost to food processing sector (hence to export and employment opportunities) by creation of high quality infrastructure.
- Capacity building of producers and processors and creation of efficient supply chain along with significant direct and indirect employment generations.

9) PLISFPI (PRODUCTION LINKED INCENTIVE SCHEME FOR FOOD PROCESSING INDUSTRY)

- PLISFPI has been formulated based on the PLI Scheme for NITI Aayog under '**Aatmanirbhar Bharat Abhiyan for Enhancing India's Manufacturing Capabilities and Enhancing Exports**".
- It is a Central Sector Scheme for implementation during **2021-22 to 2026-27** with an outlay of Rs **10,900 crore**.
- **Objectives of the scheme:**
    - **Support FPIs** with stipulated minimum sales and willing to make minimum stipulated investments for expansion of processing capacity and branding abroad to incentivize emergence of strong Indian brands:
        - Support creation of Global Manufacturing Champions.
        - Strengthen select Indian Brand of food products for global visibility and wider acceptance in the international markets
        - Increase employment opportunities in off-farm jobs.
        - Ensuring remunerative prices of farm produce and higher income to farmers.

- MoFPI invited applications for availing sales based incentives and grants for undertaking Branding & Marketing activities abroad under the scheme from three categories of applicants:
    - **Category 1:** Applicants are large entities who apply for Incentives based on Sales and Investment Criteria. Applicant under this category could undertake branding & marketing activities abroad also and apply for grant under the scheme with a common application.
    - **Category 2**: SMEs applicants manufacturing innovative/ organic products who apply for PLI incentive based on sales.

    - **Category 3**: Applicants applying solely for grant for un**dertaking Branding & Marketing activities abroad**.

10) PM FORMALIZATION OF MICRO FOOD PROCESSING ENTERPRISES (PM FME)

- **Ministry**: MoFPI
- Launched in June 2020 as part of "AtmaNirbhar Bharat Abhiyan".
- It is a **centrally sponsored [60:40** (90:10 for SCS)**]** scheme which will be implemented over a period of five years 2020-21 to 2024-25 with an outlay of **Rs 10,000 crores**.

- The scheme is expected to benefit 2 lakh micro food processing units through credit linked subsidy.
- **Key Steps Planned:**
    - **Credit Linked Subsidy @35%** of the eligible project cost with a maximum ceiling of Rs. 10 lakh per unit would be provided **existing individual micro-food processing enterprises**.

- **Seed capital @Rs 40,000 per SHG** member would be provided for working capital and purchase of small tools.
- **FPOs/SHGs/ Producer Cooperatives** would be provided credit linked grant of 35% for capital investment along the value chain.
- **Support for development of Common infrastructure** - through **credit linked grant @35%** for development of common infrastructure including common processing facility, lab, warehouse, cold storage, packaging and incubation centre through FPOs/SHGs/ cooperatives or state owned agencies or private enterprises to use by micro units in the cluster.
- **Support for marketing and branding** would be provided to develop brands for micro units and groups with 50% grant at State or regional level which could benefit large number of micro units in clusters.
- **Special focus on Capacity Building and Research**
  - **NIFTEM** and **IIFPT**, the two academic institutions under MoFPI along with state level technical institutions selected by state would be provided support for training of units, product development, appropriate packaging and machinery for micro units.

- The scheme adopts **one district one product approach** (ODOP) to reap **benefit of scale** in terms of procurement of inputs, availing common services, and marketing of products.
  - The state will identify the food product for a district keeping in view the existing clusters and availability of raw material.
  - ODOP product could be cereal based, perishable or a food product widely produced in a district and their allied sector. E.g. mango, potato, litchi, bhujia, petha, papad, fisheries, poultry, meat, animal feed etc.
  - Preference would be given to ODOP product but other units would also be supported.
  - But support of common infrastructure, branding, marketing etc. would be available for ODOP only.
  - The scheme also places focus on **waste to wealth products**, **minor forest products** and **Aspirational districts**

9. PENDING TOPICS

- Agri-Exports
- Animal Husbandry, Fishery etc.

TARGET PRELIMS 2024
BOOKLET-24; ECONOMY-5
AGRICULTURE-4: ANIMAL REARING

1. TABLE OF CONTENTS

2. IMPORTANT STATS

1) BASIC ANIMAL HUSBANDRY STATISTICS, 2023

- Released by Ministry of Fishery, Animal Husbandry & Dairying in Nov 2023. It is based on Animal Integrated Sample Survey (March 2022-Feb 2023). This ISS is conducted across the country in three seasons i.e., Summer (March-June), Rainy (July-Oct) and Winter (Nov - Feb).

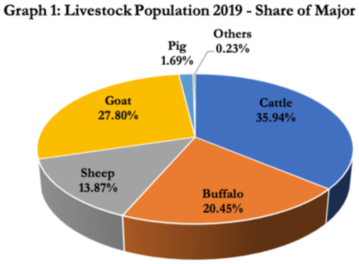
- **Key Highlights:**
  - **i. Milk Production**:
    - 230 million tonnes (a growth of 22.81% over past five years which was 187.75 million tonnes in 2018-19).
    - Highest Milk Producing States: UP (15.72%); Rajasthan (14.44%); Madhya Pradesh (8.73%); Gujarat (7.49%) and Andhra Pradesh (6.70%)
  - ii. **Egg Production**:
    - **138.38** billion (33% growth over five years as compared to estimates of 103.83 billion in 2018-19)
    - **Highest Egg Producing States**: Andhra Pradesh (20.13%); TN (15.58%); Telangana (12.77%); West Bengal (9.94%) and Karnataka (6.51%);
  - iii. **Meat Production**:
    - **9.77 million tonnes** (20.39% increase in five years - 8.11 million tonnes in 2018-19)
    - **Highest Meat Producing State** (Uttar Pradesh (12.20%); West Bengal (11.93%); Maharashtra (11.50%); Andhra Pradesh (11.20%); Telangana (11.06%)
  - iv. **Wool Production**:
    - **33.61 million** Kgs (**negative growth** (-16.84% over the past five years as compared to the estimates of 40.42 million kg during 2018-19)
    - **Highest Wool Producing States**: Rajasthan (47.08%); J&K (22.55%); Gujarat (6.01%); Maharashtra (4.73%); Himachal Pradesh (4.72%)

2) 20TH LIVESTOCK CENSUS

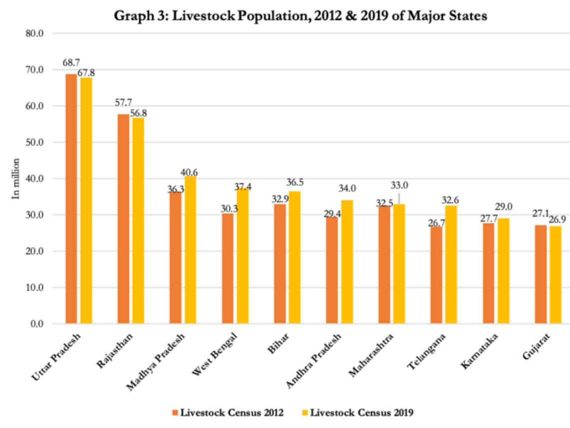
- **Background:**
  - » The livestock census is conducted periodically [**every five years]** in the country since 1919. It usually covers all domesticated animals.

- **Key highlights of 20th Livestock census** (launched in Oct 2018)
  - » **Total livestock population: 535.78 million** (showing an increase of 4.6% over the livestock census 2012)
  - » **The Bovine population** (Cattle, Buffalo, Mithun and Yak) is 302.79 million in 2019 and shows an increase of **1%** over the previous census.
    - ▫ **Cattle - 192.49** million (+0.8%)
    - ▫ **Buffaloes** - **109.85** [+1%]
    - ▫ **Total milch animals** (in milk + dry) in cows and buffaloes - **125.34 million** (+0.6%)
  - » **Total Goat** - 148.88 million (+10.1%)

Graph 1: Livestock Population 2019 - Share of Major Species



- » **Total Sheep** - 74.26 million (+14.1%)
- » **Pigs** - 9.06 million (-12.03%)
- » **Other livestock** (Mithun, Yak, Horses, Ponies, Mule, Donkeys, camel - 0.23% of the total livestock: **1.24 million**.
- » **State wise distribution.**



3. DAIRY SECTOR IN INDIA

- India is the **world's largest producer (20% of the world's production) and consumer of milk** and has the world's largest dairy herd comprised of water buffaloes and indigenous and crossbred cattle.
- **Currently** India produces more than 230 million tonnes of milk. It is an important secondary source of income for 80 million rural households engaged in dairying and for 70% of the workforce that comprised women. It contributes to a fifth of India's farm output and is important source of nutrition in average Indian diet.
- **Net Exporter:** Since the early 2000s, India is a net exporter of the dairy products which primarily include the milk powder.
- **Key Challenges**: Dairy sector in India is characterized by low input -> low output.

  - For e.g. in India annual milk yield per cow is **1642.9 kg**, which is only 2/3rd of the global average of **2430.2 kg**. The average for USA is **10,457.4 kg**.

1) IMPORTANT SCHEMES/ INITIATIVES FOR LIVESTOCK SECTOR

A) RASHTRIYA GOKUL MISSION:

- » To undertake breed improvement program for Indigenous breeds so as to improve the genetic makeup and increase the stock.

B) E PASHU HAAT PORTAL:

- » The portal has been developed under National Mission on Bovine Productivity. It **connects breeders and farmers** regarding availability of quality bovine germplasm. Through the portal, breeders/farmers can sell or purchase their breeding stock. Information about all forms of germplasm including semen, embryos and live animals with all the agencies and stakeholders in the country has been uploaded on the portal.

C) NATIONAL LIVESTOCK MISSION:

- It ensures intensive development of livestock, especially **small livestock (sheep/goat, poultry rearing etc.)** along with adequate availability of quality feed and fodder.
- The scheme has been restructured for 2021-22 to 2025-26. It focuses on entrepreneurship development and breeds improvement in poultry, sheep, goat, and piggery, including feed and fodder development.

D) LIVESTOCK HEALTH AND DISEASE CONTROL SCHEME:

- It provides assistance for prevention and control of animal disease like Foot and Mouth Disease (FMD), Peste des Petits Ruminants (PPR), Brucellosis, Classical Swine Fever etc.
- It is being implemented to **supplement the state/UT governments' efforts** towards preventing, controlling, and containing, animal disease of economic and zoonotic importance by vaccination.

E) DAIRY DEVELOPMENT:

Government is making efforts for strengthening infrastructure for production, processing and marketing of quality milk and milk products through following schemes:

- National Program for Dairy Development
- National Dairy Plan (Phase-1)
- Dairy Entrepreneurship Development Scheme
- Dairy Processing and Infrastructure Development Fund (DIDF)

F) RS 15,000 CRORE FOR ANIMAL HUSBANDRY INFRASTRUCTURE DEVELOPMENT FUND (AHIDF)

- Launched as part of ANBA 1.0
- Aimed at **incentivizing investments** by individual entrepreneurs, private companies including MSME, FPOs, and Section 8 of Companies to establish (i) dairy processing and value addition infrastructure (ii) meat processing and value addition infrastructure, and (iii) animal feed plant.
- Government will provide a **3% interest subvention** to eligible beneficiaries. There will be a 2 year moratorium period for the principal loan amount and 6 years repayment period thereafter.
- **Loan of upto 90% of the project** cost from Scheduled Bank, National Cooperative Development Cooperation.

- The government would also set up a Credit Guarantee Fund of Rs 750 crore to be managed by NABARD.
  - Credit guarantee would cover those sanctioned projects which are covered under MSME defined ceilings.
  - Guarantee coverage would be upto 25% of the credit facility of the borrowers.

- To **ease out the process** an **online portal** '**ahidf.udyamimitra.in**' has been developed by SIDBI through which applicants can apply online to avail loans under the scheme.

G) FIRST EVER CREDIT GUARANTEE SCHEME FOR LIVESTOCK SECTOR LAUNCHED (JULY 2023)

- Under AHIDF.
- The scheme facilitates access to finance for unserved and underserved livestock sector, making availability of financial assistance from lenders to mainly first-generation entrepreneurs and underprivileged section of society, who lack collateral security for supporting their ventures. It thus ensures smooth flow of credit to MSME engaged in livestock sector without hassles of collateral security.

» For operationalizing the scheme, DAHD has established a **Credit Guarantee Fund Trust** of Rs 750 crores, which will provide credit guarantee coverage of upto 25% of the credit facility extended to the MSMEs by the eligible lending institutions.

» The fund trust incentivizes investments by individual entrepreneurs, private companies, MSMEs, FPOs to establish.

1. the dairy processing and value addition infrastructure,
2. meat processing and value addition infrastructure,
3. Animal Feed Plant,
4. Breed Improvement technology and Breed Multiplication Farm
5. Animal Waste to Wealth Management (Agri Waste Management) and;
6. Setting up of Veterinary Vaccine and Drugs Manufacturing facilities

H) KISAN CREDIT CARD (KCC) FOR ANIMAL HUSBANDRY & DAIRYING FARMERS

I) E-GOPALA APP - INAUGURATED IN SEP 2020

» It is a comprehensive breed improvement marketplace and information portal for direct farmer use.
  - It gives farmers the freedom from middlemen and provide **all information related to productivity, health and diet for cattle**. It will make it easy for farmers to choose advanced stock.

J) SUTRA PIC (SCIENTIFIC UTILIZATION THROUGH RESEARCH AUGMENTATION

» Prime Products From Indigenous Cows**) (Feb 2020) -** Under this initiative academic organizations and capable NGOs are provided funds to do research on indigenous cows, its products and application in health, medicine, agriculture, food, nutrition etc.

K) RASHTRIYA KAMDHENU AAYOG WAS APPROVED BY CABINET IN FEB 2019.

» The Government of India has constituted the "Rashtriya Kamdhenu Aayog" to organize animal husbandry on modern and scientific lines and to take steps for preserving and improving breeds, and prohibiting the slaughter, of cows and calves and other milch and draught cattle

» It is a high powered permanent body which will formulate policy and issue directions for scaling up sustainable genetic upgradation of bovine resources and also look after implementation of laws and welfare schemes for cows.

2) DAIRY BREEDS IN INDIA

» Indian breeds have lower milk yield when compared to advanced economies but many of them are capable of improved yields. Further they also carry some beneficial traits like disease resistance, survival on low quality forage which is native to India etc.

» **Indian Buffalo Breeds**

- The Indian breeds are well adapted to heat and humidity of the region and can consume both green and dry fodder. Most of these water buffaloes are characterized as non-descript or mixed, but there are some well-known breeds including:

Breed	State(s)	Yield (Kg)
Bhadawari	UP	800-1220
Murrah	Punjab and Haryana	1500-2500
Pandharpuri	MHA	1500
Mehsana	Gujarat	1200-1500

» **Indigenous Cattle**

- India has been bestowed with large number of cattle breeds. Some breeds specialize in milk production, while the others for draught purposes. There are many mixed, non-descript breeds too found in India. Some of the high yielding breeds include:

Breed	State(s)	Yield (Kg)
Sahiwal	Punjab and Rajasthan	1400-2500 kg
Red Sindhi	Odisha, TN, and Kerala	1250-1800 kg
Tharparkar	Rajasthan, Gujarat	1,800-2600 kg
Rathi/Rath	Rajasthan	
Gir	Gujarat	1200 - 1800 kg

» **Cross-bred Cattle**

- 1960s saw the beginning of programs for inter-breeding through Artificial Insemination of imported exotic breeds with indigenous breeds.
  - Cross-breeds can provide 30 to 50% more milk than indigenous animals under general management.
- The best exotic breeds for India tends to be Holstein, Brown Swiss, Red Dane, and Jersey.

▪ The most prevalent cross-bred combination includes:

Cross-Bred	Original cattle	Yield
Karan Swiss	American Brown Swiss with Sahiwal or Red Sindhi	3,257 kg
Karan Fries	Holstein-Friesen with Tharparkar	3,700 kg
Frieswal	Friesian with Sahiwal	27,00 kg

3) LUMPY SKIN DISEASE

- **About Lumpy Skin Disease:**
  - It is a contagious viral disease that affects cattle.

- The disease is characterized by **fever**, enlarged **superficial lymph nodes and multiple nodules** (measuring 2 to 5 cms in diameter) on the skin and mucous membranes (including those of the respiratory and gastrointestinal tracts).

- **Negative Economic Implications: Mortality (1-2%) of cattles**; permanent damage on skin lowers the value of hide; the disease may also create reduction in milk production; poor growth; infertility; abortion, and sometimes death.

- **About the Lumpy Skin Disease Virus:** It is a virus of the family ***Poxviridae***, *and genus* ***Capripoxvirus*** also known as Neethling virus.
- **Transmission:**
  - **Vectors:** The disease is transmitted by **blood feeding insects**, such as certain species of flies and mosquitoes, or ticks.
  - **Direct Transmissions**: Though LSD is primarily a vector borne disease, it can also spread through direct contact with the mucus of the infected cattle.

- **Extent of Spread in the world:**
  - LSD was first seen as an epidemic in Zambia in 1929. It has also spread to Middle East and Europe.
  - **Indian Subcontinent:**
    - LSD was first reported to the Bangladesh Department of Livestock Services in **July 2019. India** too saw the first case of the disease in the same year in WB and Odisha.
    - In 2022, LSD was reported in Gujarat, and it has spread to eight states/UT now.

- **Why is being done to control LSD?**
  - The process of giving goat pox vaccine to healthy cattle has been started.
  - States are putting temporary ban on cattle transport and cattle fairs.

4) SMALL RUMINANT SECTOR

- **Introduction**
  - Small ruminants (sheep and goat) are widely distributed across various agro-ecological zones of India, playing an important role in socio-economic development of resource poor farmers in rural India. Around 15% of the households in rural India rear sheep/goat and around 70% of the sheep goat are reared by small and marginal farmers.
  - The total population of goat and sheep in India stands at 200 million (40% of the livestock population in India).
- **Advantage/Significance of Sheep and Goat rearing:**
  - **Alternate Source of income**
  - **Advantage over ruminant dairy sector.**
    - Low capital investment and production input.
    - Low Feed and management needs
    - Less Space and Feeding requirements

- **Highly Adaptable to drought/Climate Change etc** (high survival rate; high reproductive rates)
  - **Main source of meat production in India**
  - They are also important source of **wool and leather products** along with small amount of milk production.

4. FISHERY SECTOR

- India is the third largest producer of fish in the world (17.4 million tonnes) in 2022-23. India contributes to 8% of the total fish production in the world.
  - **Note**: In 2019-20, India was the 2nd largest fish producer in the world with 14.6 million tonnes.
- **Inland fishery** has a major share in India's fish output with a total production of 16.1 million tonnes (Budget 2024-25 speech).
- Fish has the potential of a fast-growing sector. Keeping this in mind, government created a separate **Department of Fisheries** in Feb 2019.

1) REGULATION OF THE SECTOR

- Fishery is a **state subject**, thus fishing in the IW and TS come within the purview of the states concerned.
  - Other activities in the TS and activities, including fishing beyond the TS upto the limit of EEZ, are in the Union List
  - The Respective **State Marine Fishing Regulation Acts** (MFRA) protect and regulate the fishery resources in the territorial waters (i.e. upto 12 nautical miles from the baseline)
- **Maritime Zones of India** (Regulation and Fishing of Foreign Vessels) Act, 1981, or MZI Act, regulates fishing by foreign fishing vessels in the maritime zones.

2) SCHEMES

A) PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY) LAUNCHED IN 2020

- It is a flagship scheme for focused and **sustainable development of fisheries sector in India**.
- **Targets:**
  - **Enhance fish production** to **220 lakh metric tons by 2024-25** at an average growth rate of 9%. This result will also lead to **doubling export earning** to Rs 1,00,000 crores and generate direct and indirect export employment opportunities of about 55 lakhs in the fisheries sector over next five years.
- **Aims and Objectives**:
  - **Harnessing fishing potential** in a sustainable, inclusive and equitable manner
  - **Enhancing of fish production** (
  - **Modernization and Strengthening of Value Chain** - post harvest management and quality improvement.
  - **Doubling income** of fishermen and fish farmers and **generating employment**
  - **Ensuing social, physical and economic security** of fishers and fish farmers

» **Robust fishery management** and **regulatory framework**.

- The scheme envisages an **investment of Rs 20 thousand crores in five years** [Centre-9407 crore, States - 4880 crores, Beneficiaries - 5763 crores].
  - » Under this scheme, **Rs 11,000 crore** will be spent on **activities in Marine, Inland fisheries and Aquaculture** and Rs **9,000 crore** will be spent for developing **infrastructure** (such as fishing harbours, cold chain, markets)

- It will be implemented over a period of five years from FY 2020-21 to FY 2024-25 in all states/UTs.

B) BUDGET 2024-25: PMMSY WILL BE STEPPED UP:

- Aquaculture productivity will be enhanced to 3 to **5 tons per hectare.**
- **Double exports** to Rs 1 lakh crores
- Generate 55 lakh employment opportunities in near future.

C) NATIONAL GENETIC IMPROVEMENT FACILITY FOR SHRIMP BREEDING

- This facility has been created under PMMSY.

D) SAGAR PARIKRAMA

- **Why in news?**
  - » Union Minister for Fisheries, Animal Husbandry and Dairying (FAH&D) launched Sagar Parikrama Phase-9 on 7th Oct 2023 at Thondi, Tamil Nadu.

- **Sagar Parikrama** is an outreach program intended to **reach out fishermen community across the entire coastal belt of the country**. It has been launched to understand the issues, experiences and aspirations of fisherfolks and also to create **awareness of various schemes and** programs including PMMSY and KCC of the Government available to fishermen in coastal areas.
- The f**irst eight phases of Sagar Parikrama** have covered 4,115 km in 8 Coastal states/UTs including Gujarat, Diu & Daman, Maharashtra, Goa, Karnataka, Kerala, Puducherry, and Andaman & Nicobar.

E) KCC SCHEME EXTENDED TO ANIMAL HUSBANDRY AND FISHERY SECTOR BY BUDGET 2018-19

5. INLAND FISHERIES

- **What are Inland Fisheries and Aquaculture?**
  - » **Inland fishery** is any activity conducted to extract fish and other aquatic organisms from inland waters
  - » **Aquaculture** is the breeding, rearing and harvesting of fish, shellfish, plants, algae, and other organisms in all types of water environments. Aquaculture can be marine or Freshwater.
- **Current Situation**:

» The inland fish production in the country has witnessed a healthy growth in last five years with production reaching 131.13 lakh tonnes 2022-23. The details of year-wise inland fish production during last five years is given as under:

S.No.	Year	Fish Production (in Lakh Tonnes)	Annual Growth Rate (%)
1	2018-19	97.2	8.62
2	2019-20	104.37	7.37
3	2020-21	112.49	7.8
4	2021-22	121.21	7.76
5	2022-23	131.13	8.18

TARGET PRELIMS 2024
BOOKLET-25; ECONOMY-6
RBI, BANKING AND FINANCIAL SECTOR

1. TABLE OF CONTENTS

2. RBI'S SURPLUS TRANSFER TO GOVERNMENT

- **Background:**
  - » **Where does RBI get its Revenue from?**
    - ▫ **Foreign exchange transactions** (RBI buys when dollar is cheap and sells when it is expensive (i.e. high in demand)
    - ▫ **Interest Income** (from government bonds, Liquidity Adjustment Facilities etc.)
    - ▫ It also earns a **management commission** on handling the borrowing of state governments and the central government.
  - » **Where does RBI spend money?**
    - ▫ Most of the RBI's expenditure is on printing of currency notes, and on staff, besides the commission it gives to banks for undertaking transactions on behalf of the government across the country and to primary dealers, including banks, for underwriting some of these borrowings.
- The **Surplus (Revenue - Expenditure)** is used for transfers to government and increasing the RBI reserves.
  - ▫ **Section 47 of the RBI Act, 1934**: "After making provision for bad and doubtful debts, depreciation in assets, contributions to staff and superannuation fund [and for all other matters for which] provision is to be made by or under this Act or which are usually provided for by bankers, **the balance, of the profits shall be paid to the Central Government**"
  - ▫ **Section 48 of the RBI Act, 1934** exempts the bank from paying any income tax, wealth tax or super tax.
- **RBI's Reserves:**
  - ▫ The RBI has three mains funds that together comprise its reserves. These are:
    - » **Currency and Gold Revaluation Account** (CGRA) (basically the Economic Capital Buffer)
      - ▪ It is mantained by RBI to take care of currency risk, interest rate risk and movement in gold prices risk.
      - ▪ Unrealized gains or losses on valuation of foreign currency assets (FCA) and gold are not taken to the income account but instead accounted for in the CGRA. Net balance in CGRA therefore varies as per the size of the asset base, its valuation and movement in the exchange rate and price of gold.
      - ▪ When CGRA is not sufficient to fully meet exchange losses, it is replenished from the CF.
      - ▪ It is by far the **largest** reserve account of RBI and makes up the significant bulk of RBI's reserve.
    - » **Contingency Fund** (CF):
      - ▪ It is a provision meant to meet **unexpected and unforeseen contingencies**, including depreciation in the value of securities, risks arising out of

monetary/exchange rate operations, systematic risks and any risk arising on account of the special responsibilities enjoined upon the Reserve Bank.

- The CF is the **second biggest fund** of RBI after the CGRA

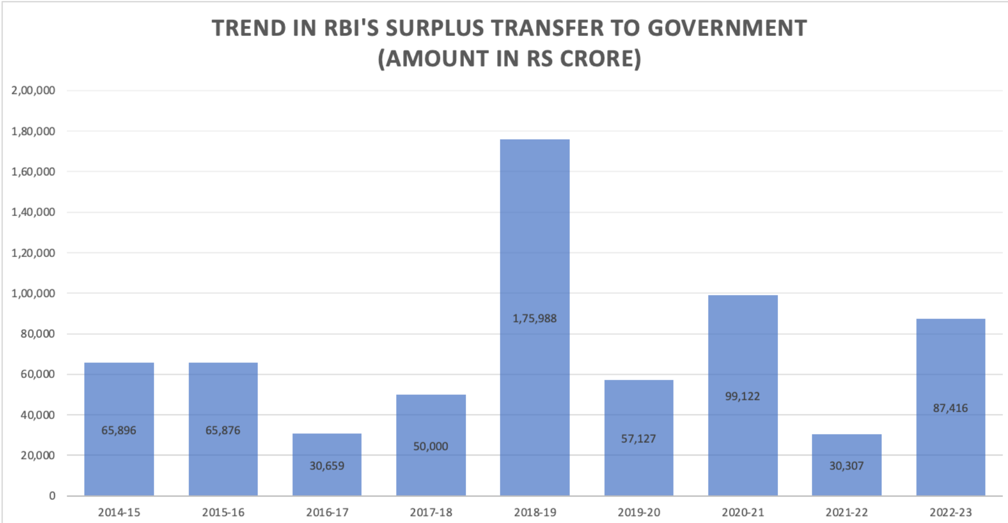
» **Asset Development Fund** (ADF)

- It makes up a much smaller share of reserves and is also focused on contingent times.

- **Other RBI Accounts**
  - **Investment Revaluation Account - Foreign Securities** (IRA-FS): The unrealized gains or losses **on revaluation of foreign dated securities** are recorded in the IRA-FS.
  - **Investment Revaluation Account - Rupees Securities (IRA-RS):** The unrealized gains or losses on revaluation of Rupee securities (IRA-RS) is accounted for in Investment Revaluation Account - Rupee Securities (IRA-RS).

- In 2018, there was a difference between RBI and Finance Ministry on the amount of reserve RBI should keep.
- Following this, **RBI in consultation with the Central Government,** had constituted a **committee chaired by former RBI governor Bimal Jalan to review the Extant Economic Capital Framework (ECF) for the RBI**.
  - **Key Recommendations of the Revised Economic Capital Framework** (ECF) for the RBI:
    - » Make a **distinction** in the economic capital of the RBI between '**revaluation reserves**' and '**realized equity**'.
      - **Revaluation Reserves** are risk buffer against market risks and not available for transfers.
    - » **Economic Capital Levels** (basically CGRA) should be in the range of **20-24.5%** of the balance sheet.
    - » RBI should maintain a **Contingent Risk Buffer** - which mostly comes from CF - of between **5.5-6.5%** of the Central Bank's Balance Sheet. **The excess amount** should be transferred to government.
    - » A transfer of surplus from the RBI to the government in a phased manner in accordance with the existing practice
  - **The committee's recommendations** were based on the consideration of the role of central banks' financial resilience, cross-country practices, statutory provisions and the impact of RBI's pubic policy mandate and operating environment on its balance sheet and the risk involved.

- In Aug 2019, **RBI board accepted all the above recommendations of the Bimal Jalan Panel committee to transfer Rs 1.76 lakh crore of surplus to government**.



- **RBI's Central Board** approves the transfer of surplus (i.e dividend) to the Union government for every accounting year.
- **Analysis: Positives**
    - i. **As RBI's only shareholder** government has rights over the profits of RBI.
    - ii. **Further, RBI is** amongst **the most capitalized central banks** in the world, so reduction of excess capital shouldn't be a bad idea.
    - iii. **More productive utilization of RBI's Cash**
    - iv. **Helps government deal with economic slowdown.**

3. CURRENT SITUATION: FINANCIAL STABILITY REPORT (2023)

- **RBI** released 28th issue of **Financial Stability Report** (FSR) in Dec 2023. Key highlights include:
    - » The Indian economy and the domestic financial system remain resilient, supported by strong macroeconomic fundamentals, healthy balance sheets of financial institutions, moderating inflations, improving external sector positions and continuing fiscal consolidation.
    - » **Capital to Risk Weighted Asset Ratio** (CRAR) and the Common Equity Ratio (CET1) ratio of scheduled commercial banks (SCBs) stood at 16.8% and 13.7%, respectively in Sep 2023.
    - » **SCB's** gross NPAs ratio continued to decline to a multi-year low of 3.2% and the net Non-Performing Asset (NNPA) ratio to 0.8% in Sep 2023.
    - » **Macro stress tests for credit** risk reveal that SCBs would be able to comply with minimum capital requirements and the system-level CRAR in Sep 2024 projected at 14.8%, 13.5% and 12.2%, respectively, under baseline, medium and severe stress scenarios.
    - » The resilience of the NBFCs sector improved with CRAR at 27.6%, GNPA ratio at 4.6% and return on assets (RoA) to 2.9%, respectively in Sep 2023.

4. REGULATION OF BANKING SECTOR

1) BASEL NORMS AND SITUATION IN INDIA

- **What?**
  - Basel norms/standards are **global, voluntary, regulatory framework on bank Capital Adequacy, Stress Testing and Market Liquidity risks**. It is formulated by the Basel Committee on Banking Supervision (BCBS).

    - BCBS aims to enhance the understanding of key supervisory issues and improve the quality of banking supervision worldwide. The committee's **secretariat** is located at the **Bank of International Settlement (BIS) in Basel, Switzerland**.

  - **About Bank of International Settlement (BIS), Basel**
    - BIS, situated at Basel, Switzerland, is a promoter of Central Banks' cooperation in an effort to ensure global monetary and financial stability. It was established in 1930 and is the oldest global financial institution and operates under international law. It is owned by 60 central banks.

  - **Need?**
    - **Ensuring Risk preparedness**
    - **Uniform standards** ensure better understandability of banking system's stability. This helps investors and agencies to better decide their investment opportunities across the world.
    - **Global Village** -> vulnerability in one country affects other countries (e.g. the 2007-08 crisis). Therefore, the banking system should be stable throughout the world.

- **Basic Terms**
  - **Risk Weighted Assets:**
    - **Risk weighted assets** of a bank are its assets weighted by their degree of credit risk.
      - For e.g.in India, according to RBI Regulations loans issued to government are weighted at 0.0%, while those given for housing purposes is given a weight of 50%.
    - Risk weighted assets are **used to determine the minimum amount of capital** that must be held by banks and other institutions to reduce the risk of insolvency.
    - **The financial crisis of 2007-08** was driven by financial institutions investing in subprime home mortgage loans that had a far higher risk of default.
    - **To avoid the problem** moving forward, regulators now insist that each bank must group its assets together by risk category so that the amount of required capital is matched with the risk of each asset.

  - **Capital to Risk Weighted Asset Ratio (CRAR) / Capital Adequacy Ratio (CAR)**
    - CAR is a measurement of a bank's available capital expressed as a percentage of a bank's risk-weighted credit exposure. It is used to protect depositors and promote the stability and efficiency of financial systems around the world.
    - It is calculated by adding a bank's Tier 1 Capital and Tier 2 Capital and dividing the total by its total risk-weighted assets.

The Formula for CAR:

$$CAR = \frac{Tier\ 1\ Capital + Tier\ 2\ Capital}{Risk\ Weighted\ Assets}$$

- CAR = (Tier 1 Capital + Tier 2 Capital) / Risk Weighted Assets

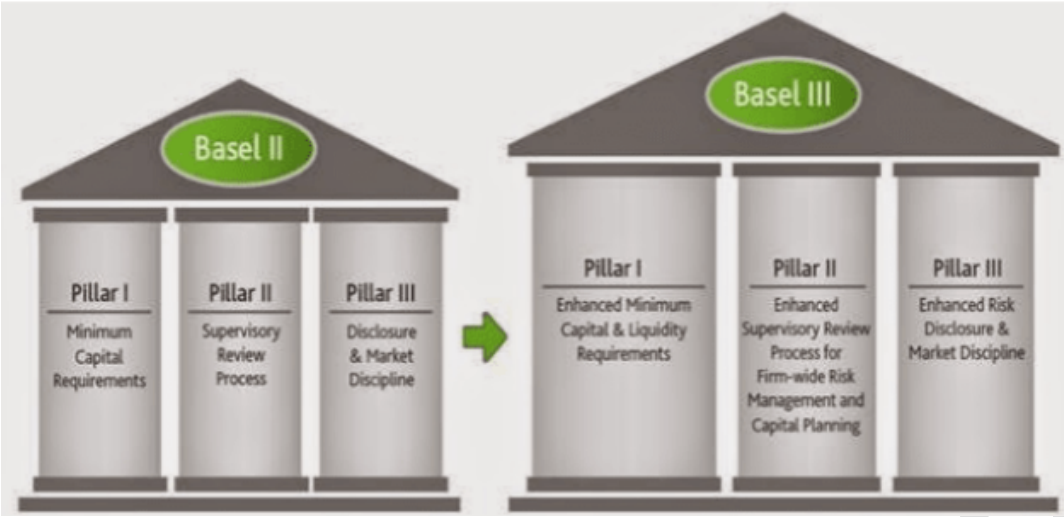
- **Tier 1 Capital**
    - It is bank's **core capital**, which is used when it needs to absorb losses without ceasing its operation.
    - It consists of Paid up Capital, capital reserves out of sale of assets, Balance in P&L account.
    - **Additional Tier-1 capital** are perpetual bonds which carry a fixed coupon payable annually from past or present profits of the bank.

- **Tier 2 Capital**
    - It is bank's **supplementary capital** used to absorb losses **if a bank is winding up its assets**. This provides a lesser degree of protection to depositors.
    - They include revaluation reserves, general provisions, subordinated term debt, and hybrid capital instruments.

- **Significance of CAR**
    - Minimum CAR is critical to make sure that banks have enough cushion to absorb a reasonable amount of losses before they become insolvent and consequently loss depositor's funds.

- **Basel 1 and Basel 2**
    - In **1988**, BCBS introduced capital measurement system called Basel Capital Accord, also called **Basel 1**. It **focused entirely on credit risk**. Here minimum CAR was kept at 8%.
    - **BASEL II**
        - These were introduced in 2004 by BCBS and were considered a refined and reformed version of Basel-I accord.
            - It expanded the scope of regulation to include operational risk and introduced more sophisticated risk assessment methods.
        - **In India** Basel-II was implemented from 2009.
    - **Basel 3**
        - They were released in Dec 2010. These guidelines were a response to the 2007-08 financial crisis where the banking system realized that the BASEL-II guidelines were not enough to protect bank depositors. It was realized that banks were under-capitalized, over-leveraged, and had a greater reliance on short-term funding.

- **Basel II -> Basel III**



- **Pillar -1: Enhanced Minimum Capital & Liquidity Requirements**: It sets out minimum amount of capital that banks must hold to cover their **credit, market and operational risks**. They are also required to hold a capital conservation buffer to absorb losses during period of stress.
- **Pillar -2: Supervisory Review Process**: Regulators are required to conduct a regular supervisory review of a bank's risk management practices and capital adequacy.
- **Pillar-3**: **Market Discipline**: It requires banks to disclose information about their risk profile, capital adequacy, and risk management practices.

- **Objectives**
  - Improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source
  - Improve risk management and governance.
  - Strengthen bank's transparency and disclosure.

- **Major Changes in the Basel Norm for Banking**
  - **Better Capital Quality: Minimum Common Equity and Tier 1 Capital Requirements:**
    - The **minimum requirement of common equity**, the highest form of loss-absorbing capital, has been raised under Basel-III from **2% to 4.5%** of total risk-weighted assets.
    - **The Overall Tier 1 Capital Requirement,** consisting of not only common equity but also other qualifying financial instruments, will also increase from the current minimum 4% **to 6%**.
    - Although **the minimum total capital requirement will remain at the current 8%**, yet the required total capital will increase to **10.5%** when combined with **conservation buffer**.

  - **Capital Conservation Buffer**
    - Now banks are required to hold a capital conservation buffer of **2.5%**. The **aim** of asking to build capital conservation buffer is to ensure that banks maintain a **cushion** of capital that can be used to **absorb losses during period of financial and economic stress.**

  - **Counter cyclical Capital Buffer (CCCB)** is another key element of Basel-III norms.
    - Objective is to increase capital requirements in good times and decrease them in bad times.
    - It will slow banking activities when it overheats and will encourage lending when times are tough.

- The buffer will range from **0% - 2.5%** consisting of common equity or other full loss-absorbing capital and will be stored with Central Bank.

» **Leverage Ratio**
- A leverage ratio is a **relative amount of capital to total assets** (not risk-weighted). The aim is to put a cap on swelling of leverage in the banking sector on a global basis.
  - LR = (Tier1 Capital)/ (Total Assets)
- Banks are expected to maintain a **leverage ratio of 3%** under BASEL-III norms.

» **Liquidity Ratio**
- A new **Liquidity Coverage Ratio** (LCR) and **Net Stable Funding Ratio** (NSFR) got introduced in 2015 and 2018 respectively.
- **Liquidity Coverage Ratio** refers to proportion of highly liquid assets held by financial institutions, to ensure their ongoing ability to meet short-term obligations**. Banks are required to hold an amount of high-quality liquid assets that's enough to fund cash outflow for 30 days**. This is aimed to ensure that financial institutions possess suitable capital preservation, to ride out any short-term liquidity disruptions, that may plague the market.
  - LCR is calculated by dividing a bank's high quality liquid assets by its total net cash flows, over a 30-day stress period.
  - **Note: Urjit Patel Committee** has recommended that India should move onto LCR and do away with Statutory Liquidity Ratio (SLR) mechanism. This will make our system aligned with international mechanism. India is still using SLR.

» **Net Stable Funding Requirement (NSFR)**
- Introduced by BASEL-III it is a liquidity standard requiring banks to **hold enough stable funding to cover the duration of their long term assets**. Banks must maintain **a ratio of 100% to satisfy the requirement**.
  - It is defined as the amount of available stable funding (ASF) in relation to the amount of required stable funding.
- The ratio **ensures** that banks do not undertake excessive maturity transformation, which is the practice of using short-term funding to meet the long-term liability.

» **Systematically Important Financial Institutions (SIFI):** As part of the macro-prudential framework, systematically important banks will be expected to have a **loss absorbing capability beyond the Basel-III requirements**.
- Also called G-SIBs (Globally Systematically important banks)
- **No Indian bank** has been listed in this.

2) CAR NORMS IN INDIA BY RBI

– Norms/guidelines regarding the capital required to be maintained by banks in India including the Basel III capital regulations, are **issued by RBI**.

– RBI had envisaged implementation of BASEL-III in March 2019. But it was pushed to March 2020. Due to COVID-19 pandemic it was again shifted by 6 months.

- **Capital Adequacy Ratio**: 11.5% (stricter than Basel-III norm of 10.5%)
  - Indian banks need to maintain a minimum capital adequacy ratio (CAR) of **9%**, in addition to a **capital conservation buffer**, which would be in the form of common equity at 2.5% of the risk weighted assets.
    - Indian banks as per RBI directions are required to maintain **5.5% of Common Equity Tier 1** (CET1) as against 4.5% required under the BASEL-III framework.
    - **Note: CAR requirements applied by RBI is stricter than the BASEL-III** norms.
    - **Note2:** In case of SFB and PB, the CAR requirement is that of **15%** from 1st March 2019.

- **Countercyclical Buffer**:
  - The RBI introduced a countercyclical buffer (CCB) for Indian banks, which ranges from 0% - 2.5% of risk weighted assets depending on macro-economic conditions.

- **Leverage Ratio**:
  - The RBI introduced a leverage ratio requirement for Indian banks, which measures leverage ratio (LR) = (Tier1 Capital)/ (Total Assets).
    - The minimum requirement was set at 4.5%, with a buffer of 2.5%.
- **LCR** requires banks to hold a minimum amount high-quality liquid assets (HQLA) to meet the short term liquidity needs.
  - In India LCR was introduced in a phased manner with a minimum requirement of 60% in 2015, increasing to 100% by Jan 2019.

- **NSFR** of **at least 100%** has been mandated by RBI
  - Individual banks may have to adopt stricter standards to reflect funding risks and compliance.
  - Date of applicability will be announced later.

- **Disclosure requirements** (under Pillar-3) have also been introduced.

- **RBI has also revised regulation on the implementation of leverage ratio for banks in India** under the BASEL-III capital regulation. (July 2019)
  - RBI has decided that the minimum leverage ratio shall be **4% for D-SIBS** and **3.5%** for other banks.
  - These guidelines shall be effective from the quarter commencing Oct 01, 2019.

- **RBI extends Basel-III capital framework to AIFIs (All India Financial Institutions)** (Oct 2021)
  - **All India Financial Institutions** include EXIM Bank, NABARD, NHB, SIDBI.
    - The AIFIs are increasingly being seen as key institutions to promote the flow of direct or indirect credit to the economic sectors they cater to.
  - **As per the draft Master Direction on Prudential Regulation or AIFIs**, AIFIs will implement all the three pillars of BASEL-III capital regulations - Pillar 1 covering capital, risk coverage, and containing leverage, pillar 2 covering risk management and supervision and pillar 3 covering market discipline.
  - The RBI wants AIFIs to achieve **minimum total capital of 9% and capital conservation buffer** of 2.5%, with the minimum total capital and CCB adding to 11.5% by 1st April 2022.

- For NHB, since the financial year is July-June, the implementation shall commence on 1st July 2022.

– **Current Situation in India**: ESI 2022-23:
  - The **Provisioning Coverage Ratio (PCR)** has been increasing steadily since March 2021 and reached 71.6% in Sep 2022.
  - The **CRAR** of SCBs has been rising sequentially in the post-asset quality review period.
    - It remains well-above the minimum capital requirement, including Capital Conservation Buffer (CCB) requirements of 11.5%.

3) ADDITIONAL TIER-1 CAPITAL

- **Why in news?**
  - » In Nov 2023, Swiss banking giant UBS sold additional tier-1 (**AT-1) bonds** for the first time and after taking over beleaguered banking peer Credit Suisse in March 2023.
    - Earlier, it was decided to write-off around $17 billion in AT-1 bonds issued by Credit Suisse. This had invoked fury from investors.

- **What are AT-1 Bonds**:
  - » **AT-1 bonds** are **perpetual debt instruments** issued by banks to raise money and build up their core equity capital. There is no maturity date, implying that the issuer doesn't pay the principal amount back to investors but makes periodical interest payments throughout the life of the bond.
  - » **'Call Option'**: In practice, AT-1 bonds typically come with a 'call option', which means that the bank issuing these instruments can redeem them or repay investors after a specified period.
  - » These bonds were **introduced according to Basel banking norm**s made after the Global Financial Crisis. These are a form of **"contingent convertible (cocos)" bonds** which were created to **prevent the need for government-funded bail-out**s of precarious banks.

- **Why the risks for investors?**
  - » Some features of AT-1 Bonds make them **riskier than several other bonds**.
    - AT-1 Bonds have equity like characteristics **(quasi-Equity instruments),** which permit banks to absorb losses.
      - If the bank faces financial stress, with capital requirement dropping below a specific levels, the covenants of AT-1 bonds typically **permit the lender to hold off on interest payments** or pay a lower amount. The bonds may also be **converted into equity**, helping to preserve the capital.
      - Some provisions allow the banks to **write-off** AT-1 bonds in case of severe financial crisis.
      - Further, **AT-1 bond investor** (unlike other bond investors) are **not at the top of pecking order** when it comes to receiving pay-outs from a bank facing financial stress. In fact, details sometimes put equity investors above than the bond investors.

- **How are AT-1 bonds triggered?**
    - These have different trigger mechanisms:
        - For e.g. if the Bank's capitalization level falls below a preset threshold, the bond may be converted to shares, which eliminates bank's liabilities on the AT-1.
        - To compensate for these risks, **banks pay investors a higher rate of interest for AT-1 bonds** than other debt instruments or deposits.

4) AT-1 BOND IN INDIA:

- **How much are the AT-1 bond holdings of Indian Banks?**
    - Indian Banks don't depend on AT-1 bonds much.
        - In a study, brokerage firm Macquarie sad that while India's **PSU banks** have an exposure of 1-2 percent to AT-1 bonds, private sector banks only have an exposure of 0-1 percent.

- The Indian market for AT-1 bond was **upended in March 2020** following the crisis in Yes Bank.
    - Following severe financial stress, RBI and Yes Bank had decided to write-off additional tier-1 (AT-1) bonds worth Rs **8,415 crores**. Mutual funds were amongst the biggest sufferers.
        - This was challenged in the court, and Bombay High Court in Jan 2023 ordered quashing of the write-off. But in Sep 2023, Finance Ministry has moved to the Supreme Court against the order.

- **In 2021, SEBI amended valuation rule for perpetual bonds**.
    - Residual maturity of Basel-III AT-1 bonds will be 10 years until 31st March 2022.
    - It will be 20 and 30 years for subsequent six months.
    - From 1st April 2023, the residual maturity of AT-1 bonds will become 100 years from the date of issuance of the bond.
- **SEBI** then provided a phased timeline for mutual funds to value AT-1 bonds as 100-year instruments.
    - The -100-year valuation kicked in from 1st April, 2023.
    - Before this, AT-1 bonds were valued according to the call options on the papers - generally 5 to 10 years.
    - **Impact: Huge decline in mutual fund investments in AT-1 bonds** as a 100 year valuation lead to very sharp movements in market yields of such papers.
- **Note:**
    - AT-1 bonds are subordinate to Tier-2 bonds.
    - Tier-2 Bonds are subordinate to unsecured creditors, banks depositors, and senior bonds. They are not perpetual instruments. They have a maturity period of minimum 5 years.

5) DSIBS

- **Why in news?**
  - » RBI releases 2023 list of DSIBs (Dec 2023)

- **Introduction**
  - » D-SIBs means the bank is **too big to fail** i.e. their failure would be significant disruption to the essential services they provide to the banking system and the overall economy.
  - » According to RBI, these banks have become systematically important due to their size, cross jurisdictional activities, complexity and lack of substitution and inter-connection. Banks whose assets exceed **2% of the GDP** are considered part of this group.
  - » **An additional common equity requirement** has to be applied to DSIBs.
  - » Too big to fail indicates that in case of distress **government is expected to support these banks**. Due to this perception, they enjoy certain advantages in funding/investment.
- **Beginning of DSIB-Framework**:
  - » The RBI issued the framework for dealing with D-SIBs in July 2014.
  - » SBI was included in the list in 2015, HDFC in 2016 and ICICI in 2017. But they are placed in different list.
- The list of D-SIBs is as follows (as on Dec 2023)
  - » SBI, HDFC, and ICICI continue to be identified as DSIBs.
  - » While ICICI continues to be in Bucket-1; Both HDFC (from Bucket-1 to Bucket-2) and SBI (from Bucket-3 to Bucket-4) have been shifted to higher bucket.
  - » So, **starting 1st of April 2025**, both SBI and HDFC will have to fulfill higher buffer requirements of the higher bucket.
    - ▪ Till 31st March 2025, surcharge applicable will be 0.60% for SBI and 0.20% for HDFC Bank.
  - »

Bucket	Banks	Additional Common Equity Tier 1 requirement as a percentage of Risk Weighted Assets (RWAs)
5	-	1%
4	State Bank of India*	0.80%
3	-	0.60%
2	HDFC Bank*	0.40%
1	ICICI Bank	0.20%

* The higher D-SIB surcharge for SBI and HDFC Bank will be applicable from April 1, 2025. Hence, up to March 31, 2025, the D-SIB surcharge applicable to SBI and HDFC Bank will be 0.60% and 0.20% respectively.

- **Note: Global SIBS**:
  - » **The Basel - Switzerland based** Financial Stability Board (FSB), an initiative of G20 nations, has identified, in consultation with the Basel Committee on Banking Supervision (BCBS), a list of G-SIBS.
    - • There are 30 G-SIBs currently (no Indian Bank), including JP Morgan, Citibank, HSBC, Bank of America, Bank of China, Barclays, BNP Paribas, Deutsche Bank, and Goldman Sachs.

6) DEPOSIT INSURANCE

- **Introduction: Deposit Insurance Situation in India**
    - » The deposit insurance provisions in India were introduced through the Deposit Insurance Corporation Act, 1962.
        - ▫ This insurance cover is provided by **Deposit Insurance and Credit Guarantee Corporation (DICGC)**, a fully owned **subsidiary of RBI**. The banks pay deposit insurance premium (0.1% per annum i.e. 10 paisa for Rs 100 insured), which is held by the DICGC and in turn is used to pay deposits if needed.
        - ▫ Under the act, the Corporation is liable to pay the insured deposit to depositors of an insured bank. Such liability may arise **when an insured bank undergoes**:
            i. **Liquidation** (sale of assets or closing down of the bank)
            ii. **Reconstruction or any other arrangement under the scheme**
            iii. **Merger or acquisition by another bank**
        - ▫ **Note:**
            - ▪ Deposit Insurance and Credit Guarantee Corporation (DICGC) came into existence in 1978 with the merger of Deposit Insurance Corporation (DIC) and Credit Guarantee Corporation of India Ltd. (CGCI).
            - ▪ It is a fully owned subsidiary of RBI.

- This insurance cover is available to:
    - » **Commercial banks**, including small financial banks, Payment Banks, and Indian branches of foreign banks.
    - » Regional rural banks, Local Area Banks (LABs), and Cooperative Banks
    - » **All bank deposits** - savings, fixed, current and recurring - payable in India are covered. However, deposits of central/state/foreign governments, inter-bank deposits, deposits of the state land development banks with the state cooperative banks etc. are not covered.

- **Budget 2020-21 increased the deposit insurance** to **Rs 5 lakh**.
    - » This is the first time since 1993 that the deposit insurance cover has been raised. In 1993 the insurance cover was revised from Rs 30,000 to Rs 1,00,000.
    - » The **raised cover** will address 98.3% of all deposit accounts by number, and 50.9% of deposits by value.
        - ▪ Globally, deposit insurance coverage is only 80 per cent globally and it covers only 20-30 per cent of deposit value.

- **Note-1**: If the funds are in different types of ownership or are deposited into separate banks they would then be separately insured.

- **Key Features of the 2021 amendment**

- ***Introduced interim payments:*** Interim payment will now be made by DICGC to depositors of those banks for whom any restrictions/ moratorium have been imposed by RBI under the Banking Regulation Act resulting in restrictions on depositors from accessing their own savings.
- ***Timeline for interim payments*****:** Clear-cut timeline of maximum of 90 days has been fixed for providing interim payment to depositors.
- ***Repayment by banks to DICGC:*** *Deferment of repayments*: DICGC may defer repayments due to it from an insured bank after insurance pay out, on terms decided by DICGC's Board. It is in spirit with the rationale of interim payments, i.e., to help depositors while also enabling rescue efforts for the bank
- ***Timely repayment by the bank to DICGC*****:** To establish the priority of repayment to DICGC (both interest and principal amount), a **provision for penal interest** in case of delay has been put in the act.
- **No ceiling on premium**: The earlier act earlier had a ceiling of 15 paise on premium, which has been removed. Now, the ceiling on premium will be notified by DICGC, with the prior approval of RBI.

7) RBI'S FRAMEWORK ON GREEN DEPOSITS

- **In April 2023**, RBI came up with a framework for banks to accept green deposits from customers. Under this framework, banks that accept green deposits will have to disclose more information on how they invest these deposits.
- **What are Green Deposits?**
  - The deposits which are earmarked green deposits are used only towards environment friendly projects. (e.g. financing renewable energy).
  - As per the RBI framework, depositors, both retail and institutional, will have the option to convert their fixed deposits into "green" deposits.

- **RBI's Framework for the acceptance of green deposits lays down certain conditions that banks must fulfill to accept green deposits from customers**:
  - **i.** **Bank** need to come up with certain rules/policies approved by their respective boards that need to be followed while investing green deposits from customers. These rules have to be available in public domain, on the website of the bank.
  - **ii.** Banks will have to disclose regular information about the amount of green deposits received, how these deposits were allocated towards various projects and the impact of such investment to environment. A **third party** will verify the claims made by banks regarding the projects in which the banks invest their green deposits as well as the sustainability credentials of these business projects.
  - **iii.** RBI has also come up with **list of sectors** that can be classified as sustainable and thus eligible to receive green deposits. They include renewable energy, waste management, clean transportation, energy efficiency and afforestation. Banks will be **barred from investing green deposits** in business projects involving fossil fuels, nuclear power, tobacco, renewable energy projects generating energy from biomass using feedstock originating in protected areas. etc.

- The rules are **aimed at preventing Greenwashing**, which refers to making misleading claims about the positive environmental impact of an activity.
- **Note**: the framework is applicable from 1st June 2023.
- **Applicability**: The framework is applicable on **all scheduled commercial banks** including SFBs (excluding RRBs, Local Area Banks, and Payment Banks) and **all deposit taking NBFCs** including Housing Finance Companies (HFCs).
- **In Jan 2024**, **RBI released a document giving detailed replies to a set of queries investors may have with regard to green deposits**:
    - **Can Green deposits be parked in liquid instruments?**
        - Yes, unallocated proceeds of green deposits can be temporarily parked in liquid instruments for a maximum maturity of one year. But this can be done till the money is invested in green activities/projects and has to be specified under the financing framework.
    - **Green Projects first or deposit first?**
        - The banks can't finance green activities/ projects first and raise green deposits later. Besides the framework is applicable for green deposits raised by banks on or after June 1, 2023.
    - **Are premature withdrawals allowed?**
        - **Yes** (other than being invested only in green projects, it is like other deposit only).
    - **Are investments made in sovereign green bonds covered under the framework?**
        - **Yes** (since the activities listed in the framework for green deposits are the same as given in sovereign green bonds)
    - **Can the green deposits be denominated in foreign currency?**
        - **No,** the framework doesn't permit green deposits to be denominated in any foreign currency.
    - **Are the deposits covered by DICGC?**
        - Yes.
    - **Voluntary Compliance**: it is not mandatory for regulated entity to raise green deposits. But, if REs intend to raise green deposits from their customers they should follow the framework prescribed therein.
- **Wil Green deposits help depositors/investors and the environment**?
    - **Depositors** -> Satisfaction of putting money in green projects
        - **Critics** say that this is a "feel good scam" that enriches only consultants.
        - Secondly, in a complex world where an action involves second order effects that are difficult to see, it can be extremely hard to know whether a project is really environment friendly.
    - **Businesses** -> Will get easier access to green loans, preferably with improved terms and conditions.

- **Way Forward: How to further promote green deposits:**

- Higher Interest Rates
- Build capacity in financial institutions to identify and appraise viable green projects.

8) DIGITAL PLATFORM FOR FRICTIONLESS LOANS (AUG 2023)

- **Background:** Need of such platform:
  - Availing formal credit takes a lot of time and involves cumbersome process of document verification and evaluation of credit worthiness of borrowers.
    - For e.g. RBI survey indicated that processing of farm loan took 2-3 weeks and cost about 6% of loan's total value.

- Therefore, the RBI has announced a pilot program for '**Public Tech Platform for Frictionless Credit**' which would strive to deliver frictionless credit by 'facilitating seamless low of required digital information to lender'

- **Details:**
  - RBI observed that data required for the entire process (information from borrowers and lenders; measurement of exposure risk; assessment of default risk) rest with different entities like central and state governments, account aggregators, banks, credit information companies, and digital identity authorities. This creates hinderances in timely delivery of service.
  - **How will the new platform solve the problem?**
    - In 2022, RBI instituted a pilot project of digitalization of KCC loans of less than Rs 1.6 lakhs. This pilot tested "end to end digitalization of the lending process in the paperless hassle free manner". The pilot is currently undergoing in some states and provides for "doorstep disbursement of loans in assisted or self-service mode without any paperwork". The **initial results were encouraging**.
    - A similar pilot is being carried out for **dairy loans** based on milk pouring data with Amul in Gujarat.
  - **Eventually the platform** will learn from all these pilots and the **scope will be expanded to all types of digital loans**. This platform will be developed by and wholly owned by RBI's subsidiary - the **Reserve Bank Innovation Hub (RBIH)**. It will have an open architecture, open application programming interface and standards, to which all financial sector players will be able to connect seamlessly in a 'plug and play' model.
  - It is expected to linkage with services like - Aadhar e-KYC, Aadhar e-signing, land records from onboarded state governments, satellite data, pan validation, account aggregation by account aggregators, milk pouring data from select dairy co-operatives, house/property search data etc. Thus it would cover all aspects of farming operations.
- **Advantages that the platform will bring?**
  - Reduction of costs
  - Quicker disbursements
  - Scalability

9) MONETARY POLICY COMMITTEE (MPC) AND ASSOCIATED ISSUES

- **Introduction**
  - The Monetary policy is generally focused on **regulating supply of money in an economy** by the monetary authority of the country for achieving **GDP growth**, **stable business cycle, price stability,** and **exchange rate stability**. Like fiscal policy, it is an integral arm of public policy. It **cools down the economy** when it overheats (through contractionary monetary policy) and **boosts the economy** during depressed financial activity (through expansionary policy).
    - **Expansionary** monetary policy is achieved by lowering Repo Rate, Reverse Repo Rate, CRR, SLR etc. i.e. by **increasing the availability of money in the economy**.

- **India's Current Monetary Policy**
  - **In the past**, RBI had pursued a **multiple indicator approach** i.e. it tried to control multiple outcomes - inflation, growth, exchange rate, and even balance of payment - through monetary policy.
  - But **RBI Act, 1934** was **amended in 2016** to introduce the framework of **Flexible Inflation Targeting** (FIT).
    - Under FIT, the primary objective of the Monetary Policy is to **ensure price stability** (i.e. ensure inflation in a particular range). Inflation is measured in terms of **Consumer Price Index (CPI),** thus making monetary policy contributes to **welfare of people**.
      - Further, it also **promotes** **transparency** as lay person can easily judge if the monetary policy is working for the betterment of the people of India.
    - The amendment provides that **inflation target** would be set by Central government, after discussing with the Reserve Bank, **once in every five years**.
      - **For 2016-2021,** the central government had set a target of 4% inflation rate with a **tolerance of +-2%**. Again for 2021-26, the centre has decided to **retain the inflation target of 4%, with a tolerance band of +/- 2 percentage** points for the MPC of RBI.
        - This tolerance band has been provided to deal with supply shocks like vagaries of Monsoon, crude price changes etc.
      - In case of **continuous deviation of actual inflation** from the target's tolerance bands for three consecutive quarters, the **RBI has to write a letter** to the GoI explaining the reasons for deviations and the time it will take to return inflation to its target. It thus **promotes Accountability**.

  - **Section 45ZB** of the RBI Act, 1934 also provides for a **six member Monetary Policy Committee (MPC)** to be formed by government for inflation targeting. MPC consists of:
    a. Governor of RBI - Chairperson of MPC - ex officio
    b. Deputy Governor of the RBI, in charge of Monetary Policy – Member, ex officio.
    c. One officer of the RBI to be nominated by the Central Board – Member, ex officio.

d. 3 external members nominated by GoI.

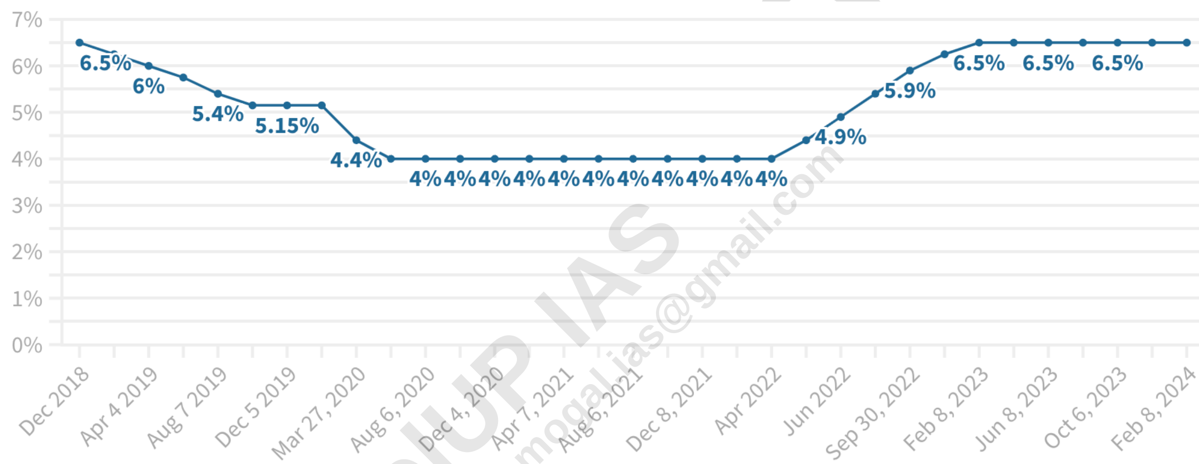
» The **decision is taken by majority** with the Chairperson having the casting vote. MPC conducts meetings at least four times a year (atleast every quarter) and monetary Policy is published after every meeting with each member explaining her opinion.

- **Before MPC**, all the interest rate related decisions were taken by Governor of RBI.
- Thus, the **MPC system replace individualistic decision-making by a collegial process** that brings in variety of experience, expertise and independence while avoiding groupthink and free-riding.

- **Current Rates:**

» **In Feb 2024**, in the bi-monthly monetary policy announcement, RBI has decided to keep the repo rate **unchanged at 6.5%**. This is the sixth monetary policy on the trot when the MPC has kept the repo rate unchanged. Last time it was in Feb 2023 when the rates were changed.

- **Why?**
  - The **retail inflation continues to remain above 4%** target of RBI. It was 5.69% in Dec 2023 and even for FY25 RBI forecasts a 4.5% retail inflation.



- The central bank also retained the **stance of the monetary policy as 'withdrawal of accommodation'** in a **5:1 majority decision**.
  - However, Jayanth Verma, member of MPC, differed with other members and voted for **25 basis point reduction in repo rate** and changing the policy stance to 'neutral' from 'withdrawal of accommodation'.

- **The MPC** in Feb 2024, after detailed assessment decided to keep the policy repo rate **under LAF** unchanged at **6.5%**. (note the last raise was made in Feb 2023)

10) CRR

- Under **RBI Act, 1934 -** Scheduled Banks are required to keep **a % of their net time and demand deposits (i.e. total deposits of customers)** in the form of cash deposits with RBI.
- **Objectives of CRR:**

- Since a part of total deposits in bank is available in the form of cash, it can be used to **readily make money available to customers when they demand it**.
- Further, RBI also **controls the amount of money in market** and thus **inflation** through CRR.

- **Note:**
  - Banks **don't get any interest** for this money deposited with RBI.
  - CRR has to be **maintained in cash only**.

A) INCREMENTAL CRR

In Aug 2023, RBI **introduced Incremental CRR** to **absorb the surplus liquidity** created in the system due to multiple factors, including the return of Rs 2,000 notes.

» It was decided that wef from the fortnight beginning Aug 12, 2023, scheduled banks shall maintain an I-CRR of 10% on the increase in their net demand and time liabilities (NDTL) between May 19, 2023 and July 28, 2023.

» This was **purely a temporary measure** for managing the liquidity overhang.

» **Existing CRR** remained unchanged at 4.5%.

» **Impact:**
  - Reduce the supply of money and thus curtail inflation.

In Sep 2023, RBI announced that it will discontinue the I-CRR in a phased manner.

» **Why release in phased manner?**
  - So that system liquidity is not subjected to sudden shocks and money markets function in a orderly fashion.

» **RBI released 25% of I-CRR** on 9th, Sep; 25% on 23rd Sep and remaining 50% of the I-CRR on 7th October 2023.

B) REDUCING CRR ON GREEN DEPOSITS

SBI in talks with RBI to lower CRR requirement on Green Deposits (Feb 2024)

- **In Jan 2024**, SBI announced a **green deposit scheme**, a first in the domestic banking, to attract long term retail deposits to be used only to fund green transition projects or climate friendly projects.
  - The bank has said that such deposits will be priced **10 basis points** lower than normal deposit rates.
- **SBI** is engaging with RBI for a reduction in CRR for green deposits and, if at all as a policy, it can be incorporated in the regulator policy mechanism.

5. PUBLIC SECTOR BANKS

1) EFFORTS TO IMPROVE THEIR FUNCTIONS

A) FINANCIAL SERVICES INSTITUTIONS BUREAU (FSIB)

- **Background: Why was Bank Board Bureau Needed?**

- **To Improve the governance of PSBS:** Committee to Review Governance of Boards of Banks in India **(Chaired by Dr. P J Nayak) recommended** setting up of Bank Board Bureau (BBB).
- Bank Board Bureau (BBB) was constituted in 2016 and started functioning from 1st April 2016 as a body of eminent professionals and officials to make recommendations for appointment of **whole-time-directors** as well as **non-executive chairpersons** of PSBs and State owned financial institutions.
    - This was earlier done by the **Board of Appointment**.
    - Central government notified the amendment to the **Nationalized Banks** (Management and Miscellaneous Provisions) Scheme, 1980 providing the legal framework for the composition of BBB.
- It was also entrusted with the task of engaging with the board of directors of all PSBs to **formulate appropriate strategies for their own growth**.
- **In 2019**, Scope of Bureau functions was extended to cover appointments of Chairman, MD & CMD and other board positions of Public Sector Insurance companies.

- **What was the need of the change in BBB**?
    - The Change was needed after the 2021 Delhi High Court verdict which had said that the BBB was not a competent body to select the general managers and directors of state owned general insurers. This has led to at least 6 newly appointed directors of non-life insurers vacating their positions.

- **Changes?**
    - The Appointments Committee of the Cabinet (ACC) has asked the Department of Financial Services to carry out necessary modifications in the **Nationalized Banks (Management and Miscellaneous Provisions) Scheme of 1970/1980** with the approval of Finance Minister and then notify the government resolution for establishing FSIB as a single entity for making recommendations for appointments of whole time directors and non-executive chairman of banks and financial institutions.

- **Financial Services Institutions Bureau (FSIB)**
    - FSIB has been constituted effective from 1st July 2022 by Central Government for the purpose of recommending persons for appointment as **whole-time directors** and **non-executive chairpersons** on the Boards of financial service institutions and for advising on certain other matters relating to personnel management of these institutions. Guidelines for selection of general managers and directors of public sector general insurance companies have been made part of FSIB
    - **Mission**: To promote excellence in Corporate Governance in Public Sector Financial Institutions
    - **How is it different from BBB?**
        - **Broader Scope**: While BBB was primarily focused on PSBs, FSIB will focus on wider range of financial institutions.

- **Stronger Legal Foundation**: Addresses concerns raised by the Delhi High Court regarding BBB's selection process.

B) AN AUTOMATED SEARCH PORTAL (FEB 2024)

- **Background**:
  - Under the framework for timely detection, reporting, investigation relating to large value bank frauds, **the Department of Financial Services under the Ministry of** Finance has mandated all the PSBs to seek a report from **the Central Economic Intelligence Bureau (CEIB)** before sanctioning loans **exceeding Rs 50** crores in the case of new borrowers and if the existing borrower's accounts into NPAs.
- **To fast-track** this mandatory intelligence clearance process, the Bureau, in tandem with SBI, has developed an **"automated search portal"** which is a digital platform which will help PSBs to obtain mandatory intelligence clearance from the CEIB in a prompt manner. PSBs will be able to check antecedents of large borrowers and ascertain the **existence of any non performing assets** against their name at the click of a button
- **Significance**:
  - Expedite lending process
  - Prevent loans to defaulters

6. INSURANCE SECTOR

- **Insurance Sector and its significance:**
  - Insurance is an integral part of financial sector. It plays a significant role in economic development. Apart from protection against mortality, property, and casualty risks and providing a safety net, the insurance sector encourages savings and provide long term funds for infrastructure development.

1) INSURANCE REGULATORY DEVELOPMENT AUTHORITY OF INDIA

- **IRDAI** is an autonomous and statutory body formed under an act of Parliament (i.e. IRDAI Act, 1999). It is responsible for managing and regulating insurance and reinsurance sector in India. It is also responsible for supervision and development of insurance sector in the country.

- **Key objective** of the IRDAI is to **promote competition** so as to enhance customer satisfaction through increased customer choices and fair premiums, while ensuring the financial security of the insurance market.
- **Composition**
  - As per the section 4 of the IRDAI Act, 1999 the composition of the authority is:
    1. Chairman
    2. Five whole-time members

3. Four part-time members

   (Appointed by government of India)

- IRDAI is headquartered in **Hyderabad**.

- **Entities regulated by IRDAI**
  - » **Life Insurance companies**:
    - ▫ Insures life of a person. This kind of insurance may also have an insurance component.
  - » **General Insurance companies**
    - ▫ Insures health, property, car etc.
  - » **Re-insurance companies**
    - ▫ **Note**: Reinsurance companies provide insurance to insurance companies. For e.g. during a huge disaster, an insurance companies may face a large number of claims. In this scenario, a reinsurance company helps them spread the risk by sharing the cost of those claims.
  - » **Agency Channel**
  - » **Intermediaries**
    - ○ Corporate agents
    - ○ Brokers
    - ○ Etc.

2) SITUATION OF INDIA'S INSURANCE SECTOR: ESI 2022-23

- Potential and Performance of insurance sector are generally assessed based on **2 parameters**,
  - ▫ **Insurance penetration** which refers to the **ratio of total insurance premiums to GDP in a year** and;
  - ▫ **Insurance density** which refers to **ratio of insurance premium to population** that is insurance premium per capita and is measured in U.S. dollar as they reflect the level of development of insurance sector in a country.

- **India poised to emerge as one of the fastest growing insurance markets in the coming decade**
  - ▫ **Insurance Penetration in India** has steadily increased from 2.7% around the turn of millennium to 4.2% in 2020.
    - » **Life insurance penetration in India was 3.2% in 2021**, almost twice more than the emerging markets and slightly above the global average
    - » However **most life insurance products sold in India are saving linked** with just a small protection component. Therefore households remain exposed to a significant financing gap in the event of premature death of the primary breadwinner.

- **Insurance Density in India** has increased from **US $11.1** in 2001 to **US $91** in 2021.

3) IMPORTANT INSURANCE RELATED INITIATIVES

A) BIMA VISTAAR:

- The IRDAI is planning to launch a **unique all-in-one insurance product** called **Bima Vistaar** in first quarter of **FY2025**.
- Bima Vistaar will provide life, health and property coverage in a single affordable policy. It will be a valuable tool for retirement planning as it eliminates the need to purchase separate policies for life, health and property coverage, providing affordability and convenience.

- Bima Vistaar is a critical component part of IRDAI's **"Insurance Trinity"** initiative that also comprise **Bima Sugam** ((a one stop digital platform)) and **Bima Vaahak** (a women led distribution channel) aimed at **ensuring insurance for all by 2047** by bridging the gap in product design, pricing and distribution.

B) BIMA VAAHAK SCHEME:

- **Bima Vaahaks** are registered individuals or legal entities providing services as outlined in the guidelines. The goal is to establish a dedicated distribution channel to enhance insurance inclusion and raise awareness in every village and gram panchayat.
  - » The main **objective** is to establish **women centric dedicated distribution channel** that is focused on enhancing inclusion and creating awareness in **every village/gram Panchayat**, and thus improving accessibility and availability of insurance in every nook and corner of the country.
  - » They will be involved in **various activities** - completing the proposal forms, fulfilling KYC requirements using handheld electronic communication devices, issuing insurance policies, and providing support for policy and claims related services.

- The 2023 guidelines for the women centric insurance distribution channel will be implemented concurrently with Bima Vistaar, which is in the final stages of development. In Oct 2023, IRDAI had said that the guidelines will be effective from the **date of launch of BIMA Vistaar**.
- **Bima Vaahaks** will be deployed in each gram panchayat by Dec 31, 2024.

C) BIMA SUGAM:

- The plan is to develop relatively small platform to launch Bima Vistaar and Bima Vahak effectively before integrating them into a larger platform.

D) OTHER PAST INITIATIVES

- To **facilitate penetration of insurance to the lower income segments** of the population the IRDAI issued **IRDAI micro insurance regulations 2015** which provide a platform for distributing insurance products that are affordable for rural and urban poor and promote financial inclusion.

- Further, the **IRDAI obligation of insurance to rural and social sector regulations 2015** stipulate obligation for insurers in rural and social sector and has contributed to developing and promoting micro insurance products in India.

E) VARIOUS GOVERNMENT INSURANCE SCHEME

- **AB-Jan Arogya Yojna** (Health Insurance)
- **Pradhan Mantri Suraksha Bima Yojana**:
  - » Under the scheme, risk coverage of Rs 2 lakh for accidental death and complete disability and Rs 1 lakh for partial disability is given to beneficiary.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana**:
  - » Risk coverage of Rs 2 lakh is credited to the savings bank account of the holder in case of the death of the insured.
- **Pradhan Mantri Vaya Vandan Yojna**:
  - » Old age income security is provided to senior citizens through the provision of an assured pension/return linked to the subscription amount based on a government guarantee to LIC.
- **Pradhan Mantri Fasal Bima Yojna** (already covered in agriculture sector)

7. NEXT BOOKLET

Nationalization, Consolidation of Banks, Privatization of PSBs, IBC, NPA, Financial inclusion, digital payment, types of banks, NFBCs, Fintech, Pension sector

TARGET PRELIMS 2024
BOOKLET-26; ECONOMY-7
CA OF RBI, BANKING AND FINANCIAL SECTOR-2

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1) WITHDRAWAL OF RS 2,000 BANK NOTES

- **Why?**
    - » The Rs 2,000 denomination banknotes was introduced in Nov 2016 under section 24(1) of the Reserve Bank of India Act, 1934. This was done to meet the currency requirement of the economy in expeditious manner after withdrawal of Rs 5,00 and Rs 1,000 notes. Once enough new 5,00-rupee notes were in circulation, **printing of Rs 2,000 banknotes was stopped in 2018-19**.
    - » So, a majority of the Rs 2,000 banknotes were issued prior to March 2017 and were at the end of their estimated lifespan of 4-5 years.
    - » It was also noticed that this denomination was not commonly used for transactions.
    - » Further, the stock of banknotes of other denominations continues to be adequate to meet the currency requirement of the public.
    - » In view of the above, and in pursuance of the **clean note policy** of the RBI, it was decided to withdraw Rs 2,000 denomination banknote from circulation.
- **What is Clean Note Policy?**
    - » Under this policy RBI ensure availability of Good Quality Bank notes to members of the public.
- The Rs 2,000 Bank notes could be deposited/ exchanged till Sep 30, 2023. It was later extended till 7th Oct 2023.
- After 7th October, the Rs 2,000 banknotes could continue to be exchanged by individuals/ entities at the **19 RBI Issue Offices** up to a limit of Rs 20,000 at a time. Individual/Entities can also tender Rs 2,000 banknotes at the 19 RBI Issue offices for credit to their bank account in India for any amount.
- **Impact:**
    - » The **growth in currency in circulation** decelerated to 3.7% for the week ending 9th Feb 2024 from 8.2% a year ago.
        - ▫ **Note:** Currency in Circulation (CiC) refers to notes and coins in circulation, while currency with the public comprises notes and coins in circulation minus cash with banks.
- **Some Rs 2,000 notes still in circulation** (Dec 2023)
    - » **About 2.7% of withdrawn note** are still in circulation.
        - ▫ On 19th May 2023, around Rs 3.56 lakh crore banknotes of Rs 2,000 were still in circulation. This has declined to Rs 9,760 crores (2.7%) on 30th Nov 2023.
- **Note**: Rs 2,000 banknotes **continue to remain legal tender**.

2) RBI'S REPORT ON CURRENCY AND FINANCE 2022-23: TOWARDS A GREENER AND CLEANER INDIA (MAY 2023)

- The report is one of the most comprehensive attempts by central regulator to discuss the responsibility of banking and finance sector to the plethora of challenges posed by **climate emergency**.
- **Theme:** Towards a Greener and Cleaner India
- The report claims that fiscal policy has a prominent role in driving the green transition, from fossil fuels to renewables, and highlight the urgent need for a green taxonomy, a classification system that determines whether an investment is sustainable or not.
- The three areas where RBI sees a role for itself**:**
  i. **Mandatory disclosure requirements** pertaining to climate related risks of banks
  ii. **Mandating financial institutions** to incorporate environmental risk factors in their risk management process
  iii. **Green Asset Ratio** (GAR), i.e., the proportion of total assets invested in sustainable projects or economic activities - prescribing financial institutions to maintain threshold level.

3. FINANCIAL INCLUSION

- **What is financial inclusion?**
  - Financial inclusion is defined as the process of **ensuring access to adequate financial services (Banking, Credit, Investment, Insurance)** in a cost effective and timely manner for vulnerable and low income groups.
- **Advantages:** Economic growth; Social Benefits; Reducing Inequalities; efficiency in implementation of government schemes; protects low-income households (from money lenders, Ponzi schemes) etc.
- **Key steps taken so far to promote financial inclusion**
  - **Nationalization of Banks** in 1969 and 1980 was **Region-focused** on ensuring that the banking services reach rural areas.
  - **Promotion of alternatives** Rural Banks, Cooperatives, etc. have also contributed to Financial inclusion.
  - **Lead Bank Scheme** - RBI assigns a district to a particular bank. The bank is responsible for promoting banking services and financial literacy in that district.
  - **Pradhan Mantri Jan Dhan Yojana (PMJDY)**, under which 43 crore accounts have been opened by Aug 2021.
  - **Niche Banking:** Setting up of Small Financial Banks and Payments Banks.
    - Launch of India Post Payment Bank in Sep 2018 is particularly significant in bridging the gap in last mile connectivity.
  - **Priority Sector Lending** initiative of RBI
  - **Various saving schemes under post office**
  - **Various Insurance and Pension initiatives**
    - Schemes such as the **Pradhan Mantri Suraksha Bima Yojana** to provide accidental death or disability cover and **Atal Pension Yojana** to provide pension cover to subscribing bank account holders.

1) PMJDY

- **Introduction**
    - » Financial inclusion is a crucial component of inclusive growth. But, even in the year 2014, more than 40% of the households in the country didn't have a bank account. In the absence of an account, they mostly depended on local money lenders for credit purposes at very high interest rates. Further, a very small percentage of bank loans used to go to rural area.
    - » To remedy these problems, PM Modi announced PMJDY in his independence day speech on 15th Aug 2014 and the scheme was launched on 28th Aug 2014.

- **Objectives:**
    - » Ensure access of **financial products & services** at an affordable cost.
    - » Use of technology to lower cost and widen reach.

- The scheme is aimed at providing key financial inclusion services like banking facilities, financial literacy, insurance cover etc. to all the ~~households~~ (**adult individuals**) in the country. Further, the government also envisaged channeling all government benefits (Central, state and local government) to the beneficiary's accounts and promoting government's DBT initiative.

- **Eligibility**
    - » Any person who is Indian citizen above the age of 10 and does not have a bank account can open an account with zero balance. It also provides for a relaxed KYC norm.

- **Six Pillars of PMJDY (National Mission on Financial Inclusion)**
    - i. **Banking Service in every 5 kilo meters**
        - ▪ The country has been divided into a number of Sub Service Areas (SSA), each with 1000-1500 households. One banking outlet (branch or BC) have been established within a distance of five km from every SSA.
    - ii. **Account for each ~~family~~ Individual**
        - ▪ Bank account for each adult individual with **accident insurance** of Rs ~~1,00,000~~ **2,00,000** for Rupay debit card holders and **overdraft** facility of Rs ~~5,000~~, **Rs 10,000**.
    - iii. **Financial Literacy**
    - iv. **Credit Guarantee Funds** to cover potential defaults in overdrafts;
    - v. **Micro Insurance:**
        - ▪ Accidental insurance cover on RuPay cards holders has been increased from Rs 1 Lakh to Rs 2 Lakh for PMJDY accounts opened from 28.8.2018.
    - vi. **Pension Transfers:** Pension payments under the Swavalamban Yojana scheme for workers in the unorganized sector is being paid through bank accounts.

- **Other Features**
    - » Zero balance accounts etc.

4. INITIATIVES FOR CASHLESS ECONOMY

1) DIGITAL BANKING (PROMOTING LESS CASH ECONOMY)

- **What is less cash / cashless economy?**

» Cashless economy refers to a scenario when monetary transaction in an economy happens mostly electronically and use of cash is absent or negligible.

- **Advantages:**
  - » **Cash economy is expensive**
  - » **Fighting Corruption** through transparency in money flow.
  - » **Increased tax compliance and thus tax revenue**
  - » **Financial inclusion** -> A cashless economy would mean everyone is having a bank account and thus financial inclusion is a pre-requisite for cashless economy.
  - » **Reduced chances of petty crimes** like theft, snatching etc.
  - » **Environment Friendly**: Reduced use of paper money can contribute to environmental benefits as well by reducing the need of trees to by cut.

- **Evolution of Digital Payment in India**
  - » Digital Payments system in India has been **steered by the Reserve Bank of India (RBI).** It first published the ***Payment Systems in India,*** in 1998.
  - » **RTGS - Real Time Gross Settlement System** was launched by RBI in 2004. **NEFT (National Electronic Funds Transfer)** was introduced in 2005.
  - » **NPCI** functions under the **Payment and Settlement Systems Act, 2007** in order to create a r**obust payments and settlement infrastructure for India**. It is a not-for-profit organization set up under the section 8 of the Companies Act, 2013.
    - ▪ Several of its initiatives like IMPS, UPI, Rupay, e-RUPI etc. have played a crucial role in promoting cashless economy in India.

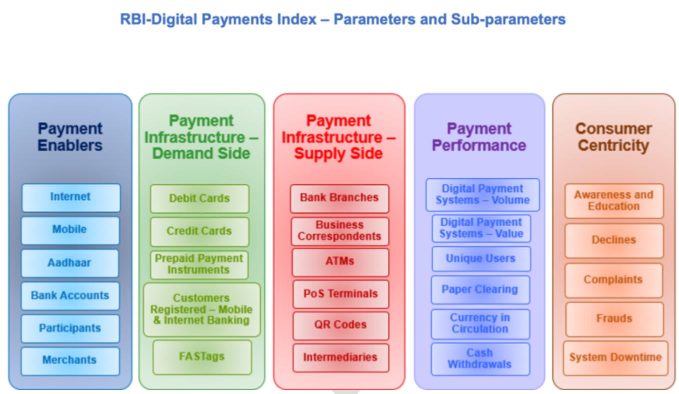
- **Steps taken in India.**
  - » **Key Policy Measures**
    - ▫ **Demonetization** has nudged citizens towards digital payments.
    - ▫ **PMJDY** has ensured bank accounts and Rupay Debit cards with almost all households in the country, increasing the scope of cashless economy.
    - ▫ **Various initiatives for digital literacy like** PMDISHA
    - ▫ Further, RBI has also announced that **all charges for NEFT and RTGS collected from banks** will be waived off from 1st July 2019, and have asked banks to pass on the benefits to customers.
    - ▫ **No MDR payment charges on payment via RUPAY, UPI from 1st Jan 2020** (Dec 2019)
    - ▫ **E-RUPI**
    - ▫ **CBDC**

- **Technological Measures:**
  - » Increasing **penetration of internet and smart phones**
  - » **Fintech Revolution** -> coming up of large number of fintech companies and facilities like PayTm Google Pay etc.
  - » Various initiatives by NPCI - IMPS, UPI, BHIM, RuPay, AEPS, e-RUPI etc.
  - » In Dec 2019, RBI operationalized round-the-clock **(24X7) availability of the National Electronic Fund Transfer (NEFT)** and asked the **banks not to levy any charge on NEFT transfer from saving bank account holders**.

- Deepening of Payment revolution in India is a result of political will (PMJDY), a proactive central bank and use of technology.

- **Nandan Nilkeni Panel recommendations for strengthening of the digital payment industry (June 2019)**

- The **Digital Payments Index of RBI** captures the extent of digitization of payments across the country.
    - The index captures (i) Payment Enablers (weight 25%), (ii) Payment Infrastructure – Demand-side factors (10%), (iii) Payment Infrastructure – Supply-side factors (15%), (iv) Payment Performance (45%) and (v) Consumer Centricity (5%).



    - The RBI-DPI has been **constructed with March 2018 as the base period**, i.e. DPI score for March 2018 is set at 100.
        - The DPI for March 2019 and March 2020 work out to 153.47 and 207.84 respectively, indicating appreciable growth.
    - The Digital Payments Index **increased from 100 in March 2018 (base period) to 304.06 in September 2021**

2) UPI AND RELATED UPDATES

- **Why in news?**
    - RBI has raised the limits on UPI payment transactions for educational and healthcare purposes (Dec 2023)

- **Introduction**
    - UPI is a real time payment system that allows money transfer between any two bank accounts by using a mobile device. It was developed by NPCI and is controlled by RBI and IBA (Indian Bank Association).
    - UPI has been build using **IMPS** payment architecture system and hence transactions are very fast.
    - It was launched in April 2016.
        - UPI allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code or net banking/wallet password.

- **How Safe is UPI**
    - The UPI is as much secure as internet banking or mobile banking.
    - A **two-step authentication** is used
        - To open the UPI app, you have to give a pin
        - To transfer the money, again you have to enter the MPIN (Mobile Banking Personal Identification Number) or UPI PIN

» It is safe as customers only share a Virtual Payment Address (VPA) and provide no other sensitive information. Receiver won't get your bank account details.
» Only while connecting your bank account to UPI, you have to authenticate it through the card details and OTP.

- **Transaction limit**
  » The transaction limit for UPI is capped at Rs 1 lakh, except a few categories like capital market (AMC, Broking, Mutual Funds etc.), Collections (Credit Card Payments, Loan Repayments, EMI), Insurance etc, where the transaction limit is 2 lakh.
  » In Dec 2021, transaction limit for UPI payments for Retail Direct Scheme and for IPO subscriptions was increased to Rs 5 lakhs.
  » **In Dec 2023**, To encourage the use of UPI for medical and educational services, it is proposed to enhance the limit for payments to hospitals and educational institutions from ₹1 lakh to ₹5 lakh per transaction

- **Benefits of UPI**
  » UPI is revolutionary. It had made the banking transaction a breeze. Former RBI governor Rajan considered the launch of UPI as the Whatsapp moment.
    i. **24X7 Immediate transfer**
       ▪ **No restriction of holiday or working hours. The bank strikes also doesn't affect UPI**
       ▪ **No need to wait for 24 hours to send money to new recipient**
    ii. **Simple:** No need of bank account number and IFSC code of the recipient
    iii. **Less costly:** A transaction through UPI is much cheaper than the other methods.
    iv. **Many bank accounts can be connected to one VPA:** However, the BHIM app only links one account at a time
    v. **Enabled many apps**: PhonePe, BharatPay, PayTM etc. .
    vi. **Benefits of UPI over IMPS:** No need of bank account details and IFSC code (both required in IMPS)
    vii. **Benefits over other mobile wallets**
       ▪ No need of transfer of money into wallet, so always getting interest on the money.
       ▪ Mobile wallets generally allow transfer between wallets, here the transfer can be between different banks.

- **Other key terms associated with UPI**
  » **Virtual Payment Address (VPA)**
    ▫ The UPI system does not use the bank account details of the recipient. But, there should be **an accurate identification** of the money recipient. Ultimately, all this convenience is fruitful if the money goes in right hands.
    ▫ So, every user of the UPI app must have a unique ID. This unique ID is called the Virtual Payment Address (VPA).
      • This VPA would be something similar to sanket@icici, anshu@bob etc. So very easy to remember.

- The app provider bank would allot the VPA to each user. You can choose the VPA similar to the mail address.
- You can give this VPA to anyone to receive money. This app would itself keep storing the VPAs of the person to whom you have transferred the money. It is like saving contact in Gmail.

A) KEY CHANGES MADE IN DEC 2023:

- In Dec 2023, RBI **increased the limits for UPI Transactions for payments made to hospitals and educational institutes** to **Rs 5 lakh** per transaction
- **E-Mandate limit** has also been increased from Rs 15,000 to Rs **1 lakh**.
    - **Background**: The framework for processing of e-mandates for recurring transactions was introduced in Aug 2019 to balance the safety and security of digital transactions with customer convenience. UPI Mandate cane be used in scenario where money is to be transferred later by providing commitment at present. It is used for recurring payments to buy mutual funds, pay insurance premiums and credit card repayments. The limits for **execution of e-mandates** without Additional Factor Authentication (AFA) currently stands at Rs 15,000.
    - **Need of increase**: In categories such as subscription to mutual funds, payments to insurance premium and credit card bill payments, where the transaction size is more than Rs 15,000, a need to enhance the limit has been expressed.
    - **RBI** has therefore, **proposed to exempt he requirement of AFA for transactions** upto Rs 1 lakh for the following categories viz. subscription to mutual funds, payment of insurance premium and payment of credit card bills.
    - This change in limit is expected to increase the usage of e-mandate.

- **Other Related Changes**:
    - RBI has proposed to set up a **fintech repository** to keep track of increasing linkages among banks, NBFCs and fintech.
        - For better understanding of the developments in the FinTech ecosystem with an objective to appropriately support the sector, it is proposed to set-up a Repository for capturing essential information about Fintechs, encompassing their activities, products, technology stack, financial information etc.
        - This **fintech repository** will be set up by Reserve Bank Innovation Hub by April 2024.

    - **Establishment of Cloud Facility for the Financial Sector in India**:
        - **Banks and financial entities** are maintaining an ever-increasing volume of data. Many of them are utilizing various public and private cloud facilities for this purpose.
        - **RBI** is working on establishing a cloud facility for the financial sector in India. This proposed facility will enhance security, integrity and privacy of the financial sector data.
        - The cloud facility will be set up and initially operated by **Indian Financial Technology & Allied Services (IFTAS)**, a wholly owned subsidiary of RBI. Eventually, this cloud facility will be transferred to a separate entity owned by the financial sector participants.

    - **Regulatory Framework for Web-Aggregation of Loan Products**:
        - **Background**: The RBI had accepted the recommendation of the Working Group on Digital Lending (Chairman: Shri Jayant Kumar Dash) to come up with regulatory framework for web-

aggregators of loan products (WALP). WALP entails aggregation of loan offers from multiple lending of an electronic platform which enables the borrowers to compare and choose the best available option to avail loan from one of the available lenders.

- Based on this recommendation, **RBI has decided to bring such loan aggregation services** offered by the Lending Service Providers (LSPs) under a comprehensive regulatory framework.

1) CENTRAL BANK DIGITAL CURRENCY (CBDC) (DIGITAL RUPEE OR E-RUPEE)

- **Why in news?**
  - » The RBI has set no-specific timeline for the '**full-fledged**' launch of its **Central Bank Digital Currency (CBDC)** or the e-Rupee (March 2024)
    - RBI Governor Shaktinath Das said that they are in no great hurry to launch the digital currency because they want to be absolutely sure about the **safety, robustness, and the integrity** of digital currency.

- **Basics:**
  - » First announced in Budget 2022-23
  - » In 2022, the RBI introduced India's own Central Bank Digital Currency (CBDC) which is a digital representation of sovereign currency.
  - » RBI defines CBDC as the **legal tender issued by Central Bank in digital form**. It is akin to sovereign paper currency but takes a different form, exchangeable at par with the existing currency and shall be acceptable as a medium of payment, legal tender, and a safe store of value. It would also appear as **liability on a Central Bank's balance sheet**.

- **Key Motivations behind CBDC:**
  - » Reduce Operational Cost involved in physical cost management
  - » Foster Financial inclusion
  - » Efficiency and Innovation in payment system
  - » Adding efficiency to settlement system
  - » Boosting innovation in cross border payments.
  - » Countering Private Crypto Currencies
- Thus, it has all the advantages which any private virtual currency has.
- **How secure is RBI's CBDC?**
  - » It operates on the robust foundation of **blockchain technology**, employing encryption and decentralized ledgers to safeguard financial transactions.

- **How does Digital Rupee work?**
  - » The RBI will **create tokens**, and issue them to financial entities called **Token Service Providers** (TSPs), which are the banks selected for the Digital Rupee Program. The TSPs will then distribute the tokens to interested parties/customers. The digital rupee tokens will work in the same way as bank notes/coins, and you can use them in lieu of cash.
  - » e₹ will work in the same way as bank notes and coins – if you possess them, you can use them in lieu of cash. You may store e₹ in your bank's e₹ app. The digital wallet works in the same way as your cash wallet, except these transactions will be entirely paperless. You can **either conduct e₹ transactions anonymously**, simply by obtaining the sender/receiver's phone number or QR code, or you can opt for account-based e₹ transactions.

- How is e-rupee different from UPI or other fund transfer modes?
  - » UPI/NEFT/RTGS/IMPS are all forms of digital payments. **e₹ is a digital form of currency and is a legal tender provided by RBI** that is **similar to physical cash, but in a digital from**.

- **How is CBDC different from Bitcoin** and other private cryptocurrency?
  - » **RBI takes responsibility for ensuring the transactions** are settled. In bitcoin, the transaction between parties are settled by a pool of users.
  - » **Stability**: E-Rupee enjoys the same stability in value as the rupee while cryptocurrencies can be very volatile.

- **Types of CBDC:**
  - » RBI released **two versions of the Digital Rupee** - **CBDC-Wholesale** (CBDC-W) and **CBDC-**Retail (CBDC-R).
    - ▫ **CBDC-W** is designed for limited access and is primarily intended for selected financial institutions. It is used for settlement of inter-bank transfers and related wholesale transactions.
    - ▫ **CBDC-R** is available for broader audience, including private sector entities, non-financial consumers, and business of all sizes. It is basically an electronic version of cash primarily meant for retail transactions.
      - The CBDC-R pilot currently enables person-to-person (P2P) and Person to Merchant (P2M) transactions using Digital Rupee wallets provided by pilot banks.

- **Important Proposed features of e-rupee**
  1. Enabling digital transaction even when customers are offline.
     - CBDC-R will soon support offline transactions in areas with limited or no internet connection. Various offline solutions (proximity and non-proximity based) across hilly areas, rural and urban locations will be tested for this purpose.
  2. Integrating the e-rupee with India's widely used UPI.
     - RBI is actively encouraging banks to make the e-rupee interoperable with UPI through QR code system. Some banks like SBI have already implemented the inter-operability feature.
  3. **Programmability**: It will permit users like, for instance, government agencies to ensure that payments are made for defined benefits.
     - It will also permit corporates to program specified expenditures like business travel for their employees.
     - **Additional features like validity period or geographical areas** within CBDC may be used and can be programmed.
  - ▪ The above functionalities will be introduced in pilot in gradual manner.

- **What are the denominations of retail e-rupee?**
  - ▪ The retail e-rupee is available in various denominations, including 50 paise, 1, 2, 5, 10, 20, 50, 200, 500, and 2000. In contrast, the wholesale e-rupee doesn't specify any specific denomination.

- **Progress so far:**
  - RBI has launched pilots of CBDC in both wholesale and retail segments.
    - **The pilot in wholesale segment**, known as the **Digital Rupee - Wholesale (e₹ -W),** was launched on Nov 1, 2022, with use case being limited to the settlement of secondary market transactions in government securities.
    - The **pilot in retail segment**, known as **digital Rupee - Retail (e₹-R),** was launched on Dec 01, 2022, within a closed user group (CUG) comprising participating customers and merchants.
      - **The e₹-R** is in the form of digital token that represents legal tender. It is being issued in the same denominations as the paper currency and coins. It is being distributed through financial intermediaries, i.e., the banks.
      - **Users** will be able to transact with e₹-R through a digital wallet offered by the participating banks. Transactions can be both person to person (P2P) or Person to Merchant (P2M).
      - It offers features of physical cash like trust, safety and settlement finality. Like cash, the CBDC will not earn any interest and can be converted to other forms of money, like deposits with banks.

  - **As of March 2024**, the size of the pilot project is very large. India currently has about **4.3 million retail users of CBDC**. An additional 40,000 merchants are also using the e-rupee.

2) E-RUPI

- **Why in news?**
  - RBI expands the scope of e-RUPI digital voucher: Non-banking prepaid payment instrument companies can now issue vouchers (June 2023)

- **Details**
  - E-RUPI is a one time, cashless and contactless instrument for digital payment. It is a QR code or SMS string-based **e-Voucher**, which is delivered to the mobile of beneficiaries. The beneficiary can go and redeem it at any centre that accepts it. It is a person specific, even purpose specific digital voucher.

- It connects the sponsors of the services with the beneficiaries and service providers in a digital manner without any physical interface. It also ensures that payment to the service provider is made only after transaction is complete.
  - It is pre-paid in nature and thus ensures timely payment to the service provider without involvement of any intermediary.
  - It will contribute in leak-proof delivery of welfare services and thus would make DBT more effective.
- The user will be able to redeem the voucher without a card, digital payment app or internet banking access, at the service provider.
- **Where all can it be used?**

- » It can also be used for delivering services under schemes meant for providing drugs and nutritional support under Mother and Child Nutrition Scheme, TB Eradication Program, drugs & diagnostics under schemes like AB-PMJAY, fertilizer subsidy etc.
  - » Even the private players can leverage these vouchers as part of their employee welfare and CSR programs.
- **It has been developed by NPCI on its UPI Platform**, in collaboration with the Department of Financial Services, MoH&FW and National Health Authority.

- **Which banks can issue e-RUPI?**
  - » **NPCI has partnered with 11 banks for e-RUPI transactions.** They are Axis Bank, Bank of Baroda, Canara Bank, HDFC Bank, ICICI Bank, India Bank, Indusland Bank, Kotak Mahindra Bank, Punjab National Bank, SBI and Union Bank of India.
  - » The acquiring apps are Bharat Pe, BHIM Baroda Merchant Pay, Pine Labs, PNB Merchant Pay and YoNo SBI Merchant Pay. More banks are expected to join the e-RUPI initiative soon.
- **Advantages for Consumers:** No need of bank account (which is needed in other forms of digital payments); Easy, contactless two-step process that doesn't require sharing of personal details; it can also operate on basic phones and without internet.
- **Advantages for Sponsors:** Strengthen DBT and make it more transparent;
- **Advantages for service providers**: since these are pre-paid vouchers, it would ensure real time payment to the service providers.
- **Are there global examples of a voucher-based welfare system?**
  - » School voucher systems in USA, Colombia, Chile, Sweden, Hong Kong, etc.
  - » In the US, there is a system of education vouchers or school vouchers, which is certificate of government funding for students selected for state-funded education to create a targeted delivery system. These are essentially subsidies given directly to parents of students for the specific purpose of educating their children.
- **Updates: June 2023**
  - » **At present**, purpose-specific e-vouchers are issued by banks of central and state governments to a limited extent on behalf of the corporates.
  - » **Now**, RBI has proposed to expand the scope and reach of e-RUPI vouchers by (a) permitting non-bank Prepaid Payment Instrument (PPI) issuers to issue e-RUPI vouchers and (b) enabling issuance of e-RUPI vouchers on behalf of individuals.

5. NON-PERFORMING ASSETS (NPAS)

1) NON-PERFORMING ASSETS - BASICS

- » Assets in a banking system comprises of loans given and investments (in bonds etc.) made by banks as these earn interest/profit for banks.
- » If the interest/ principal instalment of a loan is not paid until due date, it is called **bad loan**.
- » An asset including a leased asset, becomes non-performing when it ceases to generate income for the bank.
- » According to RBI **A Non-Performing Asset** is a loan or advance where instalment/interest is due for more than **90 days** in case of a term loan or overdraft account/ credit account. Similarly in case of

agriculture loans an account becomes an NPA if the instalment/interest remains overdue for two crop season for a short duration crop, or one crop season for a long duration crop.

- **Stressed Assets** refers to all NPAs plus restructured assets plus written off assets.
- **NPA Classifications**: Banks are required to classify NPAS into one of the following three categories.
  - **A substandard asset** is an asset classified as an NPA or **less than 12 months**.
  - **A doubtful asset** is an asset that has been non-performing for **more than 12 months**.
  - **Loss assets** are loans with losses identified by the bank, auditor, or inspector that need to be fully written off.

2) WHY NPAS INCREASED SO MUCH IN LAST DECADE?

I. **Credit Boom in mid 2000s and then the global financial crisis**: In Mid 2000s large corporates were granted loans based on extrapolation of their recent growth and performance. But with stagnating economic growth due to Global financial crisis, their loan returning capabilities decreased.

II. **Indian creditors used the strategy of "Giving time to time" and hoped that economic revival will reduce NPAs -> this only led to evergreening of NPAs.**

III. **Poor Recognition:** Banks were initially reluctant to recognize NPAs. The true extent of NPA problem only started becoming clear once the RBI initiated the Asset Quality Review in 2015.

IV. **Poor Governance and Regulation of Banks - Crony Capitalism - Poor Recovery**

V. **Lack of specialization of banks in recovering bad loans / NPAs**

VI. **Other Factors which negatively impacted businesses**
- **Key Judicial Decisions**
  - Judicial decisions like abrupt cancellation of coal mines and spectrum allocation led to reallocation through expensive auctioning procedure and thus proved to be a fatal burden on respective business models of power, steel and telecom.
- **Land Acquisition and environmental clearance issues** also blocked a number of projects and contributed towards increasing NPAs.

VII. **Insolvency and Bankruptcy Procedure** had not proved very effective yet.

VIII. **Absence of strict action against bank frauds of high magnitude**
- This is because of absence of a strong law against wilful defaulters and fraudsters

3) IMPACT OF HIGH NPAS

- **On Banking Sector**: Decreased income; downgrading of credit rating; negatively impacts achievement of capital adequacy; reduced competitiveness of PSBs to private banks.
- **Hinders Economic Growth**: Reduction in bank credit; higher interest rates.
- **On Government**: Increased fiscal burden due to the need of recapitalizing PSBs.
- **On Individuals/ Society**
  - **Relatively expensive loans** and decreased interest on deposits.

» Less budget/credit available for social welfare programs.

» Eventually its common man's money in the form of deposits which have been lend by banks and is put at risk in case the bank fails.

4) BALANCESHEET SYNDROME WITH INDIAN CHARACTERISTICS

- High NPAs (TBS problem) have derailed growth in other countries. But huge NPAs have not had as huge an impact as in case of other countries. This is being considered 'Balance Sheet Syndrome with Indian Characteristics.'
  - » This is because the NPA's are concentrated in **public sector banks** which not only hold their own capital but are ultimately backed by the government who would eventually come to save these banks in case situation gets out of hand. Therefore, creditors have retained confidence in the banking system and there have been no bank runs, no stress in the inter-bank market etc.
  - » Mid 2000s boom had created **enough infrastructure** (in India's severe supply constraint economy), that there was ample room for the economy to grow after the GFC.

5) STEPS TO REDUCE NPA PROBLEM

4R Strategy: Recognition, Recapitalization, Resolution, Reform

- **Steps Taken So Far**
  1. **Know your customer (KYC)** norms have been strengthened.
  2. **Early identification and reporting of stress** - Special Mention Account (As per revised framework for resolution of stressed assets - Feb 2018)
     - Lenders are required to identify incipient stress in loan accounts, immediately on default, by classifying assets as Special Mention Account (SMA) as per the following categories.

SMA Subcategory	**Basis for classification -** principal or interest payment or any other amount wholly or partly overdue
SMA-0	1-30 days
SMA-1	31-60 days
SMA-2	61-90 days

     - This has to be reported to Central Repository of Information on Large Credit (CRILC) on all borrowers' entities having aggregate exposure of Rs 5 crore and above with them.
  3. **Asset Quality Review by RBI**
     - To deal with the cases of divergences in identification of NPAs or addition provisioning across banks at the central office level
  4. **Indradhanush Scheme**
     - Improving 7 different areas of banks (including capitalization)
  5. **Insolvency and Bankruptcy Code (IBC-2016)**

6. **Fugitive Economic Offenders Act, 2018,** is also acting as a deterrent and may prevent future offenders from running to other countries.
7. **Project Sashakt (**July 2018)
    - It is a five-pronged strategy to resolve bad loans outline - SME resolution approach, bank led resolution approach, AMC/AIF led resolution approach, NCLT/IBC approach and asset trading platform
8. **Prompt Corrective Action (PCA) Framework**
    - **What is PCA?**
        - It is a framework under which banks with weak financial matrices are put under watch by RBI.
        - The framework uses **three parameters** to measure the weakness of a bank:
            - **Capital Ratio**
            - **Asset Quality**
            - **Profitability**
    - **RBI's revised PCA framework for banks applicable from 1st Jan 2022.**
        - The framework would apply on all banks operating in India, including foreign banks operating through branches or subsidiaries based on breach of risk thresholds of identified indicators.
        - **Indicators to be tracked** for capital, asset quality and leverage would be CRAR/Common Equity Tier-1 Ratio, Net NPA Ratio, and Tier 1 Leverage Ratio.
        - **Breach** of any risk threshold may result in invocation the PCA.
        - **Entry:** A bank will generally be placed under PCA framework based on the Audited Annual Financial Results and the ongoing Supervisory Assessment made by RBI.

PCA matrix – Parameters, indicators and risk thresholds

Parameter	Indicator	Risk Threshold 1	Risk Threshold 2	Risk Threshold 3
(1)	(2)	(3)	(4)	(5)
Capital (Breach of either CRAR or CET 1 ratio)	CRAR - Minimum regulatory prescription for Capital to Risk Assets Ratio + applicable Capital Conservation Buffer (CCB) **and/or** Regulatory Pre-Specified Trigger of Common Equity Tier 1 Ratio (CET 1 PST) + applicable Capital Conservation Buffer (CCB)	Upto 250 bps below the Indicator prescribed at column (2) Upto 162.50 bps below the Indicator prescribed at column (2)	More than 250 bps but not exceeding 400 bps below the Indicator prescribed at column (2) More than 162.50 bps below but not exceeding 312.50 bps below the Indicator prescribed at column (2)	In excess of 400 bps below the Indicator prescribed at column (2) In excess of 312.50 bps below the Indicator prescribed at column (2)
	Breach of either CRAR or CET 1 ratio to trigger PCA			
Asset Quality	Net Non-Performing Advances (NNPA) ratio	>=6.0% but <9.0%	>=9.0% but < 12.0%	>=12.0%
Leverage	Regulatory minimum Tier 1 Leverage Ratio	Upto 50 bps below the regulatory minimum	More than 50 bps but not exceeding 100 bps below the regulatory minimum	More than 100 bps below the regulatory minimum

- **RBI's corrective action plan based on risk threshold**
    - RBI can put **mandatory restrictions** on dividend distribution, branch expansion, and management compensation based on the risk threshold.

- In an extreme situation, breach of third threshold, would identify bank as likely candidate for resolution through amalgamation, reconstruction or winding up.
- Further there can be **discretional restrictions** on bank's lending limit, special audit etc.
- RBI can supersede the bank's board, under the PCA.

10. **Governance Reform in banks**
    - E.g. Separation of the post of CMD and Chairman

6) IMAPCT OF THE ABOVE EFFORTS – CURRENT SITUATION

- As per RBI's Financial Stability report released in Dec 2023, **SCB's** gross NPAs ratio continued to decline to a multi-year low of 3.2% and the net Non-Performing Asset (NNPA) ratio to 0.8% in Sep 2023.
- **Why decrease:**
  - Lower slippages and reduction in outstanding GNPAs through recoveries, upgrades, and write offs led to this decrease.

6. DEVELOPMENTAL BANKS: NEED AND ANALYSIS

- What is a **DFI** (Developmental Financial Institution) or **DFC** (Developmental Finance Company)?
  - Developmental Financial Institutions provide **long-term credit for capital-intensive investments spread over a long period and yielding low rates of return**, such as urban infrastructure, mining and heavy industry, and irrigation system.
  - The role of a Development Financial Institution (DFI) is to take cognizance of the gaps in institutions and markets in the country's financial sector and to act as a **gap filler**.

- **Objectives of DFI**:
  - **Economic Development** of the country via financing infrastructure
  - They also provide **technical assistance** like Project Reportand Consultancy Services.
  - They provide credit enhancement for infrastructure and housing projects and help in improving debt flows towards infrastructure projects.

- **History of Development Banks in India**
  - **Industrial Finance Corporation of India** (IFCI), set up in 1949, was perhaps India's first developmental bank.
  - In 1955, the World Bank prompted the **Industrial Credit and Investment Corporation of India** (ICICI) - the parent of the largest private bank in India today - as a collaborative effort between the government with majority equity holding and India's leading industrialists with nominal equity ownership **to finance modern and relatively large private corporate enterprises**.
    - ICICI Bank limited was established in 1944 and in 2002 both were merged together making it the first universal bank of India.

» In 1964, **IDBI** was set up as an apex body of all development finance institutions.

- **How were DFIs financed in India?**
  » In 1950s and 60s, the saving rate was low, and the capital market was virtually absent. So, DFIs were mostly financed by:
    1. **Lines of credit from the Reserve Bank of India** (that is, some of its profits were channelled as long-term credit); and
    2. **Statutory Liquidity Ratio bonds**, into which commercial banks had to invest a proportion of their deposits.

  » In other words, by sleight of government hand, short-term bank deposits got transformed into long-term resources for development banks. The missing capital market was made up by an administrative fiat

- **However these DFIs didn't perform well:**
  » **Faced very high NPAs** -> due to politically motivated lending and inadequate professionalism in assessing the project.
  » Therefore, after 1991, following the Narsimhan Committee recommendations on financial sector reforms, **the DFIs were disbanded and got converted into commercial banks**.

- **Result of disbanding these institutions**
  » **Steep fall in long term credit** from a tenure of 10-15 years to five years. This has contributed to **NPA crisis** of Indian PSBs.
  » Further, the development of debt market has failed to take off.

- **In China**, these developmental banks - the Agricultural Development Bank of China, China Development Bank, and the Export-Import Bank of China - have been at the forefront of financing its industrial prowess.
- **Advantages of DFIs**
  » **Fill the gap in infra financing and long-term financing:** The commercial banks have been reluctant to provide long term loans for infra projects especially after the huge NPA crisis
  » **Reducing future NPA burden on Banks**
  » **Utilize today's developmental capital and stock markets more efficiently** through specialized activities.
- Therefore, Finance Minister **Nirmala Sitharaman** while presenting the Union Budget 2021-22 stated that, India's Infrastructure needs long term financing and informed that India will set up a new **DFI** called the **National Bank for Financing Infrastructure and Development** (NABFID)

1) DETAILS ABOUT NATIONAL BANK FOR FINANCING INFRASTRUCTURE AND DEVELOPMENT (NBFID)

- NBFID Bill, 2021 was passed in Parliament in 2021.

- It was operationalized in Q1FY23.
- NBFID will be set up as a **corporate body with authorised share capital of one lakh crore rupees**.
    - Shares of NBFID may be held by: (i) central government, (ii) multilateral institutions, (iii) sovereign wealth funds, (iv) pension funds, (v) insurers, (vi) financial institutions, (vii) banks, and (viii) any other institution prescribed by the central government.
    - Initially, the central government will own 100% shares of the institution which may subsequently be reduced up to 26%.

- **Functions:**
    - » It will have both financial and developmental objectives.
    - » **Financial Objective** will be to directly or indirectly lend, invest, or attract investment for infrastructure projects located entirely or partly in India. Central government will prescribe the sectors to be covered under the infrastructure domain.
    - » **Developmental Objectives** include facilitating the development of the market for bonds, loans, and derivatives for infrastructure financing.
    - » **Functions of NBFID include**:
        - i. extending loans and advances for infrastructure projects,
        - ii. taking over or refinancing such existing loans,
        - iii. attracting investment from private sector investors and institutional investors for infrastructure projects,
        - iv. organising and facilitating foreign participation in infrastructure projects,
        - v. facilitating negotiations with various government authorities for dispute resolution in the field of infrastructure financing, and
        - vi. providing consultancy services in infrastructure financing

- **Sources of Funds**:
    - NBFID will raise money in the form of loans or otherwise both in Indian Rupee and Foreign Currency, or secure money by the issue and sale of various financial instruments including bonds and debentures.

- It will borrow money from: (i) Central Government (ii) Reserve Bank of India (iii) Schedule Commercial Banks (iv) Mutual Funds, and multilateral institutions such as WB and ADB.

- **Management of NBFID**:
    - It will be governed by **Board of Directors**. The members of Board include:
        - i. Chairperson appointed by the Central Government in consultation with RBI
        - ii. Managing Director
        - iii. Up to three deputy managing directors
        - iv. Two directors nominated by Central Government

v. A few independent directors

- **Support from central government**:
    - **Government** will provide a grant of Rs 5,000 crores to NBFID.
    - It will also provide guarantee at a concessional rate of upto 0.1% for borrowing from multilateral institutions, sovereign wealth funds, and other foreign funds.
    - Upon request from NBFID, the government may guarantee the bonds, debentures, and loans issued by NBFID.

- **Other DFIs**:
    - The Act also provides for any person to set up a DFI by applying to RBI. RBI may grant a license for DFI in consultation with the central government. RBI will also prescribe regulations for these DFIs.

- **How is NaBFID doing?**
    - As of 2023, entire shareholding of the institutions held by Central Government, which has invested equity of Rs 20,000 crore and provided a grant of Rs 5,000 crores.
    - **NaBFID** has raised Rs 10,000 crores via maiden issuance of listed bonds of 10 year duration at a coupon rate of 7.43%. It was oversubscribed by 4.7 times. (June 2023)
    - In less than a year of operation, the institution has sanctioned **25,000 crore** rupees loan. The aim is to reach Rs 1 lakh crore in terms of sanctioned amount by FY24. (July 2023)
    - It is also moving very cautiously with a **balanced portfolio** of completed projects (refinancing route), brownfield expansion and greenfield projects as a lopsided focus on green field carry high risks.
    - It is also exploring a larger role in the infrastructure segment and not in just financing, with the objective of playing a catalysing role in developing infrastructure and the entire ecosystem. For e.g. it is looking at a project advisory role in railways and transportation infra projects that are stuck, or that haven't moved at required pace.

7. INSOLVENCY AND BANKRUPTCY CODE (IBC)

- **Basic Definitions**
    - **Insolvency** refers to a situation where individual, entity or a company is unable to meet its financial obligations (i.e. unable to pay off debts)
    - **Bankruptcy** is the legal declaration of one's inability to pay off debts. When bankruptcy is filed, two ways of resolving insolvency is available.
        1. **Reorganization:** debtor restructure their repayment plans to make them more easily met.
        2. **Liquidation:** Debtors assets are sold to pay the creditors.

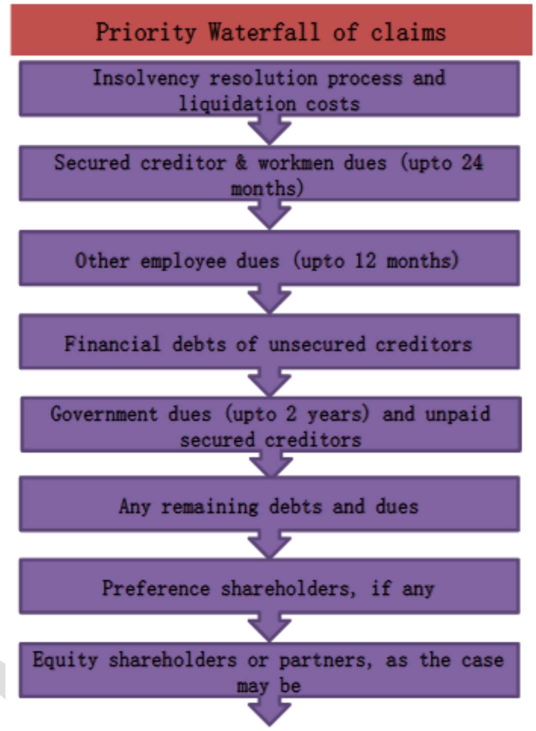
- **Problems with India's Insolvency and Bankruptcy Process (Before IBC, 2016)/Need of IBC**
    - **Delayed Process** (9 years, (1.7 years in OECD))
    - **High Cost of Process** (9% of total asset cost, (5% in OECD)) .

- **Poor Recovery** (25.7% (72% in OECD))
- **Archaic laws,** some more than 100 years old, governed the Insolvency and Bankruptcy procedures.
- **Different acts for different entities created confusions.**
    - The **RDDB act, 1993 (Recovery of Debts due to Banks and Financial Institutions Act, 1993) and the SARFAESI Act, 2002** (**Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest ACT, 2002)** act applied only to Indian Banks and specific NBFCs which deal with housing loans.
    - **SICA** (Sick Industrial Companies Act, 1985) applied to only Industrial companies which created a major problem as India is increasingly becoming a services-led economy.
    - **Joint Lenders Forum and Corporate Debt Restructuring** also apply to only regulated banks and NBFCs. They too don't address insolvency in systematic manner.
- **Creditors were relatively powerless** when faced with a default while promoters were, in the words of former RBI governor Raghuram Rajan, able to "insist on their divine right to stay in control".

- **Insolvency and Bankruptcy Code 2016 - passed by Parliament in May 2016**
    - IBC 2016 is considered one of the landmark economic reforms by the Modi Government. It is based on the recommendations of **the Bankruptcy Law Reform Committee** headed by **TK Viswanathan.**
    - **Ministry:**
        - IBC was spearheaded in Parliament by Ministry of Finance.
        - However, the administration of the IBC, 2016 has been transferred to the Ministry of Corporate Affairs from July 2016
- **Objectives**:
    - **Maximize the value of debtor's** asset
    - **Promote and encourage entrepreneurship**
    - Ensure **timely and effective resolution of IBC case**s
    - **Balance the interest of all stakeholders** including creditors, debtors and staff
    - Facilitate the promotion of a competitive market and economy
    - Provide for a framework to deal with cross border insolvency

- **Provisions:**
    i. **Unified Framework: Applicable to both Individuals and companies**
    ii. **Clear Coherent and Speedy Process**
        - Code lays down a clear, coherent and speedy process for early identification of financial distress and revival of the companies and limited liability entities if the underlying business is found to be viable.
        - **Corporate debtors (LLPs and companies):**
            - **Corporate Insolvency Resolution Process (CIRP)**:
                - Under this steps are taken for revival, selling the company to a suitable buyer, etc.
                - Resolution plan has to be approved by CoC (at least 66% of the creditors in CoC).

- **Time Bound Resolution:** Insolvency resolution - Max (~~180 + 90 Days~~) **330 days** (including the liquidation process) (after the Aug 2019 Amendment)
    - **Liquidation** - if the insolvency resolution fails. (Note: through the SC Judgment in the Essar Steel case, the 330 day deadline is no more mandatory).
- **Came into force** on 1st Dec 2016).



iii. It offers a paradigm shift from the existing **'Debtor in possession' to a 'Creditor in control' regime**.

iv. **Institutional Infrastructure for Insolvency and Bankruptcy Process under IBC**
- **Insolvency and Bankruptcy Board of India ->** Insolvency regulator, oversees the functioning of insolvency intermediaries (IPs, IPAs, IUs)
- **Insolvency Professionals and Insolvency Professional Agencies** -> private bodies -> specialized in helping sick companies -> license from IBBI required
- **Information Utilities**
    - Collate all information about debtors to prevent serial defaulters from misusing the system.
- **Adjudication** (Corporates: NCLT->NCLAT->SC; Individuals: DRT -> DRAT -> SC)

v. **Insolvency and Bankruptcy** fund
- For establishment and use by Insolvency and Bankruptcy Board of India and also for implementing various provisions of the act.

vi. **Provisions to address cross border insolvency** through bilateral agreements with other countries.

vii. **Protection of worker's interest**
- The code has provision to ensure that the money due to workers and employees from the provident fund, the pension fund and the gratuity fund shouldn't be included in the estate of the bankrupt company or individual.
- Further, worker's salaries for upto 24 months will get first priority in case of liquidation of assets of a company, ahead of secured creditors.
- It also enables workers to initiate the insolvency process and they will be first in line to get the proceeds of liquidations.

viii. **Disqualification of bankrupt from holding public office**

- **During COVID-19 pandemic**, the Insolvency and Bankruptcy (Amendment) Ordinance, 2020 was promulgated, which suspended initiation of CIRP of a corporate debtor (CD) for any default arising on or after **25th March 2020**. This suspension of code was extended twice for 3 months each on 24th Sep 2020 and 22nd Dec 2020.

- **Current Situation**:
  - As per the Financial Stability Report (FSR) released by the RBI on 28th Dec 2023:
    - Since the inception of the IBC, a total of **2,808 Corporate Debtors (CDs) have been rescued** (808 through RPs, 1053 through appeal and review settlements, 947 through withdrawals) and **2249 CDs have been referred for liquidation till Sep 2023**. As many as 2,001 are pending (36 for seven years and 502 for six years)

- **Significance/Key Achievements of IBC:**
  - IBC has created a **cohesive and comprehensive insolvency ecosystem**.
  - It has **made it easy for creditors** to deal with default.
  - It has **professionalized insolvency services** by creation of two professions namely: the insolvency profession and the valuation profession
  - It has **fast tracked** the insolvency and bankruptcy process and has resulted into **higher recovery** and thus has benefitted all the creditors including banks. As per ESI 2021-22:
    - In value terms **74%** of distressed assets were rescued.
    - The average time for resolution (428 days) and liquidation (375 days) is a reduction over the pre-IBC times.
  - IBC has also ensured **fast track closing of businesses** enhancing a key component in India's Ease of Doing Business.
  - **IBC** has also led to **Behavioural change**.
    - **Increased responsibility and accountability** have been ensured among borrowers. This has ensured that business entities are paying upfront before being declared insolvent.
    - Further, in case of distress, thousands of debtors are resolving distress in the early stage of distress.
- **Concerns:**
  - **Little Realizable Value**: RBI's Financial Stability report in Dec 2023 mentions little realizable value to the creditors (16.9% in 2020-21; 22.4% in 2021-22; and 37.1% in 2022-23).
    - Also, according to the 32nd report on **Parliamentary Standing Committee on Finance**, submitted to Parliament on Aug 3, 2021: the **recovery rates are low** upto 5% with haircuts as much as **95%**.
  - **Numerous issues with Resolution Professionals (RPs)** for which regulators IPA and IBBI have taken disciplinary action on 123 Insolvency Professionals (IPs) out of 203 inspections conducted till date (i.e. **around 60% of IPs** inspected were found to be indulging in malpractices).
  - **Capacity of NCLT**: Large number of pending cases

1) PRE-PACKAGED INSOLVENCY RESOLUTION PROCESS (PPIRP) FOR CORPORATE MSMES

- In April 2021, GoI amended the IBC Code, 2016 to introduced PPIRP for corporate MSME with defaults up to Rs 1 crore.
- **Key Features of PPIRP**
  - **Voluntary Initiation**: It is initiated voluntarily by the debtor. The debtor and creditor mutually work on a resolution plan and approach NCLT for its approval.

- **Expedited Resolution**: PPIRP is expected to be a faster process, with a maximum timeline of 120 days for the submission and approval of the pre-packaged plan.
- It has rigour and discipline of the CIRP. At the same time, it is informal upto a point and formal thereafter.
- **Minimal Disruption**: The management of the affairs of the CD shall continue to vest in the Board of Directors/ partners of the CD and the resolution professional conducts the process under the guidance and oversight of the creditors.
- **Creditor's involvement** in the resolution plan make it more likely to be feasible and acceptable by them.
- The **informality in the beginning** (pre-initiation phase) offers **flexibility** for the CD and its creditors to swiftly explore and negotiate the best way to resolve stress in the business.
- The **post-initiation stage drives value maximization** and bestows the resolution plan with statutory protection.

- **Advantages:**
  - Time efficient resolution
  - Early revival of stressed assets
  - Improved business continuity
  - Enhanced stakeholder involvement
  - Reduction in cost in insolvency resolution process
  - Preserve asset value: Early resolution can help preserve the value of the debtor's assets, preventing further deterioration and maximizing creditor's recovery.

2) CROSS BORDER INSOLVENCY (INTERNATIONAL INSOLVENCY) LAW IN INDIA

- **Intro**
  - Cross border Insolvency mechanisms deals with financially distressed debtors who have assets or creditors in more than one country. Currently, the Cross Border Insolvency has no clear legal framework in India.

- **Why cross border insolvency process is important?**
  - **Increasing global footprint of corporates**
  - **Improving Ease of Doing Business**
  - **Preventing the misuse of bankruptcy law**: It will further help India in dealing with cases like that of Nirav Modi who has filed for Bankruptcy in USA.

- **Key components of Cross border insolvency:**
  i. Which **law** is applicable in case of cross border insolvency
  ii. Who has the **jurisdiction** to administer the insolvency process.
  iii. How are judgments asserting control on assets **enforced**.

A) THE UN COMMISSION ON INTERNATIONAL TRADE LAW (UNCITRAL) MODEL LAW

- This is a model law issued by UNCITRAL in 1997, to assist countries in regulating cross border insolvency. Over the years it has emerged as the most widely accepted legal framework to deal with cross-border insolvency issues.

- It is based on the principle of **Modified Universalism** (as opposed to Territorialism and Universalism).
- The law addresses the core issues of cross border insolvency cases with the help of **four main principles:**
  i. **Access**: It allows foreign professionals and creditors direct access to domestic courts and enables them to participate in and commence domestic insolvency proceedings against a debtor
  ii. **Recognition**: It allows **recognition of foreign proceedings** and enables courts to determine relief accordingly.
  iii. **Cooperation**: It provides a framework for cooperation between insolvency professionals and court of countries.
  iv. **Coordination**: It allows for coordination in the conduct of concurrent proceedings in different jurisdiction.
  v. **Main Proceeding:** Principle for identifying where the insolvency proceeding (the main proceeding) should be initiated?
     - The law sets out the **Centre of Main Interests (COMI)** in deciding where the main proceedings should be commenced.
       - The law doesn't define COMI, but it is generally presumed to be debtor's registered office or location of its assets and its significant operations.
- **How many countries have adopted UNCITRAL?**
  - As of Oct 2023,**around** states have adopted the UNCITRAL Model Law (including USA, UK and Singapore). Some of them have set a reciprocity pre-condition.
- **Other Facts for Pre**
  - UNCITRAL, established in 1966, is a subsidiary body of the General Assembly of the UN.
  - It is mandated with harmonization and unification of the international trade law, as per the website.

B) CROSS BORDER INSOLVENCY IN INDIA

- India has **not yet adopted** UNCITRAL Model Law. (as of Oct 2023)
- Earlier, Justice V. Balakrishna Eradi Committee in 2000 and N.L. Mitra Committee had recommended the adoption of the model law.
- **Under the current IBC, 2016**, two sections deal with cross border insolvency.
  - Section 234 of the code empowers government to sign treaties to enable the provisions of the code.
  - Section 235 provides for a 'letter of request' by the liquidator for action on the assets of the company situated in other country. However, a reciprocal arrangement must exist there.
- India has not yet initiated the bilateral treaty mechanism to deal with cross border insolvency provisions.

C) THE REPORT OF INSOLVENCY LAW COMMITTEE (ILC) - CHAIRED BY CORPORATE AFFAIRS SECRETARY INJETI SRINIVAS (OCT 2018)

- **Key Findings**
  - Section 234 and 235 of the IBC, don't provide a comprehensive framework on cross-border insolvency.
- **Key recommendations: Adoption of the UNCITRAL Model Law** as it provides a comprehensive framework to deal with cross border insolvency issues.
  - **Some changes to ensure consistency with IBC:** India's adoption of model law should only include corporate debtors and not individuals.

3) BAD BANK: NATIONAL ASSET RECONSTRUCTION COMPANY LTD (NARCL) AND INDIA DEBT MANAGEMENT AGENCY (IDMA) – CLASS DISCUSSION

8. CREDIT RATING AND ASSOCIATED ISSUES

- **Intro**
    - » **Credit Rating** measures the ability of a person or organization to fulfill their financial commitments, based on previous dealings. It is the quantified assessment of the **creditworthiness** of a borrower in general terms or with respect to a particular debt or financial obligation.
        - ▫ A credit rating can be applied to any entity that seeks to borrow money - an individual, corporation, state or provincial authority, or sovereign government.

- **Credit Rating Agencies**
    - » A CRA is a **company that assigns credit ratings**, which rate a debtor's ability to pay back debt by making timely principal and interest payments and the likelihood of default.

- **Significance of Credit Ratings:**
    - » **Investor Guidance and protection**: Information which can help choose good investments.
    - » **CRAs help in strengthening of secondary market** and hence enhance investments and increase borrower pool.
    - » These ratings also bring **discipline amongst corporate borrowers** as they all want to have good ratings for their good image.
    - » **CRAs build trust between citizens and governments** by quantifying the risk associated with making investment in a country.
    - » Credit ratings **ensures precautionary measures** to be taken to prevent long term troubles.

- **Big Three Credit Rating Agencies**
    1. Moody's (headquartered in New York): It is the oldest of the CRAs and was established in 1900 and issued its first sovereign ratings just before WW-1.
    2. Standard and Poor's (S&P) (headquartered in New York): In the 1920s, Poor's Publishing and Standard Statistics (the predecessor of S&P), started rating government bonds.
    3. Fitch Group (dual headquartered in New York and London)

- **Domestic Rating Agencies**
    1. **CRISIL**
        - CRISIL (formerly Credit Rating Information Services of India Limited) is a global analytical company providing ratings, research and risk and policy advisory services.
        - CRISIL's majority shareholder is Standard's and Poor, a division of McGraw Hill Financial and provider of financial market intelligence.
    2. **ICRA Limited**

- It is an Indian independent and professional investment information and credit rating agency and was established in 1991 and was originally named Investment Information and Credit Rating Agency of India Limited (IICRA).
- It is a joint venture between **Moody's and various Indian Commercial banks**. The company went public in 2007 with a listing on BSE and NSE and also changed its name to ICRA.

3. **CARE** ratings.
    - It is the second largest credit rating agency in India. It started in 1993.
    - To enhance its scope of business CARE rating has been nurturing global opportunities and made forays in different forms: launched a new international credit rating agency 'ARC Ratings' with 4 partners from Brazil, Portugal, Malaysia and South Africa.
4. **India Ratings and Research (Ind-Ra)** is 100% owned by the Fitch Group.
5. **Other Important domestic credit rating agencies**
6. FITCH India, Brickwork Ratings and SMERA

- **Regulation of Credit Rating Agencies in India**
    - » An efficient and simple regulatory mechanism for CRAs is required to protect investors and make the system more helpful for them.
    - » **SEBI is the lead regulator** of CRAs in India. The **Securities and Exchange Board of India** (**Credit Rating Agencies) Regulations,** 1999 **empowers SEBI to do this.**
        - In the CRA regulations, the SEBI has prescribed a **code of conduct** to be followed by the rating agencies in the CRA regulations.
        - SEBI provides a **disclosure-based regulatory regime**, where the agencies are required to disclose their rating criteria, methodology, default recognition policy, and guidelines for dealing with conflict of interest.
    - » But SEBI regulates the functioning of CRAs with respect to their functioning in securities market only.
    - » **In addition to SEBI, RBI, IRDA and PFRDA** are also involved in the regulation of the CRAs.

- **Sovereign Credit Ratings:**
    - » Sovereign Credit Ratings are about the creditworthiness of governments. They provide marker for investors around the world about the ability and willingness of governments to pay back debt. It affects the ability to borrow money from global investors. Governments with good ratings can get cheaper loans and vice versa.
    - » Sovereign ratings also impact businesses in the country. If government has low credit ratings, the businesses also end up paying higher interest rates to global creditors.

- **Global Credit Rating Agencies and Major criticisms by GoI**
    - » **Criticisms by GoI:**
        - In Dec 2023, finance ministry released a document titled **Re-examining Narratives**: A collection of Essays. The first of the five essays seeks to **flag issues with the methodology adopted by the three main CRAs**, and to show, based on calculations by Finance Ministry, how these gaps affect India adversely.
        - The first of the five essays in the document is a criticism of what the government calls the "opaque methodologies adopted by CRAs to arrive at sovereign ratings".
        - **Three main criticisms of the rating agencies by GOI**:

- They are **opaque** and appear to disadvantage developing economies.
  - For e.g. a situation of public owned banks is considered negative. But this discriminates against developing countries which mostly have banks in public sector.
- The experts generally consulted for the rating assessments are selected in a non-transparent manner, adding another layer of opaqueness to an already difficult-to-interpret methodology.
- The rating agencies don't clearly convey the assigned weights for each parameter considered. "While Fitch does lay out some numerical weights for each parameter, they do go on to state that the weights are for illustrative purposes only".
  - For e.g. Fitch uses four main pillars such as macroeconomic outlook, structural features etc. Each pillar is further divided into sub-components with sub-weights. But apart from quantitative variables, there is also a "Qualitative overlay" variable which adds to subjectivity.
    - The use of **Composite Government Indicator** (as a sub-component under Structural Features) is only based on World Bank's Worldwide Governance Indicator (WGI). The WGI uses a host of indices and reports such as WEF's Global Competitiveness Report, Economic Intelligence Unit, etc. to assess several aspects of a country that **may not capture hard economic data**. These include freedom of expression, freedom of media, rule of law, corruption etc. The government of India says that there is an **excessive reliance on such subjective appraisals**.
    - And the use of Qualitative overlay implies a subjective assessment.
  - Because of all this, to earn a credit upgrade, developing economies need to demonstrate progress along a set of several one-size fits all perception-based surveys.

- **Other criticisms**:
  - The three global credit rating agencies constitute a cartel and US companies often received superior ratings.

9. NEXT BOOKLET

Nationalization, Consolidation of Banks, Privatization of PSBs, types of banks, NFBCs, Fintech, Pension sector

TARGET PRELIMS 2024
BOOKLET-27; ECONOMY-8
EXTERNAL SECTOR

1. TABLE OF CONTENTS

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2. BASICS OF EXTERNAL SECTOR

- **External sector** deals with import and export of goods and services, and financial capital between nations.
  - » The sector in which domestic economy has an advantage over other countries, goods and services of these sector are **exported**.
  - » The sector in which the domestic economy has a disadvantage over other countries, goods and services of these sectors are **imported**.

- **Balance of Payments** (BOP)
  - » BOP, also known as the **Balance of International Payments**, is a statement of all transactions between entities in one country and rest of the world over a defined period of time such as a quarter or a year.
  - » **Note**: Balance of payment thus summarizes all transactions that a country's individuals, companies, and government bodies complete with individuals, companies and government bodies outside the country.

1) BALANCE OF PAYMENT IN ONE TABLE

A. Current Account: (A.1 + A.2)		
	A.1: Merchandize Trade Balance	
		A.1(a): Merchandize Exports
		A.1(b): Merchandize Imports
	A.2: Invisibles	
		A.2(a): Services
		A.2(b): Transfers
		A.2(C): Income
B. Capital Account: B1+B2+B3+B4+B5		
	B.1) Foreign Investment	
		B.1.a) Foreign Direct Investment (FDI)
		B.1.b) Foreign Portfolio Investment (FPI)
	B.2) Loans	
		B.2.a) External Assistance
		B.2.b) Commercial Borrowings (MT & LT)

		B.2.c) Short term Credit to India
	B.3) Banking Capital	
	B.4) Rupee Debt Service	
	B.5) Other Capital Flow	
C. Errors and Omissions		
D. Overall, Balance (A + B + C)		
E. Reserve Change	**-(A + B +C)** **(-) indicates increase and (+) indicates decrease**	Explaination -> **Positive Balance of payment** would lead to increase in a nation's net foreign asset. And **Negative Balance of Payment** would mean decrease in a nation's net foreign asset.

- **Real Life Example** (see below table from ESI 2021-22)

										(US$ Billion)
Year / Item (Net)	2019-20				2020-21				2021-22 (P)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A. Current Account	**-15.0**	**-7.6**	**-2.6**	**0.6**	**19.1**	**15.3**	**-2.2**	**-8.2**	**6.5**	**-9.6**
A 1 Merchandise Trade Balance	**-46.8**	**-39.6**	**-36.0**	**-35.0**	**-11.0**	**-14.8**	**-34.6**	**-41.7**	**-30.7**	**-44.4**
A 1 a Merchandise Exports	82.7	80.0	81.2	76.5	52.2	75.6	77.2	91.3	97.4	104.8
A 1b Merchandise Imports	129.5	119.6	117.3	111.6	63.2	90.4	111.8	133.0	128.2	149.3
A 2. Invisibles	**31.8**	**32.1**	**33.4**	**35.6**	**30.0**	**30.1**	**32.4**	**33.6**	**37.2**	**34.8**
A 2.a) Services	20.1	20.9	21.9	22.0	20.8	21.1	23.2	23.5	25.8	25.6
A 2.b) Transfers	18.0	20.0	18.9	18.4	17.0	18.4	19.3	18.8	18.9	18.9
A 2.c) Income	-6.3	-8.8	-7.4	-4.8	-7.7	-9.4	-10.1	-8.7	-7.5	-9.7
B) Capital Account	**28.6**	**13.6**	**23.6**	**17.4**	**1.4**	**15.9**	**34.1**	**12.3**	**25.5**	**40.1**
B.1) Foreign Investment	18.8	9.8	17.6	-1.8	0.1	31.4	38.6	10.0	12.1	13.3
B.1.a) Foreign Direct Investment	14.0	7.3	9.7	12.0	-0.5	24.4	17.4	2.7	11.7	9.5
B.1.b Foreign Portfolio Investment	4.8	2.5	7.8	-13.7	0.6	7.0	21.2	7.3	0.4	3.9
B.2) Loans	**9.6**	**3.1**	**3.1**	**9.9**	**2.8**	**-3.9**	**0.3**	**7.7**	**2.8**	**7.6**
B.2.a) External Assistance	1.5	0.4	1.3	0.6	4.1	1.9	1.2	4.0	0.3	1.1
B.2.b) Commercial Borrowings (MT & LT)	6.1	3.3	3.2	10.3	-1.2	-4.0	-1.1	6.1	0.6	4.1
B.2.c) Short Term Credit to India	2.0	-0.6	-1.4	-1.0	-0.2	-1.8	0.2	-2.3	1.9	2.4
B.3) Banking Capital	**3.4**	**-1.8**	**-2.3**	**-4.6**	**2.2**	**-11.3**	**-7.6**	**-4.4**	**4.1**	**0.4**
B.4) Rupee Debt Service	**-0.1**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.0**
B.5) Other Capital	**-3.1**	**2.5**	**5.2**	**13.8**	**-3.7**	**-0.3**	**2.8**	**-1.0**	**6.6**	**18.8**
C) Errors and Omissions	**0.4**	**-0.9**	**0.6**	**0.9**	**-0.6**	**0.4**	**0.6**	**-0.7**	**-0.2**	**0.7**
D) Overall Balance	**14.0**	**5.1**	**21.6**	**18.8**	**19.8**	**31.6**	**32.5**	**3.4**	**31.9**	**31.2**
E) Foreign Exchange Reserves (Increase - / Decrease +)	**-14.0**	**-5.1**	**-21.6**	**-18.8**	**-19.8**	**-31.6**	**-32.5**	**-3.4**	**-31.9**	**-31.2**

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A) CURRENT ACCOUNT

- Current account records a nation's net trade in goods and services, its net earnings on cross border investments, and its net transfer payments over a defined period.

- **Current Account transactions** (like revenue receipt and revenue expenditure) are single time and one way transaction. It means that the transaction (like receipt of payment) happens once and transaction ends there. There is **no future liability/asset created**.
    - » For e.g., when Tata Motors export a car and receives money for that, the transaction comes to an end with respect to this car being exported.

TRADE BALANCE:

- **Export**:
    - » It includes export of merchandize goods to other countries and receipts against it.
    - » Please note that, while considering trade balance, export/import of services are not considered.

- **Import**:
    - » It includes import of merchandize goods from other countries and payments for it.

- **Trade Balance** is the difference between exports receipt and import payments.
    - » In case the trade balance is positive, it is called trade surplus or favorable trade balance.
    - » In case the trade balance is negative, it is called trade deficit or unfavorable trade balance.

INVISIBLES (NET)

- The invisible (net) is that part of balance of trade that refers to services and other products that **doesn't result in transfer of physical assets**.

- **Invisibles** may include **Services, Income and transfer payments.**

SERVICES

I) Travel
II) Transportation
III) Insurance
IV) Government not included elsewhere (GNIE)
V) Miscellaneous Services
   a. It encompasses communication service, construction services, financial services, software services, news agency services, **royalties copyright and license fees** and business services.

INCOME (I.E. INVESTMENT INCOME)

- This income may be from financial assets, labour and property.
- These transactions are in the form of interest, dividend, profit for servicing capital transactions.
- **Interest Payment** represent servicing of debt liabilities. E.g. interest earned (paid) from bank loans to foreign country.
- **Dividend or profit** represent servicing of non-debt (FDI, FPI) liabilities.

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- **Compensation** of employees are also included in "income" category.

TRANSFERS

- They represent one sided transaction i.e. transaction that don't have quid-pro-quo, such as grants, gifts, migrants transfers by way of remittances for family maintenance, repatriation of savings, and transfer of financial and real resources linked to change in resident status of migrants.
- They may be private or official.
- E.g.
  - Grants, donations and other assistance received by government from bilateral and multilateral institutions.

CURRENT ACCOUNT BALANCE = TRADE BALANCE + NET INVISIBLES

- **Positive (+)** Current Account (Current Account Surplus) means that the country is a net exporter of goods and services.
- **Negative (-)** Current Account (Current Account Deficit) means that the country is a net importer of goods and services.

- For e.g.
  - **USA** had the world's largest Current Account Deficit in 2020 at US$ 616 billion.
  - **China** had the world's largest Current Account Surplus in 2020 at US$ 274 billion.

B) CAPITAL ACCOUNT

- Capital account transactions are two-way transactions. It means **paid money can be recovered through periodical income** and/or by **disposal of the asset created**. Similarly, the loan has to be repaid periodically and has to be settled finally by paying the full amount.

- It includes **Loans, Banking Capital, Investments (FPIs, FDIs),**

LOANS

External Assistance (official bilateral and multilateral loans), **External Commercial Borrowing** and **Short-term debt**.

- **External Assistance (net)** means transaction of official (government) bilateral and multilateral loans.
- **External Commercial Borrowings (ECBs)**:

  It means loan transaction by commercial enterprises.
  - It includes commercial loans in the form of bank loans, buyers' credit, suppliers' credit, securitized instruments availed from non-resident lenders with a **minimum average maturity of three years**.
  - **ECB** can be raised only for specific purposes, such as the import of capital goods, implementation of new projects, etc. These restrictions are called **end use restrictions**.

Extra Gyan:

Buyers Credit and **suppliers' credit** are called trade credits. Depending on the source of finance, such trade credits are classified as suppliers' Credit or Buyers' Credit.

- **Supplier's Credit** relates to credit for imports into India extended by the overseas supplier.

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- **Buyers' credit** refers to loans for repayment of imports into India arranged by the importer from a bank or financial institution outside India.

- Note: Both these credits are for the purpose of import and loan availed by importer.
  - In supplier's credit only two parties namely exporter and importer are involved.
  - In Buyer's credit, a third party namely a bank or financial institution comes into the picture to finance import.

Securitized instruments refer to debt securities like bonds, debentures and preference shares which are not fully or compulsorily convertible.

Bonds and Debentures are debt instruments i.e. means the owner of debt/debentures are creditors to the company and doesn't have any ownership.

Bonds are generally secured by a collateral.

Debentures is a debt security issued by a corporation or government entity that is not secured by an asset. Debentures have higher seniority for liquidation repayment than preferred shares.

Preference Shares are equity instruments known for giving owners preferential rights in the event of dividend payments or liquidation by the underlying company.

» **ECB** also covers **Foreign Currency Convertible Bonds** (FCCB) and **Foreign Currency Exchangeable bonds** (FCEB).

» FCCB and FCEB are both types of bonds issued by companies in foreign currency i.e. principal and interest in respect of these bonds are payable in foreign currency.

» **FCCB:** It provides bondholder with the option to convert the bonds into a predetermined number of shares of the issuing company's stocks at a specified conversion price during or end of bond's maturity.

» If the equity conversion option is used, the bondholder becomes a shareholder of the company, giving them ownership in the form of equity. Conversion Ratio determines the number of shares to be allotted upon conversion, which is usually determined based on a formulae or fixed ratio. FCCBs typically pay regular interest to bondholders until conversion or maturity, similar to conversion bonds.

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- **FCEB**: They are exchangeable into equity shares of another company called the offered company. The word 'Exchangeable' refers to the facility to convert bonds of one company into equity shares of another company.
- Its other features are similar to FCCB. The key difference lies in the type of equity ownership that results from the exercise: direct ownership of the issuing company's shares in the case of FCCBs and ownership of shares in a different company for FCEBs.

- **Short term Debt**: These are trade credits for a maturity less than three years.

BANKING CAPITAL

- It comprises of three components: Foreign assets of Commercial Banks, Foreign Liabilities and Others.
- **Foreign assets of commercial banks**. It consists of:
  - Foreign Currency holdings
  - Rupee overdrafts to non-residents

- **Foreign liabilities** of commercial banks. It consists of:
  - **Non-Resident Deposits**:
    - The deposits received from non-resident Indians comes under this head. At present there are three types of NRI deposit schemes. They are:
      i. **Foreign Currency Non-Resident (Banks) FCNR (B)**: These deposits are **held in the following foreign currencies** - US Dollar, Pound Sterling, Euro, Japanese Yen, Australian Dollar and Canadian Dollar; only term deposits of **1-3 years of maturity** are allowed. The interest rates are pegged to LIBOR/ SWAP rate.
        - **Note:** LIBOR (London Interbank Offered Rate) is a benchmark interest rate at which major global banks lend to one another in the international interbank for short-term loans.

      ii. **Non-Resident External Rupee Account NR (E) A**: These deposits are held in Indian rupees. **Term deposits with maturity of one to three** years as well as s**aving deposits are allowed u**nder the scheme. Its interest rate is also pegged to the LIBOR/SWAP rate.

      iii. **Non-Resident Ordinary Rupee Account:**
        - It is the account held by Indians ordinarily living abroad.
        - An Indian who was an Indian resident but migrated abroad can shift this account to this category. It is held in Indian rupees.
        - It can be opened in **current, saving, recurring or fixed deposit account**s.

  - **Liabilities other than non-resident deposits,** which comprise of **rupee and foreign currency liabilities** to nonresident banks and official and semiofficial institutions.

- **Others**
  - "Others" under banking capital include transactions in **balances of foreign central banks and international institutions** like the IBRD, IDA, ADB, IFC, IFAD etc. mantained with deposit

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account departments (DAD) of RBI as well as transactions in balances held abroad by the embassies of India in London and Tokyo.

FOREIGN INVESTMENT (FDI AND FPI)

OTHER CAPITAL FLOWS

These include **delayed export receipt**s, **leads and lags in export receipts** (the difference between custom data and banking channel data), funds held abroad, and other capital transactions not included elsewhere such as flows arising from cross-border financial derivatives and commodity hedging transactions, and **sale of intangible assets** such as patents, copyrights, trademarks etc.

CAPITAL ACCOUNT BALANCE:

- **Loans** (External Assistance + External Commercial Borrowing (net) + Short term debt (net)**) + Banking Capital** (net) + Foreign Investment (net) + Other outflows (net)
    - **Capital Account Surplus** -> If Capital Account Balance is positive.
    - **Capital Account Deficit** -> If Capital Account Balance is negative.

C) ERRORS AND OMISSIONS

- It includes the differences between debit and credit entries of all transactions.
- Capital Account balance is calculated with and without errors and omissions.

D) OVERALL BALANCE/ BALANCE OF PAYMENTS

- **Balance of Payment =** Current Account Balance + Capital Account Balance
- If the BoP is positive -> it would lead to increase in foreign exchange reserve and vice-versa.

3. FOREX RESERVES

1) COMPOSITION OF INDIA'S FOREX RESERVES

- India's foreign exchange reserves comprise of four components:
    1. **Foreign currency assets (US$, Euro, Pound, and Yen)**: It is expressed in US Dollar or Indian rupee terms.
        - It also includes foreign currency deposits held by RBI with foreign central banks, the BIS and non-resident deposit taking institutions as well as deposit agreements with IMF Trust Accounts that are readily available to meet a BoP financing needs.
        - Securities issued by non-residents and financial derivatives having underlying foreign currency assets also form part of foreign currency assets.

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2. **Gold reserves of RBI**: The RBI has gold stocks as a backup to issue currency and to meet unexpected balance of payment problems.

3. **Reserve Tranche**:
   - It consists of India's quota (member subscription fee) to IMF and lending to the General Resource of IMF.
     - Note: The General Resource Account is the pool of member countries' quota payment.

4. **Special Drawing Rights** (SDR) holdings of the government
   - The IMF member countries are entitled to get a loan from IMF's SDR Account. This loan amount is upto 200% of the member's quota with the IMF. It is also known as **Paper Gold**.
     - In this arrangement IMF doesn't lend directly. It is the member countries, who are in a strong position, lend their SDR holdings to member countries who are in problems for balance of payment.

2) WHO MANAGES FOREX RESERVES?

- **RBI Act and Foreign Exchange Management Act, 1999** set up the legal provisions for governing the foreign exchange reserves.
- **The RBI** functions as the custodian and manager of forex reserves and operates within the overall policy framework agreed upon with the Centre. It allocates the dollars for specific purposes.
  - For e.g., under the Liberalized Remittances Scheme, individuals are allowed to remit up to $2,50,000 every year.
- The Central bank uses its forex kitty for orderly movement of the rupee. It sells the dollar when the rupee weakens and buys dollar when the rupee strengthens.

3) SIGNIFICANCE OF FOREX RESERVES

- It acts a **cushion against domestic currency volatility** once the global exchange rate start rising.
- It increases the **confidence in the monetary and exchange rate policies** of the government.
- During **balance of Payment crisis** foreign exchange reserve come to the rescue of any country so as to absorb the distress related to such crisis.
- Strong forex reserves also helps a country to **adopt more aggressive countercyclical measures** and emerge from a short-lived recession.
- It also **adds to the comfort of market participants** that domestic currency is backed by external assets and hence it also helps the equity markets of the country, because due to strong reserves many people from foreign countries are willing to invest in the country.

4) OTHER ASPECTS RELATED TO FOREX RESERVES

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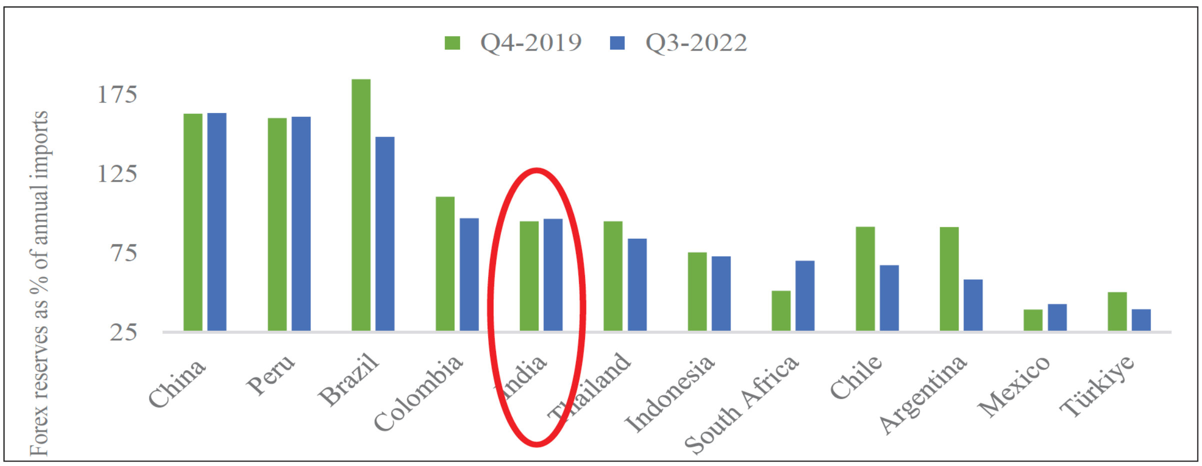
- **However, holding too much foreign exchange reserves is also not advisable -> (Opportunity Cost)**

- **How much Foreign Reserve do we have?**
  - India's forex reserve at $602 billion as of Aug 2023: RBI
    - **Foreign Currency Assets** (FCAs): $534.40 billion
    - **Gold Reserves**: $44.34 billion
    - **SDR**: $18.32 billion
  - **Note:** India's foreign reserve had **peaked in Sep 2021** at $642.45 billion.

  - **Note:** The **import coverage of foreign currency reserves** has declined since the pre-pandemic levels in most emerging market economies; however, that of India has increased from 95% in Q4 2019 to 96.5% in Q3 2022.

Figure XI.15 Adequacy of India's Forex Reserves (as a percentage of Annual Imports): A Cross-country perspective



Source: IMF (forex reserves) and WTO (for imports data)

- **How did India's foreign exchange reserves increase till Sep 2021**?
  - Generally, the current account surpluses result in a building of reserves, as the central bank mops up all the excess foreign currency flowing into the country. **But India is an outlier**. From 2011 to 2021, there was **only one year i.e. 2020 when India had run a surplus**. India accumulated forex reserves despite having aggregate deficit of $400 billion during 11 years.
  - The reserve was built through **import of capital**.
  - **Another source** of reserve accretion or depletion: **Valuation Effect**. Foreign exchange reserves are held in the form of dollars as well as non-dollars currencies and gold, whose value is, in turn, influenced by movements in exchange rates and gold prices. A depreciation of US$ or higher gold prices cause valuation gains.

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SOURCES OF INCREASE IN INDIA'S FOREIGN EXCHANGE RESERVES
(IN BILLION US DOLLARS)

		1990-91 TO 1997-98	1998-99 TO 2005-06	2006-07 TO 2013-14	2014-15 TO 2021-22
1	Trade Balance (1a - 1b)	-72.469	-165.135	-1051.316	-1176.895
	(a) Exports	207.273	472.412	1857.615	2555.150
	(b) Imports	279.742	637.547	2908.931	3732.045
2	Net invisibles	37.527	165.189	713.252	967.989
3	Current Account Balance (1+2)	-34.942	0.054	-338.064	-208.907
4	Capital Flows*	57.887	117.133	479.750	544.290
5	Overall Balance (3+4)	22.945	117.187	141.686	335.383
6	Valuation Effect	2.460	5.068	10.915	-32.297
7	Rise in Reserves (5+6)	25.405	122.255	152.601	303.086

**Including from International Monetary Fund.*
Source: Reserve Bank of India.

- **Why the recent drop in the reserves?**
  - **Largely due to steps taken by the Reserve Bank of India to support the rupee**.
  - Increasing trade deficits (and Current Account Deficits)
  - Capital outflow (FIIs have pulled out) [given the rising global interest rates and bond yields on the back of monetary policy tightening by the US Fed and other major central banks.

4. EXCHANGE RATE

1) BASICS OF EXCHANGE RATE

- 'Exchange rate is the price of a nation's currency in terms of another currency'. Thus, an exchange rate has two components, the domestic currency and a foreign currency and can be quoted either directly or indirectly.
  1. **Direct Quotation**
     - The price of a **unit of foreign currency** is expressed in terms of domestic currency.
       - For e.g., in India's context: 1$ = 80 Rs.

  2. **Indirect Quotation**
     - The price of a **unit of domestic currency** is expressed in terms of the foreign currency. For instance, 1Rs = 0.0125%

- Generally, exchange rate is **quoted in value against US dollar**. However, exchange rates can also be quoted against another nations currency.

- **Floating vs Fixed Exchange Rate**

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- A floating exchange rate is where a currency rate is determined by market forces. This is generally followed by most major economies.

- **Fixed Exchange Rate**: In this case, the exchange rate is fixed or peg their currencies to a widely accepted currency like the US dollar.
    - This is done to reduce volatility or better manage trade relations. For e.g. Most GCC countries including Saudi Arabia fixes its currency Riyal to US$ because its main export is oil, which is priced in US$.

- **Depreciation or Appreciation of Exchange Rate**
    - **Depreciation:** Increase in the direct exchange rate (i.e., fall in the external value of domestic currency because of more demand for foreign currency or less supply of foreign currency or more supply of domestic currency or less Demand of Domestic currency).
        - For e.g., rupee depreciation would mean rupee falling from 1$ = 50 rupee to 1$ = 52 rupee.
    - **Appreciation:** Decrease in the direct exchange rate (due to more demand or less supply of home currency; or less demand or more supply of foreign currency).
        - For e.g. Rupee appreciation would mean Rupee appreciating from 1$ = 50 Rupees to 1$ = 48 rupees.

    - **Devaluation**
        - Reduction in the external value of home currency is called Devaluation.
            - This is done to increase export and is usually resorted to correct the deficit in the balance of payment.
            - How?

    - **Revaluation**
        - Increase in the external value of home currency is called revaluation.
        - It is usually resorted to correct the surplus in the balance of payment. This reduces deficit for other countries. This is very rarely done.

- **Note:**
    - Depreciation and Appreciation takes place automatically due to movement in the demand and supply of currencies in the market (i.e. by market forces). If dollar demand exceeds supply, the rupee depreciates with respect to it and vice versa.
    - Devaluation and revaluation are done voluntarily either by the government or monetary authority.

- **Relation between Inflation and Exchange Rate**
    - Class Discussion

2) EFFECTIVE EXCHANGE RATE INDICES OF INDIAN RUPEES

- EER is a summary indicator of **movements of home currency against a basket of currencies** of trading partners.

- EERs serve as a gauge for assessing the **fair value of currency**, the external competitiveness of an economy and even serve as guideposts for setting monetary and financial conditions.

- **The Nominal Effective Exchange Rate (NEER)** is an index of the weighted average of bilateral exchange rates of home currency vis-a-vis currencies of trading partners, with weights derived from their shares in the trade basket of the home currency.

- A **Real Effective Exchange Rate (REER)** is the NEER adjusted by relative prices and costs, typically captured in inflation differentials between the home economy and trading partners.

- **RBI** is responsible for compilation and dissemination of NEER and REER Indices of the Indian rupee (both trade and export oriented).

- **Key Changes made 2021:**
    - **Base year** was moved from 2004-05 to **2015-16** for NEER/REER indices.

    - **Coverage of NEER/REER basket** has been expanded from **36 to 40 currencies** (8 new additions and 4 removals)
        - The selections are based on **two criterias**:
            i. **Trading partners with extremely high and volatile inflation** are excluded as their currencies tend to experience rapid nominal declines which undermines the stability of NEER/REER indices.
            ii. Data on inflation and exchange rates of trading partners should be available on a regular basis.
        - The new basket represents **88% of India's total trade** as compared to 84% in the case of older 36 currency basket.

- **Note:** To **calculate trade weights**, geometric means of India's trade (exports plus imports) with trading partners during the preceding three years are computed and then normalized to 100. While the Euro area retains its top position in the trade basket, the US assigned the highest weight in the export basket in 2015-16.

Table 1: New 40-Currency NEER/REER Basket – Normalised Weights

(Per cent)

Country/Area	2015-16		2020-21 (P)	
	Trade-based Weight	Export-based Weight	Trade-based Weight	Export-based Weight
1. Euro Area	11.4	14.0	11.6	14.7
2. China	10.0	5.0	12.0	5.6
3. UAE	9.4	12.4	7.8	10.4
4. US	9.1	14.7	11.6	18.4
5. Saudi Arabia	6.4	4.1	4.4	2.1
6. Switzerland	3.7	0.5	2.7	0.4
7. Hong Kong	2.9	4.8	3.9	4.6
8. Indonesia	2.9	1.8	2.8	1.6
9. Singapore	2.8	4.4	3.2	3.7
10. Iraq	2.7	0.4	3.2	0.6
11. Korea	2.5	1.6	2.9	1.7
12. Kuwait	2.5	0.4	1.3	0.5
13. Japan	2.5	2.3	2.3	1.7
14. Qatar	2.4	0.3	1.5	0.5
15. Nigeria	2.3	1.0	1.8	1.0
16. UK	2.2	3.5	2.2	3.3
17. Malaysia	2.2	1.8	2.2	2.2

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18. Iran	2.1	1.5	1.4	1.1
19. Australia	2.0	0.9	2.2	1.2
20. South Africa	1.8	1.9	1.5	1.4
21. Brazil	1.5	2.2	1.1	1.3
22. Thailand	1.3	1.4	1.6	1.5
23. Vietnam	1.1	1.9	1.8	2.3
24. Bangladesh	0.9	2.2	1.3	3.1
25. Taiwan	0.9	0.9	0.9	0.8
26. Angola	0.9	0.2	0.6	0.1
27. Russia	0.9	0.8	1.3	0.9
28. Turkey	0.9	1.7	1.0	1.9
29. Mexico	0.9	0.8	1.2	1.3
30. Israel	0.9	1.3	0.7	1.3
31. Sri Lanka	0.8	1.9	0.7	1.6
32. Canada	0.8	0.8	0.9	1.0
33. Egypt	0.7	1.1	0.6	0.9
34. Oman	0.7	1.0	0.8	0.8
35. Nepal	0.6	1.4	1.1	2.6
36. Kenya	0.6	1.5	0.3	0.7
37. Tanzania	0.5	1.0	0.4	0.6
38. Chile	0.5	0.2	0.3	0.3
39. Ukraine	0.4	0.2	0.4	0.1
40. Ghana	0.2	0.3	0.5	0.2
Total	100.0	100.0	100.0	100.0
Memo Items:				
AE Currencies	41.7	49.7	45.0	52.6
EMDE Currencies	58.3	50.3	55.0	47.4

AE: Advanced economies. EMDE: Emerging market and developing economies. P: Provisional.
Source: RBI staff calculations.

- The **methodology of computing** NEER/REER indices:
  - The NEER is calculated as the geometric weighted average of bilateral exchange rates of the home currency in terms of trading partner currencies.

Specifically the NEER can be calculated as follows:	$$NEER = \prod_{i=1}^{n} \left(\frac{e}{e_i}\right)^{w_i} \quad (1)$$
REER, which is NEER adjusted by weighted average ratio of the domestic price to foreign prices, is calculated as:	$$REER = \prod_{i=1}^{n} \left[\left(\frac{e}{e_i}\right)\left(\frac{P}{P_i}\right)\right]^{w_i} \quad (2)$$
'e' represents the exchange rate of rupee against the IMF's SDR 'e_i' is the exchange rate of the foreign currency 'i' against the IMF's SDR.	A rise in e or (e/e_i) represents an appreciation of the rupee relative to currency 'i' and vice versa. '*P*' and '*P*i' represent price indices of the home economy and the trading partner 'i', respectively. '*wi*' denotes trade-/export-based weight assigned to foreign currency/trading partner 'i', while '*n*' is the number of currencies (other than home currency) included in NEER/REER basket

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3) DEPRECIATION AND ASSOCIATED ISSUES

- **Why does depreciation take place?**
  - » **Core Reason - Demand supply gap of foreign currency (US$)**
    - **Increasing Current Account Deficit** (More imports, less exports).
    - **Monetary and Interest rate hikes by the US Fed**
      - This makes US treasury investment more attractive and leads to **FII's moving funds from emerging economies back to US**.
  - » **Other traditional factors affecting India's exchange rates**
    - Mounting External Debt
    - Tightening global liquidity
  - » Further, since India is an emerging market, **inflation rate** here would be higher when compared to developed countries and there will be a long term depreciation.

- **Why the recent depreciation in rupee?**
  - » Since March 2022, **the US Federal Reserve has been raising its benchmark interest rate** causing investors seeking higher returns to pull capital away from emerging markets such as India and back into the USA. This puts pressure on emerging market economies.
  - » Consistently high domestic inflation

- **Negative Impacts**
  1. **Decline in forex reserves**

  2. **Negatively impacts Current Account Deficit -> Vicious Cycle**

  3. **Pulling out of Foreign Portfolio Investments**

  4. **Inflation: Increased prices of imported products**
     - Further, increases the cost of crude oil import.
  5. **Negatively impacts business' taking loans from abroad.**
  6. **Difficulty in financing external debt**
  7. **Increase in RBI's monetary policy rates.**
  8. **Challenges for students studying or wanting to study abroad**

- **Positives of declining rupee**
  - » Depreciation helps in **increasing exports** as exports become cheaper for importing foreign country.
    - Therefore, some sectors like IT, Pharma, hospitality can actually benefit from depreciating rupee.
    - This may help in chipping away of trade deficit imbalance.
  - » **Tourism and hospitality** sector may get a boost
  - » **Remittances tend to increase** during the depreciating phase

- **Sectoral Impact**
  1. **Export based industry would benefit.**

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- Depreciation acts as booster for IT and Pharma sector which are export based. Further hospitality sectors such as tourism, hotel etc can benefit as foreign tourists would now find in cheaper to visit India.

2. **Problems for Oil Marketing Companies**
    - Rise in crude oi prices and depreciation of rupee is a double jeopardy for oil marketing companies. The lack of pricing power during major elections further exacerbate the problems for OMCs.
3. **Auto sector**
    - Companies having high export shares will benefit from this depreciation.
    - On the other hand, operating procedure margins of vehicle manufacturers such as Maruti Suzuki which import most of their components and focus on domestic market are going to face problems.
4. **Aviation sector will be hit**
    - Increasing cost of Crude oil (thus Aviation Turbine Fuel)
    - The big capacity additions on the anvil will also face problems.

- **Steps taken by Government.**
    - » Steps to fight trade deficit [see Trade Deficit Topics]
    - » Steps to attract investments [See currency depreciation topic]

5. INTERNATIONALIZATION OF RUPEE

- **What is Internationalization of Rupee?**
    - Internationalization is a process that involves increasing the use of the rupee in cross-border transactions. It involves promoting the rupee for import and export trades, and then other current account transactions, followed by its use in capital account transactions.
    - It will also require:
        - » F**ull capital account convertibility** (currently India allows only full current account convertibility, capital account convertibility is limited).
        - » **Availability in sufficient quantities**
        - » **Opening up of currency settlement and a strong swap and forex market**.

- **Advantages of Internationalization of Rupee**:
    - **Reduces exchange rate risks**, while curtailing the demand for US dollar.
        - **Reduces risk to economy** due to sudden withdrawal of capital from market.
    - **Reduces the need of forex war chest** to meet the external vulnerabilities.
    - **Lower cost of capital** due to better access to international financial markets.
    - **Promotes ease of doing business** but also improves the chances for Indian businesses to grow globally.
        - **Bargaining power of Indian businesses** will increase, adding weight to Indian economy and enhancing India's global stature and respect.
    - **Reduced transaction costs**: They will not have to incur exchange rate fees.

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- **Geopolitical Significance**: US-dollar dominated global currency system can become limitations for the economy if India's relations with US and Europe becomes tense in future. In that scenario, business in domestic currency can be a savior.

- **Internationalization of currency is closely linked with a nation's economic progress**.
  - Currently, the US $, the Euro, the Japanese Yen and the pound sterling are the leading reserve currencies in the world. China's efforts to make its currency renminbi (yuan) a reserve currency has met with only limited successes so far.
  - **Factors behind US$ being the most common currency of reserve and exchange:**
    - **Size of US Economy** (largest in the world)
    - **Reach of its trade and financial market**
    - **Depth and liquidity** of the US financial market
    - History of macro-economic stability
    - Currency convertibility
    - Lack of viable alternative.

- **China's Experience**:
  - Before 2004, RMB couldn't be used outside China.
    - By 2007, the **"Dim Sum" bond** and offshore RMDB bond market had been created.
  - **Post 2008**, China pursued a phased approach:
    - **First**, it allowed use of RMB outside China for Current account transactions and for select investment transactions (FDI, outward direct investment) etc.
    - **By 2009**, it had signed currency swap agreements (i.e., an exchange of an equivalent amount of money, but in different currencies) with countries like Brazil, UK etc.
    - Then, **Central banks, offshore clearing banks and offshore participating banks** were allowed to invest excess RMB in debt securities.
    - **Sanghai Free Trade Zone** was launched in 2013, to allow free trading between non-resident onshore and offshore accounts.
  - **In this way**, overtime RMB was internationalized, with reserve currency status increasingly enabled. For e.g. in Q2, 2022, the RMB's share of international reserves had reached around 2.88%.

- **Steps Taken towards Internationalization of Rupee:**
  - **Liberalization of Capital Account**: Over the years, government has relaxed FII and FDI norms, facilitating greater cross-border investment and trade.
  - Enabling of **ECB in rupee**.
  - **Currency Swap Agreements** with several countries, which allow for the exchange of rupee and foreign currency between the central banks of the two countries.

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- RBI allowed banks from 18 countries to open **Special Vostro Rupee Accounts** (SVRAs) for settling payments in Indian Rupees.
- RBI constituted Inter-departmental group (IDG) headed by RBI Executive Director **Radha Shyam Ratho** to frame roadmap for the Internationalization of Indian Rupee has submitted its report.
- During PM Modi's visit to UAE in July 2023, Reserve Bank of India (RBI) signed two MoUs with Central Bank of UAE. One of the MoU focuses on establishing a framework to promote the use of local currencies from cross-border transactions, the other was for linking payment systems.

- **Challenges in achieving internationalization:**
  - **Little traction for international trade in rupee**:
  - **Large Trade Deficit**
  - **Lack of Liquidity**
  - **Underdeveloped Financial Markets**: India's financial market are still relatively under-developed when compared to major economies, which can limit the range of products and services available to international investors.
  - **IDG has also highlighted following limitations that may arise due to internationalization of Rupee:**
    - **Exchange rate volatility in rupee's exchange rate** will increase in initial stages of internationalization.
    - **Triffin Dilemma**: Obligation of a country to supply its currency to meet the global demand may come in conflict with its domestic monetary policies.
    - **Accentuation of external shock** may take place due to open channel of flow of funds into and out of the country and from one currency to another.
  - However, the IDG itself said that the advantages of internationalization far outweigh the above limitations. Moreover, the internationalization of rupee will be a long-drawn process and would enable timely redressal of these challenges.

- **Recommendations given by RBI's Inter-Departmental Group:**
  - **Short term measures:**
    - » Adoption of Standardized approach for examining the proposals on bilateral and multilateral trade arrangements for invoicing, settlement, and payment in the rupee and local currencies.
    - » Encouraging the opening of the rupee accounts for non-residents both in India, and outside India.
    - » Incentivizing exporters to use Indian currency for trade settlements.
    - » Integrating payment systems to provide seamless cross border transactions.
    - » Strengthening the financial markets by fostering a global 24X5 rupee market
    - » Recalibration of FPI regime.
  - **Medium Term Measures (2-5 years targets)**
    - » Synchronizing tax regimes of India and other financial centres.

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            - A review of taxes on masala bonds
        - Allowing banking services in the rupee outside the country
            - Allowing international use of RTGS for cross border trade
        - Inclusion of Indian government bonds in global bond indices

    - **Long Term**
        - Measures to have rupee included in the IMF's SDR.

6. EXPORT SECTOR

- **Current Situation**:

		2022-23 (USD Billion)	**2021-22** (USD Billion)
Merchandize	**Exports**	447.46	422
	Imports	714.24	613.05
Services	**Exports**	322.72	254.53
	Imports	177.94	147.01
Overall Trade (Merchandize + Services)	**Exports**	770.18	676.53
	Imports	892.18	760.06
	Trade Balance	-122.00	-83.53

- **Why does India face such huge trade Deficit**:
    - **Huge Dependency on Fossil fuel imports**
    - **Underperformance in Exports** (India's global export share is only 1.8%, China has 13% share).
        - Manufacturing sector not well developed.
        - Less diversification in export basket (10 principal exports account for 78% of total merchandize exports)
    - **Less focus on scientific research and development**
        - This hinders complex and unique exports.
    - **High cost of logistics** -> Reduces cost competitiveness of Indian products.
    - **Not able to utilize its demographic dividend** due to poor skill levels in the country.

- **Some steps taken to promote exports** and reduce import dependency.
    - **Various Schemes** to promote exports.
        A. **Remission of Duties and Taxes** on Exported Products (RoDTEP) Scheme.
        B. **Export Promotion in Capital Goods Scheme**
    - **Steps to improve infrastructure.**
        - National Logistic Policy
    - **Focus on Manufacturing sector** - Atmanirbhar Bharat; Various **PLI Schemes**
    - **Increased focus on renewable Energy**

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7.FOREIGN TRADE POLICY, 2023

- India's new FTP i.e. **Foreign Trade Policy, 2023** has come into force from 1st April 2023.

- This policy is based on continuity of time-tested schemes **facilitating exports** as well as a document which is **nimble and responsive** to the requirements of trade.

- **The Key Approach** to the policy is based on these **4 pillars**:
    1. **Incentive to Remission**
    2. **Export Promotion** through collaboration - Exporters, States, Districts, Indian Missions
    3. **Ease of Doing Business, reduction in transaction cost and e-initiatives**.
    4. **Emerging Areas** - E-commerce, Developing Districts as export Hubs and **streamlining SCOMET Policy**.
        - **Note: SCOMET stands for Special, Chemicals Organisms, Materials, Equipment, and Technologies (SCOMET) policy.**

- **Key Aims and Objectives of India's FTP, 2023 are**:
    » Boost India's **exports to USD 2 trillion by 2030**.

    » Strengthen India's **export competitiveness.**

    » **Diversify export basket**, **expand** export markets, and **promote sustainable exports**.

    » Focus on promoting exports from small and medium enterprises (SMEs). For this policy envisages support in the form of access to finance and markets.

    » Provide for several **incentives for exporters**, including duty drawback, export promotion capital goods (EPCG) scheme, and interest subvention schemes.

    » **Encourage collaboration** between exporters, states, and districts to promote exports.

    » **Simplify and streamline the process** of exporting goods and services:

    » **Focus on emerging areas of export**, such as e-commerce, green technology, and defence and aerospace. These are the areas where India has a competitive advantage, and the policy aims to help businesses take advantage of these opportunities.

- **The Policy aims to boost India's exports through** several **measures:**

    » **Process Re-engineering and Automation** (technology enablement) for facilitating exporters.

    » **Expanding the scope of Town of Export Excellence (TEE)** by including Faridabad, Mirzapur, Moradabad and Varanasi in the existing list of 39 towns listed as Towns of Export Excellence (TEE).

    » **Promoting Exports from districts** by building partnerships with state government and taking forward the **District as Export Hubs initiative** to promote exports at the district level.

    » A **robust export control system** in India would provide **access of dual use High end goods and technologies** to Indian exporters while facilitating exports of controlled items/technologies

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under **SCOMET** (Special Chemicals, Organisms, Materials, Equipment, and Technologies) from India.

» **Facilitating E-Commerce Exports** through establishment of e-commerce hubs and other related elements.

- The consignment wise cap on E-commerce exports through courier has been raised from Rs 5 Lakh to Rs 10 lakh.
- A comprehensive e-commerce policy addressing export/import ecosystem is planned to be brough soon.

» **Export Promotion of Capital Goods (EPCG) Scheme** has been rationalized.

- Prime Minister Mega Integrated Textile Region and Apparel Parks (**PM MITRA) scheme** has been added as an additional scheme eligible to claim benefits under CSP(Common Service Provider) Scheme of Export Promotion capital Goods Scheme(EPCG)
- **Battery Electric Vehicles (BEV) of all type**s, Vertical Farming equipment, Wastewater Treatment and Recycling, Rainwater harvesting system and Rainwater Filters, and Green Hydrogen are added to Green Technology products – will now be **eligible for reduced Export Obligation requirement under EPCG Scheme.**

» **Introduction of provisions for merchanting trade**.

- **Note:** Merchanting trade involves **shipment of goods from one foreign country to another foreign country without touching Indian ports, involving an Indian intermediary**.

» **Amnesty Scheme** to provide relief to exporters who have been unable to meet their obligations under EPCG and Advance Authorization schemes. This will reduce litigations and foster trust based relationship.

1) VARIOUS SCHEMES FOR PROMOTING EXPORTS

A) REMISSION OF DUTIES AND TAXES ON EXPORTED PRODUCTS (RODTEP)

- **Why in news?**
  » Government of India notifies extension of Remission of Duties and Taxes on Exported Products support to Advanced Authorization Holders, Export Oriented Units and Special Economic Zone Units (March 2024)

- **About RoDTEP:**
  » It is an initiative to promote export launched by Ministry of Commerce and Industry. It was announced in 2019 but came into effect on 1st Jan 2021.
  » Under this reimbursement is made of unrefunded taxes and duties (central, state, or local) incurred in the process of manufacture and distribution of exported products
  » It is a WTO compliant scheme. This is based on the globally accepted principle that taxes and duties should not be exported. It thus provides a level playing field to Indian industries abroad
  » **Past WTO challenges?**

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- India's past export subsidy was challenged in the WTO by the USA.
- Therefore, RODTEP was introduced which is WTO complaint.
- Two older schemes which has been merged inside this scheme are - Merchandize Export from India Scheme (MIES) and the Rebate of State and Central Taxes and Levies Scheme (RoSCTL).

- **The RoDTEP support which was notified till 30th Sep 2023** is now being **extended till 30th June 2024** at the same rates to the existing export items (Sep 2023)

- **RoDTEP Committee**
    - In line with the framework of the scheme, the RoDTEP committee has again been constituted in the Department of Revenue to review and recommend the ceiling rates under the RoDTEP scheme for different export sectors.

- **Extension of RoDTEP to other sectors** (March 2024)
    - In March 2024, government announced extension of the RoDTEP Scheme support to additional export sectors i.e. Advanced Authorization Holders, Export Oriented Units (EOU), and Special Economic Zone (SEZ) Export Units. These sectors contribute to around 25% of India's exports. Sectors such as Engineering, Textiles, Chemicals, Pharmaceuticals, & Food Processing and many others stand to benefit from the measure.
    - This extension will help export community in handling the international headwind.
    - Keeping budgetary allocation in view, the extension of RoDTEP to additional sector is presently till 30/09/2024

B) AUTOMATIC 'STATUS HOLDER' CERTIFICATE UNDER FOREIGN TRADE POLICY, 2023

- **In Oct 2023**, Ministry of Commerce & Industry has unveiled a significant initiative to issue system based automatic '**Status Holder**' certificate under FTP, 2023.

- **What was happening till now?**

    - **Till now**, the exporter is required to file an online application along with an export certificate from a Chartered Accountant for grant of Status. The DGFT Regional Offices, as per the laid down timelines are supposed to issue the certificate in 3 days.

- **New Regime:**

    - The new arrangement will lead to a **simplified regime where no applications are invited from exporters** and the **certification is granted every year in August based on annual export figures available with the partner government agency i.e. DGCIS**.

- **Advantages:**

    - **Exporter will not be required to apply to office of Directorate General of Foreign Trade (DGFT)** for a status certificate and the **export recognition will be provided by the IT system** based on

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available Directorate General of Commercial Intelligence and Statistics (DGCIS) merchandize export electronic data and other risk parameters.

» It thus reduce compliance burden and promote ease of doing business,

- **What is the significance of Status Holder Certificate?**

  » The Status Holder certification program provides credibility to the Indian exporters in the international markets. Status holders are business leaders who have excelled in international trade and have successfully contributed to India's foreign trade.

  » In addition, it provides **certain other privileges** including simplified procedures under FTP 2023 and priority custom clearances on self-declaration basis, exemption from compulsory negotiation of documents through banks, exemption from filing Bank Guarantee for FTP schemes etc.

8. FOREIGN INVESTMENT (FDI AND FPI)

1) FOREIGN DIRECT INVESTMENT (FDI)

- Foreign Direct Investment (FDI) is the **investment through capital instruments** by a person who is a resident outside India:
  - A. In an unlisted Indian company
  - B. In 10% or more of the post issue paid-up equity capital on a fully diluted basis of a listed Indian company
    - » (If the investment comes below 10% subsequently the FDI shall be continued to be classified as FDI. It will not be reclassified as FPI), i.e., **once an FDI, always an FDI**.

- **Key Facts about India's FDI Policy (Remember for Preliminary Exams)**
  - » **Eligible Investors**
    - **A non-resident entity can invest in India, subject to FDI policy**, except in those sectors/activities which are prohibited.
    - However, a citizen/entity from Bangladesh can only invest under the Government Route.
    - Further, a citizen/entity from Pakistan can invest, only under government route, in sectors/activities other than defence, space, atomic energy, and prohibited sectors for foreign investment.

  - » **Prohibited Sectors**
    - FDI is prohibited in:
      - i. Lottery business including Government/private lottery, online lotteries, etc.
      - ii. Gambling and betting including Casinos.
      - iii. Chit Funds
      - iv. Nidhi Company
      - v. Trading in Transferable Development Rights
      - vi. Real Estate Businesses and Construction of Farmhouses

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- 'Real Estate Businesses' shall not include development of township, construction of residential/commercial premises, roads or bridges and Real Estate Investment Trust (REITs) registered and regulated by SEBI.

vii. Manufacturing of Cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.

viii. Activities/sectors not open to private investment e.g. Atomic Energy, Railway Operations (other than permitted activities)

A) FDI SITUATION IN INDIA (CURRENTLY)

- **FY23**: $70.97 billion
- **Top Source Countries** (FY23)
  - Singapore ($17.2 billion); Mauritius ($6.13 billion); the US ($6 billion), the UAE ($3.35 billion), the Netherlands ($2.5 billion).
  - Other important source countries include Japan, UK, Cyprus, Cayman Islands, and Germany.
- **Top Five Sectors** to receive FDI
  - **Computer Software ($9.4 billion)**; (Dip from last year)
  - **Service Sector** ($8.7 billion) (Rise from last year)
  - **Trading, Telecommunication, pharma and Chemicals** have also recorded growth in FDI inflow.
- **Statewise FDI reception**:
  - **Maharashtra** received the highest inflows of $14.8 billion during the last fiscal year (though the inflow are down when compared to $15.44 billion) of last year.
  - **Karnataka, Delhi, TN, Haryana, Telangana** and WB also saw a dip in FDI inflow.
  - **Gujarat** saw an increase in FDI to **$4.71 billion** (against $2.7 billion in FY22).
  - **Rajasthan** also saw a positive growth.

- **Why decline in FY23** and **what are FDI threats for future:**
  - » Escalation in **geopolitical** stress
  - » Enhanced volatility in global financial systems
  - » Sharp Price corrections in global stock market
  - » High magnitude of El-Nino
  - » Frail Global Demand

B) WHY HAS INDIA EMERGED AS AN ATTRACTIVE DESTINATION OF FDI

- **Liberalization of investment restrictions**
  - In India FDI upto 100% is allowed in non-critical sectors through the automatic route, not requiring clearance from the Ministry of Home Affairs (MHA).
  - Even in strategic sectors like Defence, government has allowed FDI of upto 74% through automatic route and 100% through government route.
  - Consultation activities with representation of different sectors
- **Make in India**, **Atmanirbhar Bharat, PLI** Schemes, **PM GatiShakti** etc.
- **Reforms in Indirect and Direct taxes:**
  - Corporate tax for most companies have been reduced to 25% and for new companies in manufacturing, it has been reduced to 15%
  - GST system has been streamlined, leading to simple tax regime.
- **Increased public capex expenditure** - It is also crowding in private and foreign investment.

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- Strengthening of **India's footing in global supply chains**
- **Elimination of Regulatory barriers**
- **Improved Ease of Doing Business**
- **Improved International Relations**

C) NEED OF FDI IN INDIA

- **Lack of Domestic Resources:**
  - » Neither the government, nor the private sector in India has enough resources to fulfill India's infrastructure and industrial needs. For e.g. infrastructure sector alone needs more than 1 trillion dollars over the next few years. COVID-19 crisis has further deteriorated the situation.
- **Diffusion of new Technology:**
  - » FDI, along with it brings in new technology which is very important for the growth and advancement of India.
- **Virtuous Cycle of Investment:**
  - » High FDI in any country gives confidence to other investors and creates a virtuous circle of more investments. So, increasing FDI will also increase private investments which has gone stagnant over the years.
- **Other advantages associated with FDI**
  - » **Economic Growth:** More Investment leads to more growth which in turn leads to higher incomes, more employment etc.
  - » **Improved performance of governments at state level:** Increases competition among states to attract FDI -> promotes good/efficient business practices among the states
  - » **Provides opportunity to government to focus more on social sector**

D) MAIN PROBLEMS THAT ARE RESTRICTING FDI INFLOWS IN THE COUNTRY

- **Complex and rigid Labour Laws**
- **Significant Delay in Land Acquisition** due to slow environmental clearance and difficult Land Acquisition Act.
- **Bureaucratic Red Tapism and Corruption** still dissuades foreign investors from investing in the country
- **Regulatory framework also needs simplification** as it is still too complex for many investors.
- **Regulatory Certainty** is something the investors crave the most.
  - Frequent rule changes, including retrospective changes worry the investors.

E) PROBLEMS ASSOCIATED WITH INCREASED FDI DEPENDENCY

1. **Volatile Investments:** Unreliable in the long term
   - FDI tend to switch to countries where there is more profit, cheap labor and cheap land.
2. **Diffusion of technology is limited :**
   - It is in the interest of foreign firm to withhold profitable technology. Thus generally diffusion of new technology is very less.
   - Moreover, in a developing country like India, where the state of both physical and human capital is not yet on a par with advanced countries, the diffusion also becomes difficult.
3. **Job Creation Not very effective due to FDI ->** FDI is mostly coming in service sector or capital-intensive sector.
   - Despite the central government's push to boost manufacturing sector through 'Make in India' and various PLI initiatives, FDI's continue to chase bets in the services sector.
     - For e.g. in FY23, the highest FDI came in sectors like IT, Services etc.

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- Further, the bulk of FDI in manufacturing is not greenfield.

4. **Regional inequities are perpetuated** -> Most FDI come in already industrialized regions.
   - For e.g. Maharashtra, Karnataka, Gujarat and Delhi - collectively accounted for 83% of the FDI between Oct 2019 and March 2022.
   - This further leads to metro - non metro divide and inequitable distribution of opportunities throughout the country.

2) FOREIGN PORTFOLIO INVESTMENT (FPI)

- **Introduction**
  - » Foreign Portfolio Investment (FPI) is any investment made by a person resident outside India in capital instruments where such investment is
    - ▫ Less than 10 percent of the post issue paid-up equity capital on a fully diluted basis of a listed Indian company or

Gyan	**Fully diluted basis** means the total number of shares that would be outstanding if all possible sources of conversion are exercised. For e.g. if the company had issued 100 shares as on today. However, there are debentures that are yet to be converted into shares. If it happens say the total number of shares may go up to 1500. The 10% calculation is to be made against 1500 which is called total number of shares on fully diluted basis.

    - ▫ Less than 10 percent of the paid-up value of each series of capital instruments of a listed Indian company
  - » **Note:**
    - ▫ FPI reflect capital gain but doesn't lead to lasting interest in the company.
    - ▫ FPI includes investment in stocks, bonds (government or corporate), infrastructure securities etc.
  - » Since FPI is easily withdrawable/cashable, it is also called **hot money** and is considered less stable when compared to FDI.

- **Type of FPIs:** In India, FPIs include Foreign Institutional Investment (FII) and Qualified Foreign Investment (QFI).
  1. **Foreign Institutional Investment**
     - It involves foreign institutional investors going for FPI.
     - **Only institutional investors** like investment companies, investment funds etc are allowed to invest in Indian stock market directly. These investors have to get a license from SEBI.

  2. **Qualified Foreign Investment (QFI)**
     - The concept of QFI was introduced in 2000, which allowed individual foreign investor to invest in Indian stock market **without a sub-account** in FII.
     - However, they have to open a Demat account and Trade Account with the depository participant in India.
     - A QFI can be individual, group or an association.
     - QFI should satisfy following conditions.

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i. QFI should be resident in a foreign country that is compliant with the standards of Financial Action Task Force.
ii. QFI must be a signatory to International Organization of Securities Commission's Multilateral Memorandum of Understanding (MMoU).

- **Note: According to Regulations by SEBI**
  i. **Investments in unlisted companies** are treated as **FDI.**
    - FPIs are not allowed to invest in unlisted shares and investment in unlisted entities will be treated as FDI.
  ii. Any equity which is less than or equal to 10% of capital in a company is portfolio investment. While investment above 10% of capital in a company will be counted as Foreign Direct Investment.
  iii. **Investment by a FPI** cannot exceed 10% of the paid up capital of the Indian company.
  iv. **All FPI** taken together can't acquire more than 24 percent of the paid-up capital of an Indian Company.
  v. **Investment by NRIs** will not be considered FPI.

- **Advantages of FPI**
  i. **For investor**
    - **Portfolio diversification**
    - **Easy access to international credit**
      - If investor holds FPI they can access credit in the foreign country. Ability to get credit on favorable terms and quickly can determine the business expansion opportunities for the investor.
    - **More Liquid and thus less risky**

  ii. **For Domestic Economy**
    - **More capital to country's capital market** will lead to more development of capital market thereby resulting in more capital flowing into the real economy thereby leading to overall development of the country.
    - **Diverse Investment, large scale investments**
      - FIIs are big and hence they have the capacity to make large scale investment.
    - **Strengthening of domestic currency**

- **Limitations of FPI**
  i. **For Investors**
    - **Lack of control** over business
  ii. **For domestic country**
    - Easy liquidity of investments comes with **vulnerability for economy**.
      - E.g. East Asia crisis of late 1990s.
    - Sudden withdrawal also leads to beating up of the domestic currency.
    - **Chances of round tripping of funds**
      - Sometimes, round tripped capital is re-invested in the Indian Stock markets using the FPI route.

- **Situation in FY23**:

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- As per annual report of SEBI released in Aug 2023, **FPIs pulled out Rs 37,632 crore** from Indian equities during FY23. This is a decline in outflow of **73.1%** as compared to FY22.
    - **Why the recent outflow**:
        - **Rise in Inflation worldwide** led to tightening of monetary policies among all major economies.
        - **Global uncertainty** due to geopolitics of Europe have also led to withdrawals.
        - **COVID-19** resurgence in China has also added to negative sentiments

- **But** the **stock markets haven't fallen much** and are trading near its highest ever.
    - This is because DII flows are compensating the FII outflows. They invested a **total of Rs 2.55 lakh crore** during the fiscal year.
        - DIIs now own a record 15% of the BSE-500 shares, just 3.3% points below the share of FPIs, which has now declined to nine-year lows.
        - This highlights India's economic resilience and attractiveness to local investors.

9. CURRENCY CONVERTIBILITY: CURRENT ACCOUNT AND CAPITAL ACCOUNT CONVERTIBILITY

- **What is Convertibility of a currency?**
    » Currency convertibility is the ease with which a country's currency can be converted into gold or another currency.
    » **A convertible currency** (e.g. $US, Euro, Japanese Yen, and British Pound) can be easily traded on forex markets with little or no restrictions. It is also seen as a reliable store of value, meaning that investor will have no trouble buying or selling the currency. A convertible currency is highly liquid instrument as compared with currencies that are tightly controlled by the country's central bank. A convertible currency is also sometimes referred as a hard currency**.**
    » **A partially convertible currency** (for e.g. Indian Rupee, South Korean Won, and the Chinese Yuan) is the legal tender of a country that is traded in low volumes in the global forex market. The government of these countries put capital controls that limit the amount of currency that can exit or enter the country.

- **Currency Convertibility is important in external sector**:
    » When a country has poor currency convertibility, it means it is difficult to swap it for another currency, it poses a risk and barrier to trade with foreign countries who have no need for the domestic currency.

1) CURRENT ACCOUNT CONVERTIBILITY

» Current account convertibility allows free inflows and outflows for all purposes other than for capital purposes such as investments and loans. In other words, it allows residents to make and receive trade-related payments -- receive dollars (or any other foreign currency) for export of goods and services and pay dollars for import of goods and services, make sundry remittances, access foreign currency for travel, studies abroad, medical treatment and gift.

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- » **Since 1994 full current account convertibility is allowed in India. That is Indian Rupee is fully convertible in Current Account.** This means one can import and export goods and receive or make payments for services rendered without limitations. There is no quantitative restriction on this.

- » **Some Minor Restriction on Current Account Convertibility under FEMA**
  - Not allowed on betting, gambling, prohibited items
  - Travel to Nepal/Bhutan -> only upto $10K could be converted and taken. Rupee can be carried in any quantity.
  - Travel to other countries -> only upto $25K (beyond this permission from RBI needed)
  - Education, Medical treatment, employment -> $1 Lakh
  - Gift Sending: Rs 5 Lakh worth.

- » **Advantages of Current Account Convertibility**
  - Facilities to send foreign earnings to India freely.
  - International trade flourishes
  - Imports and exports can be done at fair rates determined by the market.

2) CAPITAL ACCOUNT CONVERTIBILITY

- Meaning: It means the freedom to convert **local financial assets into foreign financial assets** and vice versa at market determined rates of exchange.

- **India does not allow full Capital Account Convertibility, i.e. Indian Rupee is not fully convertible on the capital account.**

  - » **External Commercial Borrowing** has sector wise limitations and RBI's approval is required.
  - » **FDI restrictions, FII restrictions**
    - No restrictions on investment in Bhutan
    - In other countries: Maximum $75 K per year (individuals) e.g. buying shares, opening foreign bank accounts etc.
  - » **Financial Action Task Force: " Non cooperative countries" ->** No investment is allowed in such country.
  - » **Liberalized Remittance Scheme (2004)** (Above FEMA limits both on Current and Capital Convertibility)
    - Applies on Indian Residence
    - Under this $2.5 Lakh can be taken per year per person abroad.

- **Debate over whether Capital Account Convertibility should be liberalized.**
  - » **Arguments in Support of liberalization**
    - **SS Tarapore Committee** (or Committee on Capital Account Convertibility) was formed by RBI in 1997 to examine the viability of capital account convertibility in India.
      - Bring Capital account convertibility **in phases** (98,99,00)
      - **Preconditions**
        - Fiscal deficit (limit it to 3.5% by 2000)

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- Inflation average (3-5%) (in 3 years)
- Interest rates by banks should be decontrolled
- Enough Forex to sustain 6 months imports
- NPAs of banks should be brought down to 5% of total asset
- CRR should be brought down to 3%

- **Second Tarapore** Committee: **Committee on Fuller Capital Account Convertibility** (2006)
  - Its approach was same again. It recommended capital account convertibility implementation in a phased manner, in 3 phases from 2006 to 2011.

- **Need of Easy Capital Account Convertibility**:
  - **Foreign Direct Investment Needs** of India
  - **Easy ECB** can reduce the cost of borrowing for Indian businesses.
  - **More investment** can lead to increased GDP.
  - **Development of more MNCs from India**. Easy capital account convertibility will allow Indian companies to easily acquire foreign companies and thus develop into multinationals.
  - **Portfolio diversification for Indian investors**.
- **Other Arguments in Support of Capital Account Convertibility**
  - All developed countries are capital account convertible; hence this is an inevitable destiny of the developing countries in their path to development.
  - Better and most efficient flow of global pool of savings to the more productive uses.
  - It will facilitate portfolio diversification by investors in developed as well as developing country.
  - Feasibility of capital account convertibility rests on sound macroeconomic policy, it creates a sort of commitment for the country concerned to ensure better macroeconomic management, lest it is punished by the investors.

» **Arguments against making rupee full convertible on Capital Account**
- **HR Khan (deputy governor of RBI)**
- **BoP Crisis** (like the 1990s East Asian Crisis) was exacerbated by the full capital account convertibility.
  - Most of these countries has full capital account convertibility.
  - India and China didn't have the full capital account convertibility, thus these countries were saved from this kind of crisis.
- Capital flows are sensitive to macroeconomic conditions. Any deterioration in fiscal conditions, inflation management, balance of payments, or any other macroeconomic shock may cause a cessation or reversal of capital flow.
- **May hamper interest of domestic economy** as funds may easily flow outside the country affecting employment and other opportunities.
- **Instability in Rupee** may be another outcome of full capital account convertibility.

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BOOKLET-28; ECONOMY-9
RENEWABLE ENERGY

1. TABLE OF CONTENTS

2. RENEWABLE ENERGY

- Non-conventional energy sources refer to renewable energy sources which are replenishable at a rate faster than it is consumed i.e. they don't get depleted when used. These sources are also much less hazardous to environment compared to conventional sources of energy.
- **Popular Sources of Non-Conventional Energy Sources are:**
    i. Solar Energy
    ii. Wind Energy
    iii. Tidal Energy
    iv. Geothermal Energy
    v. Hydropower
    vi. Biomass Energy
    vii. Fuel Cell (Green Hydrogen)

1) WHY RENEWABLE ENERGY IS IMPORTANT

- Energy Security and Reduced Import Dependency
- Economic growth:
- Inclusive Development: Electricity in inaccessible areas
- Environmental sustainability:
- Strengthening India's Soft Power and Global Leadership

2) STEPS TAKEN BY GOVERNMENT:

» **Ambitious Targets:** GoI has set a target of achieving 50% of its electricity supply through non-fossil sources by 2030.

» **Attracting Investment**: FDI upto 100% under automatic route for renewable energy projects including offshore wind energy projects has been allowed.

» **Promoting Ease of Doing Business:**
- **Waiving of Inter-State Transmission System** (ISTS) charges for inter-state sale of solar and wind power for projects to be commissioned by 30th June 2025.
- **Laying of new infrastructure**: New transmission lines and subs station capacity for evacuation of renewable power etc. under **Green Energy Corridor scheme** for evacuation of renewable energy

» **Sectoral Initiatives** (Covered separately with each sector)

A) GREEN ENERGY CORRIDOR:

- **Why in news?**
    » Cabinet approves Intra-State Transmission System - Green Energy Corridor Phase-II (Jan 2022)
- The GEC project aims at synchronizing electricity produced from renewable sources, such as solar and wind, with conventional power stations in the grid.
    » The **first component** of the Scheme, **Inter-State GEC** with target capacity of 3,200 circuit kms (ckm) transmission lines and 17,000 MVA capacity substation, was completed in March 2020.
    » The **second component** - Intra-state GEC has a target capacity of 9700 ckm transmission lines and 22,600 MVA capacity sub-stations.

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- It is estimated to be set up with total estimated cost of Rs 12,031 crores.

- The scheme will help in achieving the target of 450 GW of RE capacity by 2030.

3) INDIA'S SITUATION

- **India's Situation**:
    - As of Feb 2023, India's total power generation capacity was **412.21 GW**.
        - **Total Renewable Energy Capacity**: **168.96 GW** [122 GW without including large hydro]
            - **Solar Energy**: 64.38 GW
            - **Wind Energy**: 42.02 GW
            - **Hydro** (large + Small)**:** 51.79 GW (Small Hydro - Around 5 GW)
            - **Bio**: 10.77 GW
        - Another **86.62 GW** of green energy capacity is under implementation and 40.89 GW of capacity is under various stages of tendering.
- **Note**: India has already achieved its target of **40% installed electric capacity** from non-fossil fuels in Nov 2021 itself.
- **Future Target**: Government aims to achieve 500 GW of installed electricity capacity from non-fossil sources by 2030.

4) IMPORTANT INSTITUTIONS

A) NODAL MINISTRY: MINISTRY OF NEW AND RENEWABLE ENERGY (MNRE)

- The ministry was established in 1992 as the Ministry of Non-Conventional Energy Sources. It adopted its current name in Oct 2006.
- The broad aim of the ministry is to develop and deploy new and renewable energy for supplementing the energy requirements of the country.
- The **mission** of the ministry is to ensure:
    1. Energy Security
    2. Increase the share of clean energy.
    3. Energy availability and access
    4. Energy Affordability
    5. Energy Equity

B) INDIAN RENEWABLE ENERGY DEVELOPMENT AGENCY (IREDA)

- **Why in news?**
    - The Reserve Bank of India (RBI) has granted an 'Infrastructure Finance Company' status to IREDA in 2023.
    - **IPO** of IREDA got successfully completed (2023)

- **About IREDA**
    - IREDA is a mini Ratna (category-1) company under the administrative control of MNRE.
    - It is a public limited government company established as a Non-Banking Financial Institution in **1987**. It is engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable source of energy and energy efficiency/conservation with a **motto**: **"Energy Forever"**.

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5) PROBLEM OF STORAGE OF RENEWABLE ENERGY SECTOR

- **Why is storage needed in renewable energy sector?**
  - » **Handling Intermittency and variability problem** of renewable.
  - » **Providing energy in non-solar/wind hours**

- **Various Storage options and their benefits and Limitations**
  - i. **Hydrogen based storage:**
    - It is found feasible for long-term storage (cross seasons)
  - ii. **Lithium-ion batteries**: They are the ideal source for day-today storage.
  - iii. **Pump Storage Plants**:
    - India has a total capacity of about 4.7 GW (out of a worldwide capacity of 149 GW). The CEA estimates that India's storage potential is of 100 GW.
    - **Concerns:**
      - High investment cost
      - Long Gestation Periods
      - Non-remunerative pricing models
      - Lack of adequate sites having the required topography
      - India's expertise in pump storage plants is somewhat a suspect with the Tehri pump storage project yet to be commissioned though construction began in 2011 and was to be complemented in 4.5 hours.
      - There may be environmental concerns associated with this kind of storage.

- In general, we can say that there are **two main reasons for lack of storage capacities**:
  - » **Cost** of storage technologies is still relatively high.
  - » **Regulatory Framework** for storage is not yet fully developed.

- **Some initiatives to deal with these challenges**:
  - **i. Budget 2023**:
    - ▫ Pumped Storage Projects have received a push with a detailed framework to be formulated.
    - ▫ 4 GWh Battery Energy Storage Systems supported through Viability Gap Funding (VGF).
  - **ii. National Storage Mission** launched in 2020 and wants to develop 100 GW of storage capacity by 2030.
  - **iii. The Green Energy Corridor**: These are corridors which will be used to transmit electricity from renewable energy projects to load centres. These will also include storage facilities.
  - **iv.** The **National Battery Manufacturing Policy,** launched in 2020, aims to promote the manufacturing of batteries in India. This will help to reduce the cost of storage technologies.

6) DECENTRALIZED RENEWABLE ENERGY/ DISTRIBUTED RENEWABLE ENERGY

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- **Decentralized Renewable energy** refers to generation and distribution of renewable energy at a small and localized level, typically closer to the point of consumption. It can be generated via several renewable energy sources, including solar, wind, hydro and bioenergy.

  » Currently, India has 12 mature technologies powered by DRE. These include high-capacity irrigation pumps, as well as micro-pumps, silk reeling machines, dryers, charkhas, small horticulture processors, small refrigerators/deep freezers, cold storages, vertical fodder growing institutions units, grain milling machines etc.
  » The DRE technologies include solar run textile manufacturing units, biomass powered cold solar storages and micro solar pumps etc.

- **Key characteristics** include localized generation, distributed energy resource, Off-Grid or Mini-Grid Solutions;

- **Advantages:**
  » **Environmentally sustainable**
  » **Energy Security**
  » **Inclusive Growth**
  » **Scalability and Flexibilit**y
  » **Job Creations**

3.SOLAR ENERGY

- **Introduction:**
  » Though India missed the ambitious target of 100 GW of solar power generation capacity by 2022, we still need to keep working on expanding Solar Energy Capacity.
  » As per the National Electricity Plan, India aims to reach a **target of 185.6 gigawatts** of solar capacity by the FY27.

- **Advantages of Solar Energy**
  » Renewable Energy Advantages
  » Solar's advantage over other renewable energy
    ▪ Available during office hours
    ▪ Longer life equipment
    ▪ Low running cost
    ▪ India's tropical climate is suitable for solar energy.
    ▪ Less damaging than other renewables
  » **Solar Energy is becoming more and more competitive.**

1) INITIATIVES

A) SCHEME FOR DEVELOPMENT OF SOLAR PARKS AND ULTRA MEGA SOLAR POWER PROJECTS - CONCEIVED ON THE LINES OF "CHARANKA SOLAR PARK" -> ACT AS FLAGSHIP DEMONSTRATION FACILITY.

- **Goals/Program targets**
  » It envisaged supporting states in setting up atleast 50 solar parks (capacity 500 MW and above) and Ultra Mega Solar Power Projects targeting over **40,000 MW** of solar power installed capacity within a span of 5 years starting from 2014-15.

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- » The scheme envisages supporting the States/UTs in setting up solar parks at various locations in the country.

- **Provisions**
  - » The solar parks provide solar power developers with a ***plug and play** model, by facilitating* suitable developed land with all clearances, transmission system, water access, road connectivity communication network, etc.
  - » All states and UTs are eligible for benefits under the scheme.
  - » **Central Financial Assistance**
    - (CFA) of Rs 25 Lakh per solar park for Detailed Project Report Preparation of the Solar Park, conducting surveys etc.
    - Besides this, CFA of **up to Rs 20 Lakh per MW** or 30% of the project cost, including Grid-connectivity cost, whichever is lower, is also provided on achieving the prescribed milestone in the scheme.
  - » **Update: June 2023:** The MNRE has extended the timeline for the 'Development of Solar Parks and Ultra Mega Solar Power Projects' Program to March 31st 2026 (FY26) from the earlier FY24.

B) PM SURYA GHAR MUFT BIJLI YOJNA (FEB 2024)

- The finance minister, Nirmala Sitharaman, announced the launch of the 'Rooftop Solar Scheme' or the 'PM Surya Ghar Muft Bijli Yojana' in the 2024-25 budget.
- **Subsequently**, PM Modi launched the 'PM Surya Ghar Muft Bijli Yojna'.
- **Solar panels** are installed in the houses under the scheme to supply power to households and additional money for excess electricity output.
  - The government will provide substantive subsidies directly to people's bank accounts and heavily concessional bank loans to ensure that there is no cost burden on the people.
  - The scheme will help poor middle class to save upto Rs 15,000 to Rs 18,000 annually by getting free solar electricity and selling surplus power to electricity distribution companies.
- **Aim**: Under this initiative government aims to install **solar power panels** in **one crore homes** throughout the country.

C) PRADHAN MANTRI KISAN URJA SURAKSHA EVAM UTTHAN MAHAABHIYAN (PM KUSUM)

- It aims at providing water and energy security to farmers and enhancing their income by making *Annadata* also a *Urjadata.* It focuses on creation of **3 things** - (A) Grid Connected Renewable solar power plants; (B) Installation of 20 lakh standalone Solar powered agri pumps; (C) Solarization of 10 lakh grid connected agri pumps.

- **Update**: In 2023, Government approved **expansion of PM KUSUM** with revised target of 49 lakhs pump to be installed/solarized under component B and C of the scheme.

D) INTERNATIONAL COOEPRATION: INTERNATIONAL SOLAR ALLIANCE

E) NEW INNOVATION: FLOATING SOLAR PLANTS

(for e.g. the 100 MW plant at NTPC Ramagundam commissioned in July 2022) is being set up in various parts of the countries. It brings advantages like no land acquisition requirements, water conservation (less evaporation of water), less dust on power panel etc.

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F) NATIONAL PROGRAM ON HIGH EFFICIENCY SOLAR PV MODULES

- It is a **PLI scheme** which aims to build an ecosystem for manufacturing of high efficiency solar PV modules in India, and thus reduce import dependence in the area of Renewable energy. It will strengthen Atmanirbhar Bharat initiative and generate employment.

- Tranche-II of the PLI scheme was approved by cabinet in Sep 2022

G) PROMOTING COMPETITION AMONG STATES: SARAL INDEX BY MNRE

H) SKILL DEVELOPMENT: SURYAMITRA SCHEME

4. WIND ENERGY

- **Current Wind Energy Situation in India**
  - India has made significant progress in the development of wind energy and has emerged as the fourth largest producer in the world with a total capacity **of 42** GW as of Feb 2023.
  - But India did miss the target of achieving 60GW capacity by 2022.

- **Target:**
  - 140 GW by 2030

- **India's Potential:**
  - As per National Institute of Wind Energy (NIWE) in Chennai, India has a **much higher wind power potential**. At a **hub height of 120 meters, the potential is of 602 GW of onshore and 100 GW of fixed and floating offshore**. A very remarkable fact is that half of the potential is located in wastelands.

2) NATIONAL WIND MISSION (NWM): LAUNCHED IN 2015 AS PART OF NAPCC

- **Aims and Objective**
  - To achieve the target of 60 GW by 2022 with an investment of 10 lakh crore (target was missed)
  - Make India a global leader in wind power, by creating conditions conductive for its diffusion across the country in a time bound manner

3) OFFSHORE WIND ENERGY

- **What is offshore wind energy?**
  - It refers to deployment of wind farms inside the water bodies. They utilize the sea wind to generate electricity. These wind farms either use **fixed foundation turbines** or **floating wind turbines**.

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- **A fixed foundation turbine** is built on shallow water, whereas a **floating wind turbine** is built in deeper waters where its foundation is anchored in sea-bed. Floating wind farms are still in infancy.

- **Target:** MNRE has set a target of installing 30GW by 2030.

- **India's offshore wind energy potential:**
  » **MNRE**: India can generate 127 GW of offshore wind energy with its 7,600 km of coastline. Other sources mention it to be (World Bank Report - 195 GW (112 fixed and 83 floating);

- **Advantages of offshore wind energy parks:**
  » Renewable Energy
  » No land acquisition and land scarcity issues
  » Offshore wind turbines are more efficient compared to onshore ones (wind speed over water bodies is high and is consistent in direction)

- **Steps Taken**
  1. In **June 2022**, MNRE has decided to **bid out offshore wind energy blocks**.
  2. **A Revised Strategy for development of offshore wind energy projects** has been issued in Sep 2023.
     - It indicates a bidding trajectory for installation of 37 GW capacity of offshore wind energy.
  3. The **offshore wind energy lease rules, 2023**: To regulate the allocation of offshore wind sea blocks to developers have been notified.
  4. **National Offshore Wind Energy Policy, 2015**
     - Nodal Ministry MNRE has been authorized for use of offshore areas within EEZ of the country
     - **National Institute of Wind Energy (NIWE)** has been authorized as Nodal agency for development of offshore wind energy in the country and to carry out allocation of offshore wind energy blocks, coordination and allied functions with related ministries and agencies.
     - National Targets for offshore wind energy capacity has been set at 5 GW by 2022 and 30 GW by 2030.

5. BIOFUELS

- **Introduction**
  » Biofuel is a fuel that is produced through **contemporary biological processes**, such as agriculture and anaerobic digestion, rather than fuel produced by **geological processes** such as those involved in the formation of fossil fuels.

  » They are made from **recently grown biomass** (plant or animal matter). They are **renewable** because the source is continuously replenished.
     - E.g. Biogas, bioethanol, biodiesel etc.

  » **Biogas** is the biofuel produced through anaerobic digestion of organic waste.

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» **Bioethanol** is an alcohol made by fermentation, mostly from carbohydrates produced in sugar or starch crops such as corn, sugarcane, or sweet sorghum.
  - **Cellulosic biomass**, derived from non-food sources, such as trees and grasses, is also being developed as a **feedstock for ethanol production**.
  - **Ethanol** can be used as a fuel for vehicles in its pure form, but it is usually used as a gasoline additive to increase octane and improve vehicle emission.

- **Generations of Biofuel (3 important)**

i. **1G Biofuel:** They are produced directly from **food crops** such as wheat, sugar, vegetable oil and **even animal fat** etc.
  - Advantages includes known simple tech, cost competitiveness with fossil fuels etc.
  - Criticisms include food vs fuel debate etc.
  - They are also known as conventional biofuels. Most common first generation bio fuels include:
    - **Biodiesel:** Extraction of vegetable oils (both edible and non-edible), with or without esterification, from seeds of plants like soybean, rape (canola) and sunflower.
    - **Bio-Ethanol:** Fermentation of simple sugar from sugar crops (sugarcane) or starch crops (corn, wheat etc).
      - It accounts for around 2/3rd of total biofuel production in the country.
    - **Bio-Gas:** Anaerobic fermentation of organic waste and crop residue as energy crops.

ii. **2G Biofuels:** Produced from **non-food organic crops** such as wood, organic waste, food crop waste and specific biomass crops. It includes use of non-food-crops technologies like **jatropha**-based fuels.
  - The advantages include use of wasteland, less impact on food security.
  - There are some limitations including high capital cost, advanced conversion technologies etc.
  - One well known second-generation technology is Lignocellulosic processing which uses forest material.

iii. **3G Biofuels:** The source is based on improvements in the **production of biomass**.
  - They are produced from micro-organisms like algae
  - Algae act as low cost, high-energy and entirely renewable feedstock. It has impressive diversity and higher yield. Advantages include the ease of generating the biomass anywhere where sunlight and carbon is present.
  - Third generation biofuel has the potential to be more sustainable and have a lower environmental impact than first and second generation biofuels.
  - Some limitations include still developing tech, high technology cost, some poisonous algae etc.

iv. **4th and 5th Generation Biofuels**

A. **Fourth Generation:**
  - It takes the advantage of biotechnology to **engineer special crops** such as **algae** (sometimes called oilgae) for biomass production. The aim is to engineer

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microorganisms to produce biofuels more efficiently, with higher yields, and with lower environmental impacts.

B. **5th Generation Biofuels**
   - They are known as **electrofuels**. They are produced from microbial synthesis using renewable energy sources. In this process, micro-organisms use electricity as an energy source to convert carbondioxide into liquid fuels, such as ethanol or butanol.

Note: 4th Generation and 5th Generation Biofuels are in the early stage of development.

- **Current Capabilities:**
  - **As of Feb 2023,** India has a biofuel power generation capacity of **10.77 GW**.
  - According to International Energy Agency (IEA), India is expected to overtake China to become **third largest producer** of ethanol by 2023.
    - **Note:** USA is the largest ethanol producer in the world accounting for 46% of global production and 2nd largest in biodiesel production accounting for 19% of the production.
- **Targets:**
  - **National Biofuel Policy, 2018** (as amended in 2021): Country wide blending target of 20% ethanol by 2025 and 5% biodiesel by 2030.

- **Advantages of Biofuels**
  i. **Renewable and Energy Security**
  ii. **Fighting Pollution:**
  iii. **Lesser impact on climate change**.
  iv. **Can Promote sustainable agriculture:**
  v. **Increase farmer's income**
  vi. **Sanitation**
  vii. **Reduces Import Dependency** and **saving foreign exchange**

- **Some Criticisms:**
  - **Land Use**
  - **Food Security Issues**
  - **Water Challenges**

- **Steps taken by government to support biofuels.**
  i. **National Policy on Biofuels, 2018**
  ii. **Pradhan Mantri Ji-Van Yojana (PMJY)**
  iii. **Oil CPSEs are setting up 2G ethanol bio-refinerie**s in the country at Panipat (Haryana), Bathinda (Punjab), Numaligarh (Assam), Bargarh (Odisha) and one demonstration project at Panipat..
  iv. **EBP** and associated steps
  v. **National Bio-Energy Program** (FY 2021-22 to 2025-26):
    - It comprises of the following schemes:
      1. **Waste to Energy Programme** *(Program on Energy from Urban, Industrial, and Agricultural Wastes/ Residues)* to support setting up of large biogas, BioCNG, and Power Plants (excluding MSW to Power projects)

2. **Biomass Programme** *(Scheme to support manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based congregation in Industries)* to support setting up of pellets and briquettes for use in power generation and non-bagasse-based power generation projects.
3. **Biogas Programme** to support setting up family and medium Biogas in rural areas.

vi. **Biogas Promotion**

vii. **Advisory to carmakers to introduce flexible fuel engines in Vehicles**:

viii. **International Collaboration:** For e.g. the Global Biofuel Alliance (GBA) is one of the top priorities under India's G20 presidency.

- Brazil, India and the USA, as leading biofuel producers and consumers of the world have agreed to work together towards the development of this alliance along with other interested countries.
- This alliance will work towards facilitating cooperation and intensifying the use of sustainable biofuels, including in the transportation sector.

1) ETHANOL BLENDING

- **What is Ethanol Blending?**
  - Process of mixing ethanol with Petrol is called Ethanol blending. The mixture is called as Ethanol Fuel/ Gasohol which is considered as a quasi-renewable energy.

  - In India, the practice of blending ethanol was started in 2001. Ethanol blending was first time mentioned in the Auto Fuel Policy of 2003.

  - **Benefits of Ethanol Blending**
    - Reduces vehicular emissions especially CO (Carbon Monoxides) emissions.
    - It is cheaper than petrol as it is easier to manufacture.
    - It reduces our import dependency.
      - Trade balance, foreign exchange etc.
    - Ethanol has higher octane rating than ethanol-free petrol
    - In case of India Ethanol production can generate higher sugarcane prices for farmers.

  - **Ethanol Blended Petrol (EBP) Program** was launched by the Government in **2003**, and was aimed at **promoting 5% blending of molasses-based ethanol** with petrol, to promote the use of alternative and environment friendly fuels, to reduce import dependency for energy requirements and to increase value addition to Sugar industry enabling them to clear cane price arrears of farmers.

  - **Target for Ethanol blending of Petrol was 10% by 2022** and **20% by 2030**.
  - **Allowing conversion of surplus stock of rice with FCI and Maize to Ethanol**.
    - In June 2021, central government allocated 78,000 tonnes of rice from FCI for ethanol production.

  - **Cabinet** keeps on reviewing the prices for procurement of ethanol by Public sector Oil Marketing Companies, to ensure better prices for farmers.

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2) NATIONAL POLICY ON BIOFUELS

- **Why in news?**
  - » Cabinet approves amendments to National Policy on Biofuels to make India energy independent by 2047. (May 2022)

- **Aims**
  - » Reduce India's oil import dependency.
  - » Provide better income opportunities to farmers by helping them dispose of their surplus stock in economic manner.

- **Key Highlights**
  - » **Aim (as amended in 2021)**: Country wide blending target of 20% ethanol by 2025 and 5% biodiesel by 2030
  - » **Categorization of Biofuels to enable extension of appropriate financial and fiscal incentives under each category**.
    1. **Basic Biofuels** viz. First Generation (1G) bioethanol and biodiesel
    2. **Advanced Biofuels** - Second Generation (2G) Ethanol, Municipal Solid Waste to drop-in fuels, Third Generation (3G biofuels), bio-CNG etc.
  - » **Expands the scope of raw material for ethanol production.**
    - Allowing use of sugarcane juice, sugar containing materials like Sugar Beet, Sweet Sorghum, starch containing materials like Corn, Cassava, Damaged Food grains like wheat, broken rice, Rotten Potatoes unfit for human consumption for ethanol production.
  - » **Allows use of surplus food grains for production of ethanol** for blending with petrol
  - » **A VGF for 2G Ethanol bio-refineries** of Rs 5,000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
  - » The new policy encourages setting up of **supply chain mechanisms for biodiesel production** from non-edible oilseeds, used cooking oil, short gestation crops.
  - » **Specifies the role of all the concerned ministries/ Departments** with respect to biofuels

- **2022 Amendment:**
  - » Advance the deadline to reach the blending target of 20% bioethanol in petrol, from 2030 to 2025-26.
    - It will promote the production of biofuels in the country, under the Make in India program, by units located in SEZs/Export Oriented Units (EOUs).
  - » Make additional feedstocks eligible for the production of biofuels.

3) PRADHAN MANTRI JI-VAN (JAIV INDHAN VATAVARAN ANUKOOL FASAL AWASHESH NIVARAN) YOJANA

- **Ministry** of Petroleum and Natural Gas

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- **Key Highlights**
  - » The Yojana provides **financial support (VGF)** to Integrated Bioethanol Plant using **Lignocellulosic biomass** and other renewable feedstock.
  - » Under the yojana, **12 commercial scale** and **10 demonstration scale Second Generation (2G)** ethanol projects will be provided with VGF support in two phases:
    - **Phase-I (2018-19 to 2022-23):** wherein six commercial projects and five demonstration projects will be supported.
    - **Phase-II (2020-21 to 2023-24):** wherein remaining six commercial projects and five demonstration projects will be supported.
  - » **Financial Outlay:** 1969.50 crore for the period from 2018-19 to 2023-24.
  - » The ethanol produced by the scheme will be mandatorily supplied to OMCs to further enhance the blending percentage under EBP program.
  - » **Centre for High Technology (CHT), a technical body under the aegis of MoP&NG**, will be the **implementation Agency** for the scheme. The Project developers interested in availing benefits of the scheme, shall be submitting their proposal for review by Scientific Advisory Committee (SAC) of MoP&NG. Projects recommended by SAC shall be approved by Steering Committee of MoP&NG under the chairmanship of Secretary, MoP&NG

- **Significance**
  - **Incentivize 2G Ethanol Sector** by setting up commercial and demonstration projects
  - **Increased R&D** in the sector.

4) WORLD BIOFUEL DAY: 10TH OF AUG

- **The day is observed to show the importance of fossil fuels.**
- **History:**
  - It is celebrated in remembrance of Sir Rudolf Diesel, who created diesel engine.
    - On Aug 8, 1893, he successfully used peanut oil to run a mechanical engine for the first time. With this, he was able to foresee the possibility that fossil fuels could be replaced by vegetable oil as a practical source of energy in the coming century.
  - the day is marked by the inventor of the diesel engine, Sri Rudolf Diesel who was the first one to predict the chance of vegetable oil being replaced by fossil fuels.
- **2022 theme: '*Biofuels for Sustainability and Rural Income*'.**
- ***2023 theme:* No official theme was announced - the day was celebrated with 2022 theme only.**

5) E-100 PILOT PROJECTS:

- **Launched at Pune City by Public Sector OMCs on 5th June 2021**
- **To facilitate sale of E-100 fuel.**

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- MoP&NG vide its order dated March 22, 2021 has amended the Motor Spirit and High Speed Diesel (Regulation of Supply, Distribution and Prevention of Malpractices) Order, 2005 by permitting the direct sale of Bio-Ethanol (E100) by an oil company for use as standalone fuel or blending with motor spirit, for compatible automobiles to all consumers, in accordance with the standards specified by the Bureau of India Standards (BIS).

6) BIOGAS PRODUCTION OF FAT-RICH SLUDGE

- Researchers at **CSIR-CFTRI Mysore** have developed a novel high performance bioreactor system integrated with sustainable pre-treatment process for enabling **anaerobic digestion of complex fat-rich sludge** from dairy industry. It has further been integrated with membrane bioreactor based-wastewater treatment to enable zero liquid discharge in the dairy industry.
- It can also be applied for anaerobic digestion of complex solid waste containing Fats and oils and can be coupled with wastewater treatment to enable Zero liquid discharge.
- **Dairy and food industry** are likely industries that can take up the technology. The technology will also be applicable for any biodegradable waste sludge and food waste from any food industry as well as food industry wastewaters.

7) NATIONAL BIOENERGY PROGRAM

- **Why in news?**
  - MNRE notifies National Bio-Energy Program (Nov 2022)

- **Details**
  - MNRE has continued the National Bio-Energy Program for the period **FY2021-22** to **2025-26**. The program has been recommended for implementation in two phases.
  - **Phase-1** of the program has been approved with a budget outlay of Rs 858 crores.
  - **The NBP** will comprise of following sub schemes:
    1. **Waste to Energy Program:** (*Programme on Energy from Urban, Industrial and Agricultural Wastes /Residues*) to support setting up of large Biogas, BioCNG and Power plants (excluding MSW to Power projects). IREDA will be implementing agency for the program.
    2. **Biomass Programme:** (*Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries*) to support setting up of pellets and briquettes for use in power generation and non-bagasse based power generation project.
    3. **Biogas Programme**: To support setting up of family and medium size biogas in rural areas.

8) BIOGAS

- **Why in news?**

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- Budget 2023-24 had announced setting up of 500 biogas plant across the country under the Gobardhan Scheme. Of these 75 plants were to be set up in urban areas.
    - Ministry of Housing and Urban Affairs, 42 plants with a total capacity of 6,213 tonnes per day (TPD) at a cost of Rs 1,082 crore had been approved and the remaining proposal would be cleared soon (April 2023)

- The biogas plants can generate biogas from organic substances like cattle dung, night soil, and biomass from the Kitchen, garden, farms and other such bio-degradable material. This biogas is generated through a process called anaerobic digestion (AD).

- **Advantages of Biogas:**
    - **Renewable and Sustainable** (+ plus other related advantages -> energy security, reduced import dependency etc.)
    - **Reduction in Greenhouse emission**:
    - **Waste Management**: Organic waste gets converted into energy and leads to environmental cleanliness.
    - **Versatility**: Biogas can be used for cooking, heating, transportation etc.
    - **Rural Development and Employment** - Energy source in rural areas leads to these advantages

- **Key challenges:**
    - Level of waste segregation still leaves a lot to desire.
    - Maintenance of biogas plants and other equipment have remained an issue.

- **Steps taken to Promote Bio-gas.**
    1. **Gobar Dhan Yojana** (announced in Budget 2018-19)
        - Galvanizing Organic Bio Agro Resources - Dhan (GOBAR-Dhan) focuses on managing and converting cattle dung and solid waste in farms to compost, bio gas and bio CNG. The scheme aims to collect waste and solid waste from farmers to sell to entrepreneurs, who thereafter produce manure, biogas, and bio-CNG from the waste. Thus, the scheme connect farmers to buyers.
        - Government has also announced an online trading platform to connect to buyers of agri-waste facilitating the GOBAR-dhan scheme.
        - Ministry: Ministry of Jal Shakti

    2. **Unified Registration Portal for GOBARdhan (June 2023)**
        - Ministry of Jal Shakti has launched the Unified Registration Portal for GOBARdhan. It will act a one stop repository to access investment and participation in Biogas/CBG sector at Pan India level and more importantly streamline the process of setting up CBG/Biogas plants in India.

    3. **National Biogas and Manure Management Program (NBMMP)** aims to set up family type biogas plants.
        - By MNRE.
        - It is a central sector scheme with an aim to setting up family type biogas plants for providing biogas as clean cooking fuel and a source of lighting primarily set up for rural and semi-urban households.

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9) BIO CNG (ALSO KNOWN AS COMPRESSED BIOGAS)

- **BioCNG**, also known as biomethane, is a renewable and clean-burning transformation fuel produced by **upgrading biogas to natural gas quality**. It's essentially **purified bioga**s, made from organic materials like: Agriculture waste, food waste, and Sewage Sludge.
- It is an upgraded version of biogas (the dung-based version of which serves as cooking fuel in many villages in India).

- **How Bio-CNG is produced?**
  - » **Pre-Treatment**: The waste is passed through a filter to remove hard material like Coconut shells and pieces of wood.
  - » **Shredding**: the waste is shredded in a hammer mill and made into a slurry with water.
  - » **Hydrolysis**: The slurry is kept in the pre-digestor tank in aerobic conditions for one-two days to attract microbes - the process is called **hydrolysis.**
  - » **Methanogenesis**: After hydrolysis the slurry is transferred to anaerobic digestor where it is retained for 20-25 days. It is during methanogenesis that biogas is generated. This gas contains 65% methane, while the rest is Hydrogen Sulphide, carbondioxide, and water vapour.
  - » **Purification**: The above gas is passed through a wet and dry scrubber to remove hydrogen Sulphide and CO2. Methane, purified upto 95% is obtained here which is then compressed at high pressure in cylinders and send to filling stations. This highly purified methane is similar in chemical properties to CNG derived from petroleum sources and can thus be used in vehicles.

- **Advantages:**
  - » **Renewable**
  - » **Swatch Bharat**
  - » **Fighting Air Pollution**:
  - » **Strengthening Rural Economy**, **organic farming -> More income to farmers and More jobs in rural areas**
  - » **Decentralized energy** as it is produced closest to the point of consumption.
  - » **No Intermittency** like solar and wind as CBG could be produced at all hours.

- **Limitation:**
  - » **Maintenance cost** of Bio-CNG based vehicles is higher.
  - » Further, users have complained that calorific value of Bio-CNG is lower than CNG as it contains moisture.
  - » **Biogas plants** are also sometimes seen as methane bombs as any emission of leak from digestor or pipelines can contribute to climate change significantly.

- **Government Initiatives:**
  - » **SATAT (Sustainable Alternative Towards Affordable Transport)** Initiative:
    - ▪ Launched in 2018, it aims to promote production and use of Bio-CNG (Compressed Bio-GAS) in India. Under it, government sets up compressed Bio Gas (CBG) production plants and make available CBG in the market for use in automotive sector.
  - » **National Bio-Energy Program** (FY 2021-22 to 2025-26)

» **Compressed Biogas (CBG) Blending Obligation (CBO)** - Government has announced a phased compulsory blending obligation of CBG in CNG and PNG segments of the City Gas Distribution (CGD) sector in Oct 2023.
  - **CBO** is voluntary till 2025 and mandatory obligation will start from FY26.
    - It shall be 1% (FY26), 3% (FY27) and 4% (FY28) respectively.
    - It shall by 5% for FY29 onwards.

» Asia's largest compressed bio gas plant was inaugurated in Sangrur by Union Minister Hardeep S. Puri.

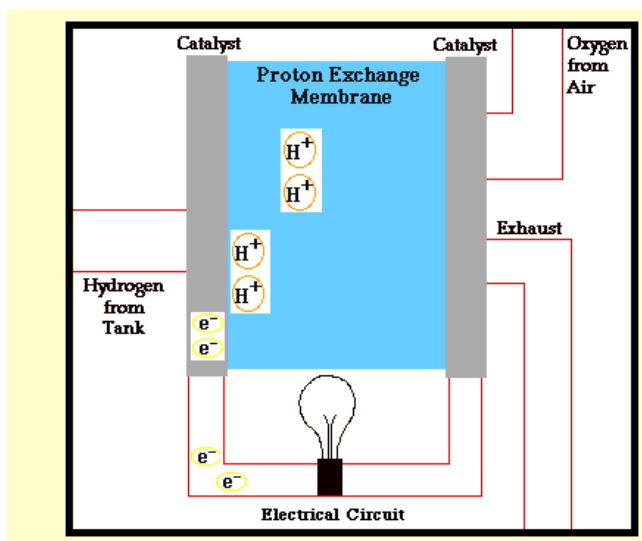
6. HYDROGEN FUEL

1) HYDROGEN FUEL CELLS

- **Introduction**
  - » Hydrogen is the simplest fuel. A fuel cell combines hydrogen and oxygen to produce electricity, heat and water.

- **Fuel Cell**
  - » A fuel cell is a device that **converts chemical potential energy (energy stored in the molecular bonds) into electrical energy**.
    - A Proton Exchange Membrane (PEM) cell uses hydrogen (H_2), and Oxygen (O_2) as fuel.
    - The products of the reaction are water, electricity and heat.

- **Key Elements of a fuel cell**



  - » **The anode**, the negative electrode of the fuel cell, conducts the electrons that are fed from the hydrogen molecule so that they can be used in the external circuit.
  - » **The Cathode**, the positive post of the fuel cell, has channels etched into that distribute the oxygen to all surface of the catalyst. It also conducts electrons back from the external circuit to the catalyst, where they can recombine with hydrogen ion and oxygen to form water.
  - » The **electrolyte** is a **proton exchange membrane**. This specially treated material, which looks something like ordinary kitchen plastic wrap, only conducts positively charged ions. The **membrane blocks electrons**.
  - » **The catalyst** is a special material that facilitates the reaction of oxygen & hydrogen. It is usually made up of platinum nano particles very thinly coated onto carbon paper or clothe.

- **How does a fuel cell work**

- » Hydrogen from a tank onboard the vehicle, enters into anode side of the fuel cell.
  - » Oxygen pulled from air enters from cathode side

- **As the hydrogen molecule encounters the membrane, a catalyst forces it to split into electron and proton**
  - » The proton moves through fuel cell stack and the electron follows an external circuit, delivering current to the electric motor and other vehicle components.
  - » At cathode side, the proton and electron join again, and they combine with oxygen to form the vehicle's only tailpipe emission, water.
- **Advantages of Hydrogen Fuel Cell**
  - » Fuel cell **avoids the "thermal bottleneck"** (a consequence of 2nd law of thermodynamics) and are thus inherently **more efficient than combustion engines,** which must first convert chemical potential energy into heat, and then mechanical energy.
  - » Hydrogen is **high in energy**.
  - » Fuel cells **don't have any moving part** and thus are more reliable than traditional engines.
  - » **No pollution** (Only steam (H_2O) emitted as by product)
  - » **No Greenhouse gas and Climate Change** (since no GHG are produced as biproducts)
  - » **Ends dependency of Li-Ion batteries** (Please note for Lithium we are almost completely import dependent)
- **Limitation**
  - » Complex and difficult to build
  - » Still mostly in research phase
  - » Extracting hydrogen is difficult and expensive - **catalyst used is Platinum-** which is very expensive.

2) FUEL-CELL ELECTRIC VEHICLES (FCEVS)

- FCEV combine hydrogen and oxygen to produce electricity which runs the motor.
  - E.gs of cars using FCEV: Toyota's Mirai, Honda's Clarity, and Hyundai's Nexo.

- Since they are powered entirely by electricity, FCEVs are considered EVs, but unlike BEVs, their range and refueling processes are comparable to conventional cars and trucks.
  - ▪ The **major difference** between a BEV and a refueling time of just five minutes, compared to 30-45 mins charging for a BEV.
  - ▪ Also, consumers get five times better energy storage per unit volume and weight, which frees up a lot of space for other things, while allowing the rider to go farther.

- India's first indigenously developed **Hydrogen Fuel Cell (HFC)** technology bus was unveiled in Aug 2023, with the fuel cell - which uses hydrogen and air to generate electricity onboard to power the bus - being developed jointly by CSIR and Pune based automotive software company KPIT Ltd (Aug 2023)

3) TYPES OF ELECTRIC VEHICLES: EV/BEV, HEV, PHEV, FCEV

- **Electric Vehicles:** The standard EV is also known as **Battery powered EV (BEV):**

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- They don't have an internal combustion engine and instead of an petrol/diesel, these vehicles run solely on battery power. These can be charged at home or commercial charging stations.

- **Hybrid Electric Vehicles (HEVs)**: They run on both Internal Combustion Engines and electric motor that uses energy stored in a battery. However, unlike other Evs, HEV cars battery is charged by regenerative braking.
  - **Micro (or mild) Hybrid** uses both battery and electric motor to make the car run. Though they can't run solely on electric power, they maximize fuel economy by shutting off the internal combustion engine during complete stops.
- **Plug-in Hybrid Electric Vehicles (PHEV)**: They expand the concept of HEVs. They have both an internal combustion engine and a battery powered electric motor. This allows the battery to store enough power to feed the electric motor and in turn decrease the gas usage by as much as 60%. They can travel around 60 kms on electric power, rather than 2-3 kms with a standard HEVs.
- **FCEV**: already discussed above.

4) HYDROGEN ENERGY

- **Hydrogen Energy** is a clean and efficient form of energy derived from Hydrogen (H_2). It has the potential to replace fossil fuels.
  - » Hydrogen can be produced from variety of sources including water, natural gas, and biomass.
  - » There are two main **ways to produce Hydrogen**:
    1. **Steam Reforming**: This process uses heat and steam to break down natural gas into hydrogen and carbon mono-oxide.
    2. **Electrolysis**: This process uses electricity to split water molecules into hydrogen and oxygen.
  - » **Cost of producing hydrogen** varies depending on the various methods used.

- It can be used in **two primary ways**:
  - » **Direct Burning** to produce heat and water
  - » **Fuel Cell Route** to directly produce electricity.

- **Advantages of Hydrogen Fuel:**
  - » **Abundance**: It is the most abundant element in the Universe.
  - » **Energy Density** -> High
  - » **Can contribute in achieving Net Zero by 2050**
  - » **No Pollution** (only releases water)
  - » **Leading options for storing energy from renewables**
  - » **Advantages of Hydrogen Vehicles (Fuel cell Stack)** over other **Electric Vehicles (Lithium-ion batteries))**
    - A fuel cell electric vehicle can be **refueled in just 5 minutes**. EV takes 30-45 minutes for charging.
    - **Energy storage per unit volume and weight is higher** in fuel cells than other types of electric vehicles.
    - **EV battery materials are controlled by a few larger players**. Scaled up hydrogen fuel cell will bring countries on equal footing.
    - **EV batteries** (like Lithium ion batteries) have still not been found viable for **heavy vehicles like trucks**.

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- **Some limitations of Hydrogen fuel**
    - » **Hydrogen** molecule is not available in abundance on earth and is found in combination with other elements.
    - » Hydrogen technology is "**yet to be scaled up**". Tesla CEO Elon Musk has called fuel cell technology "mind-bogglingly stupid".
    - » **Lack of fueling station infrastructure**
        - There are fewer than 500 operational hydrogen stations in the world today, mostly in Europe.
    - » **Safety is a concern**
        - Hydrogen is pressurized and stored in a cryogenic engine. Some companies like Toyota and Hyundai have said that safety and reliability of hydrogen fuel tanks is similar to that of standard CNG engines.

A) NOTE: VARIOUS TYPES OF HYDROGEN:

- The most common element in nature is not found freely. It exists only combined with other elements, and has to be extracted from naturally occurring compounds like water (which is a combination of two hydrogen atoms and one oxygen atom). This process is energy intensive.
    - **Grey Hydrogen**
        - Hydrogen produced from fossil fuels. This constitutes a bulk of hydrogen produced today.
    - **Blue Hydrogen**
        - Hydrogen generated from fossil fuels with carbon capture and storage options
    - **Green Hydrogen**
        - Hydrogen generated entirely from renewable power sources. Here electricity generated from renewable energy is used to split water into hydrogen and oxygen.
        - For e.g. a IIT-Madras team generated hydrogen from seawater using solar energy. (June 2023)

5) NATIONAL HYDROGEN MISSION

- **Ministry:** MNRE
- With a vision to make India an energy independent nation, and to decarbonize critical sectors, the Government approved National Green Hydrogen Mission on Jan 4, 2023 with an initial outlay **of Rs 19744 crores** upto 2029-30.

- The mission will facilitate demand creation, production, utilization, and export of Green Hydrogen and mobilization of Rs 8 lakh crores of investment by 2030.

- **Likely Outcomes by 2030**:
    1. **Green Hydrogen Production Capacity** of at least **5 MMT (Million Metric Tonne) per annum**.
    2. **Reduction in fossil fuel imports** by over Rs 1 lakh crores and creation of over 6 lakh jobs.
    3. **Renewable Energy Capacity Addition** of about 125 GW and abatement of nearly **50 MMT of annual GHG emissions**.

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- **Interventions**:
    1. Under the **Strategic Interventions of Green Hydrogen Transition (SIGHT) Program**, two distinct financial incentive mechanisms - targeting domestic manufacturing of electrolyzers and production of Green Hydrogen - will be provided under the mission.
    2. **Regions capable of supporting large scale** production and/or utilization of hydrogen to be developed as **Green Hydrogen Hubs**.

- **Policy Framework**:
    1. **Development of an enabling policy framework** to support establishment of Green Hydrogen Ecosystem.
    2. **Robust Standards and Regulations Framework**
    3. **Public Private Partnership framework** for R&D (**Strategic Hydrogen Innovation Partnership - SHIP)** will also be facilitated under the mission.
    4. **Skill Development Program**

- **Several Pilot Projects** by PSUs like OIL, NTPC etc. have been initiated for the production of Green Hydrogen.

6) GOVERNMENT UNVEILS GREEN HYDROGEN STANDARDS (AUG 2023)

- It outlines the **emission threshold for production of hydrogen** that can be classified as 'green'.
    - » Well-to-gate emission of not more than 2 kg CO_2 for per Kg H_2.
        - The well-to-gate emission include water treatment, electrolysis, gas purification, drying and compression of Hydrogen.
        - The scope of the definition encompasses both electrolysis based and biomass-based hydrogen production methods.
    - » A detailed methodology of measurement, reporting, monitoring, on-site verification and certification of green hydrogen and its derivatives will be specified by the Ministry of new and renewable energy.
    - » Bureau of Energy Efficiency (BEE) under the MoP will be the nodal authority for accreditation of agencies for the monitoring, verification, and certification of green hydrogen production projects.
- **Significance**:
    - » The definition of green hydrogen brings a lot of clarity to the mission of making India a global green hydrogen hub.

7) ELECTROLYSERS

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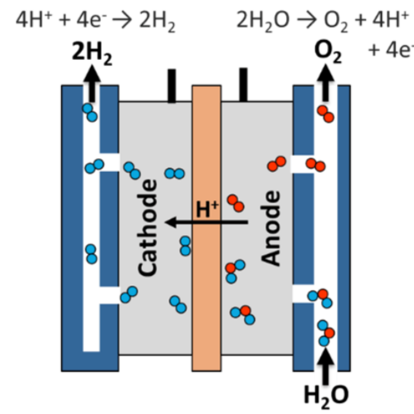
- Electrolysers are a critical technology for the production of low-emission hydrogen from renewable or nuclear electricity.
    » **Note:** Electrolysis is the process of using electricity to split water into hydrogen and oxygen. This reaction takes place in a unit called an Electrolysers.



- **How does it work?**
    » Like fuel cells, Electrolysers consist of an anode and a cathode separated by electrolyte. Different electrolyzers function in different ways, mainly due to the different type of electrolyte material involved in the iconic species it conducts.

- **The cost of electrolyzers and electricity** (fuel) make up the largest share of the production cost, and thus developing more efficient electrolyzers will give a major boost to green hydrogen generation in India.

8) HYDROGEN CNG (H-CNG)

- In Sep 2020, MoRT&H has notified hydrogen-enriched compressed natural gas (CNG) as an automobile fuel.
- In Oct 2020, **Delhi became the first city in India to operate buses running on hydrogen spiked compressed natural gas (H-CNG)** in a six month pilot project.
    - The buses are running on a new technology patented by Indian Oil Cooperation for producing **H-CNG - 18% hydrogen in CNG - directly from natural gas** without resorting to conventional blending.

- **What is H-CNG?**
    - It is a hydrogen enriched compressed natural gas. The ideal hydrogen concentration is 18%.
        - In **Delhi**, instead of physically blending hydrogen with CNG, hydrogen spiked CNG will be produced using a compact reforming process patented by IOC.

- **Advantages of H-CNG** over CNG
    - **Less Air Pollution**
        - Emits 70% less CO;
        - Reduces total hydrocarbons emissions by around 15% and increases fuel efficiency by 3-4%.
    - **Increases fuel efficiency**
    - **Higher power output**
- **Updates in Sep 2021**
    - **CNG to HCNG model 'Capital intensive'**; Delhi government unlikely to scale up pilot project.

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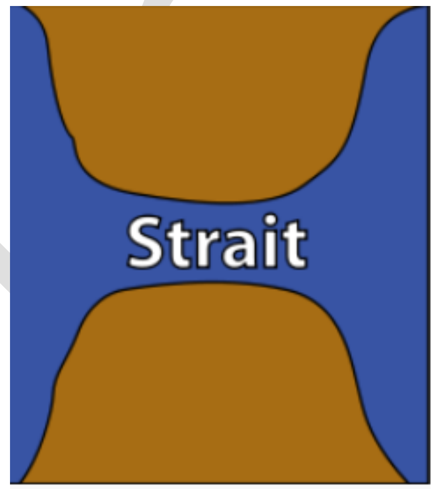
TARGET PRELIMS 2024
BOOKLET-29
INTERNATIONAL MAPPING AND PLACES IN NEWS-1
AUSTRALIA, ASIA AND EUROPE

Table of Contents

1) BASICS

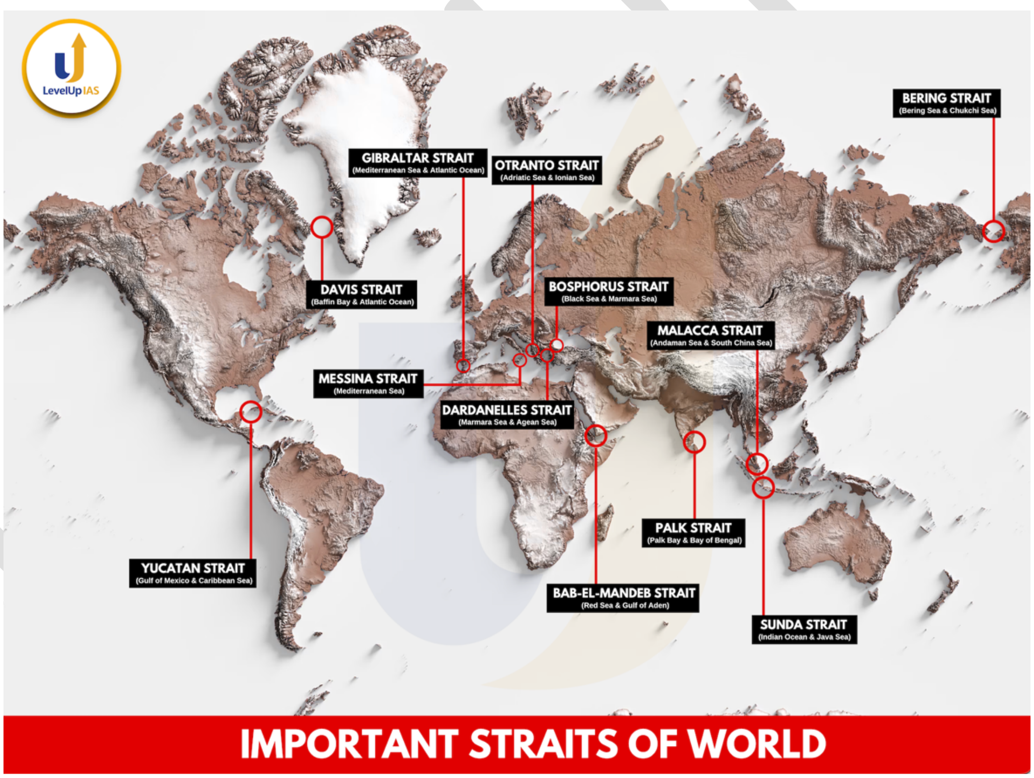
A) STRAIT

- A strait is a <u>naturally formed, narrow, typically navigable</u> **<u>waterway that connects two larger bodies of water</u>**. Most commonly, it is a channel of water bodies that lies <u>between two large land masses</u>.



Diagrammatic map of a strait

- **Important Straits of the world:**
  » Berring Strait (Berring Sea and Chuksi Sea)
  » Malacca Strait (joins Andaman Sea and South China Sea)
  » Sunda Strait (Java Sea and Indian Ocean)
  » Palk Strait (Joins Palk Bay and Bay of Bengal)
  » Bosporous Strait (Black Sea and Marmara Sea)
  » Bab-el-Mandeb Strait (Red Sea and Gulf of Aden)
  » Dardenleez Strait (Marmara Sea and Agean Sea)
  » Yucatan strait (Gulf of Mexico and Caribbean Sea)
  » Mesina Strait (Mediterranean sea)
  » Otranto Strait (Adriatic Sea - Ionian Sea)
  » Davis Strait (Baffin Bay & Atlantic Ocean)



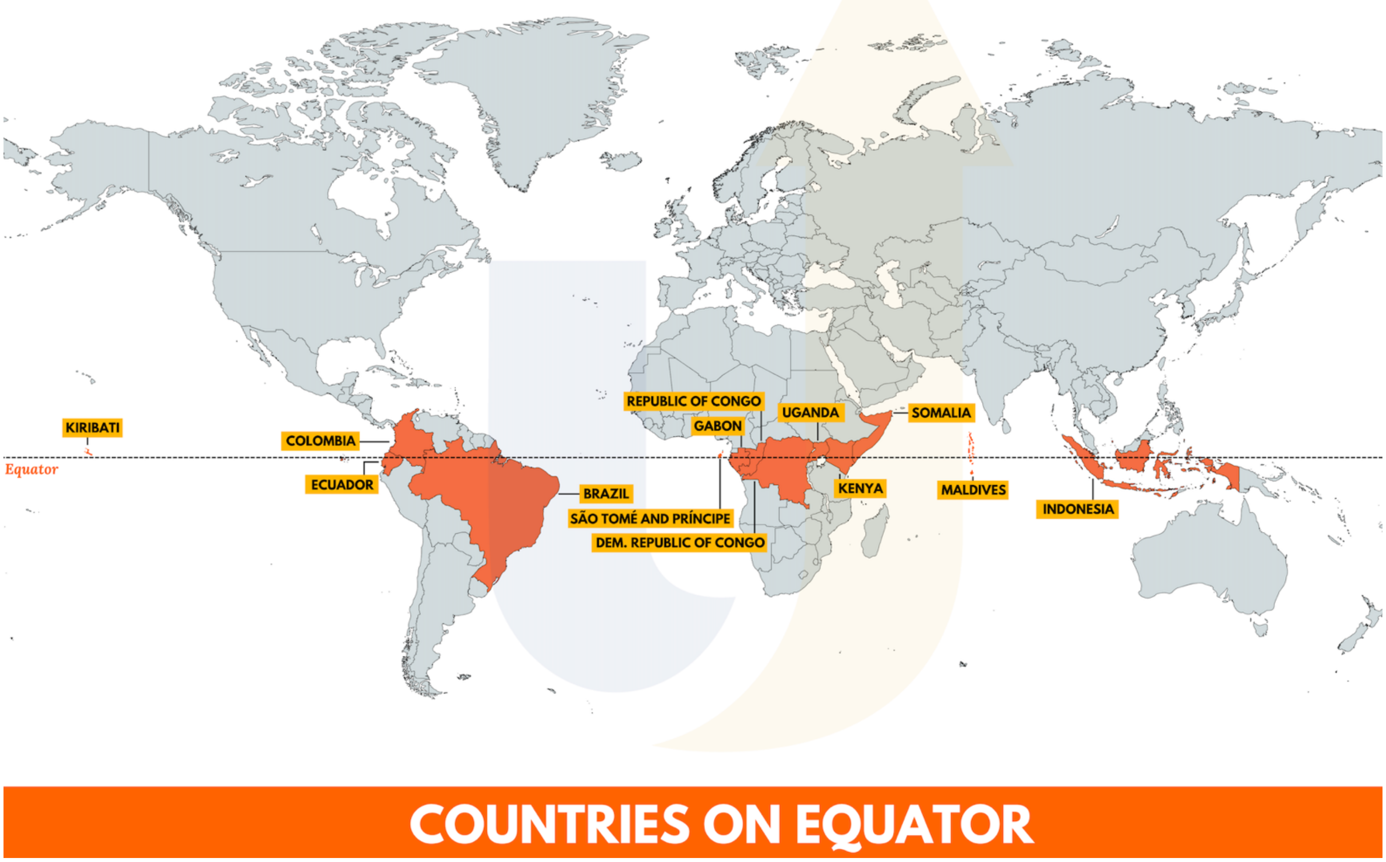
B) ISTHMUS

- It is a narrow strip of land that connects two larger landmasses and separate two bodies of water.
  - » **Isthmus of Panama** links continent of North and South America and separates Atlantic Ocean and Pacific Ocean.
  - » **Isthmus of Suez** in eastern Egypt connects the continents of Africa and Asia and separates Mediterranean and Red Sea

2) COUNTRIES THROUGH WHICH EQUATOR PASSES

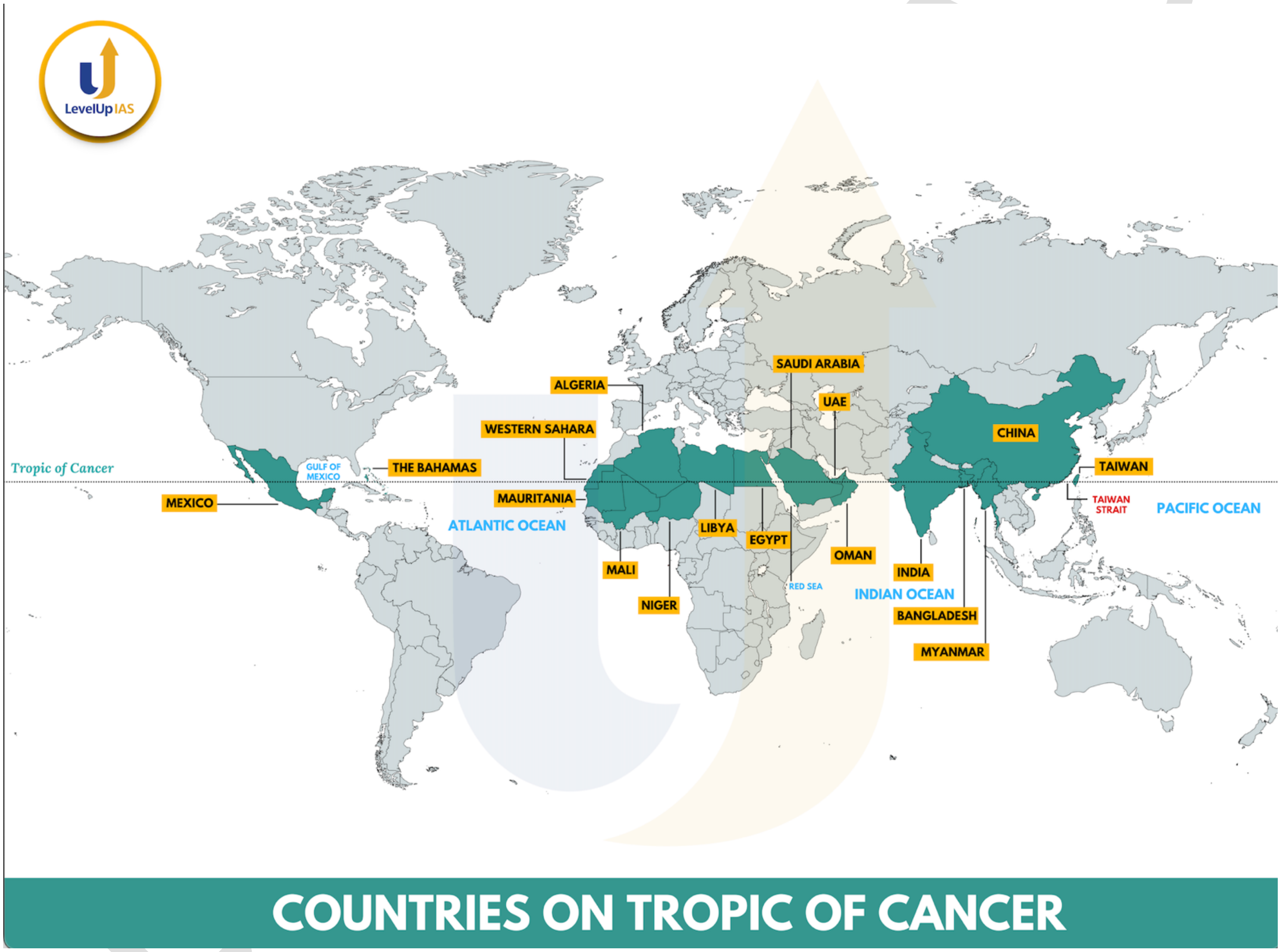
13 countries:

- **South America (3):** Ecuador, Colombia, Brazil.
- **Africa (7):** Sao Tome and Principe, Gabon, Republic of Congo, DRC, Uganda, Kenya, Somalia.
- **Asia (2):** Maldives, Indonesia
- **Central Pacific Ocean (1):** Kiribati



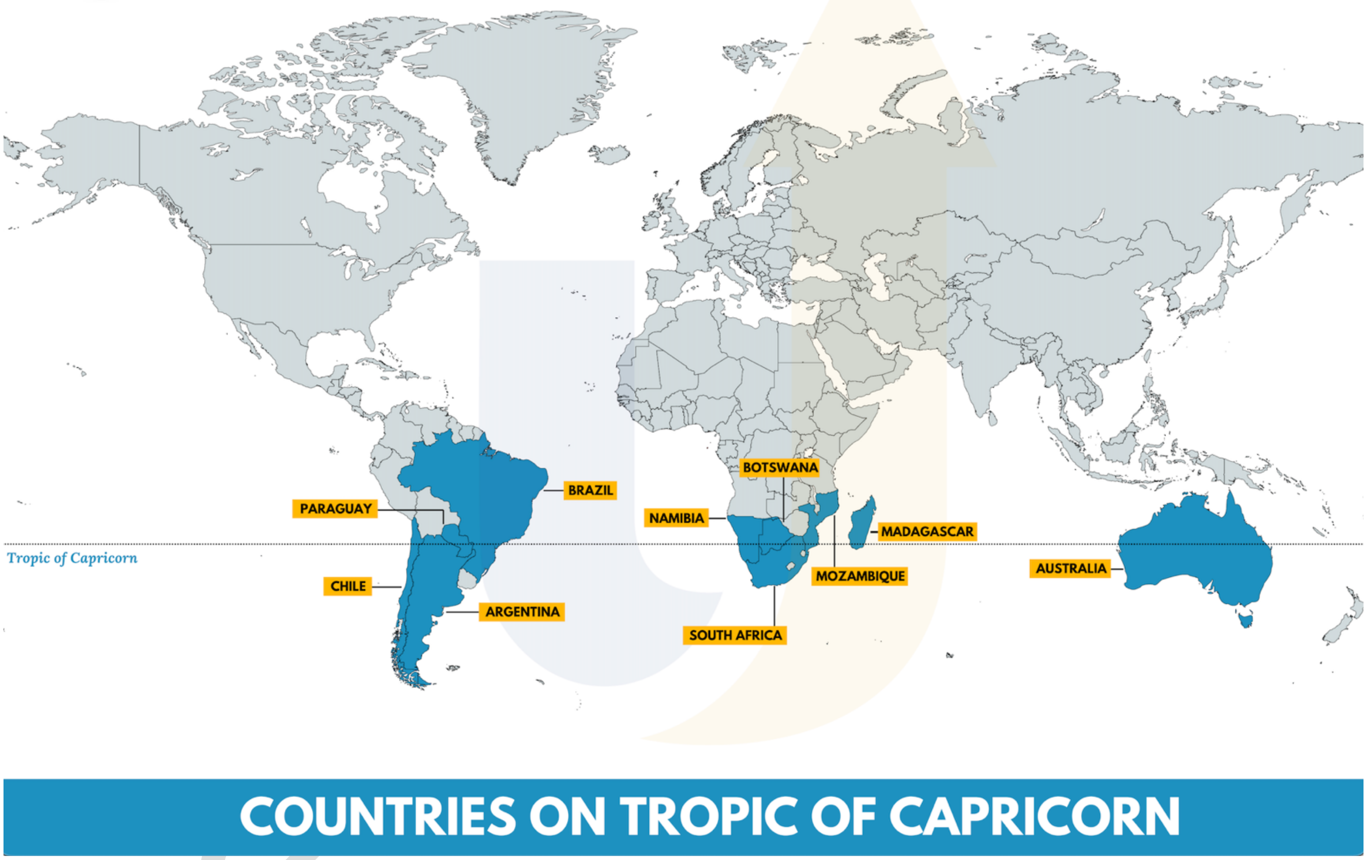
3) TROPIC OF CANCER COUNTRIES

- **17 countries:**
    - **North America (2): Mexico, Bahamas (Archipelago)**
    - **Africa (7): Western Sahara, Mauritania, Mali, Algeria, Niger, Libya, Egypt**
    - **Asia (8): Saudi Arabia, UAE, Oman, India, Bangladesh, Myanmar, China, Taiwan.**
    - **Water Bodies**: Gulf of Mexico, Atlantic Ocean, Red Sea, Indian Ocean, Taiwan Strait, Pacific Ocean



4) TROPIC OF CAPRICON COUNTRIES

South America	Chile, Argentina, Paraguay and Brazil
Africa	Namibia, Botswana, South Africa, Mozambique, Madagascar
Australia	Australia

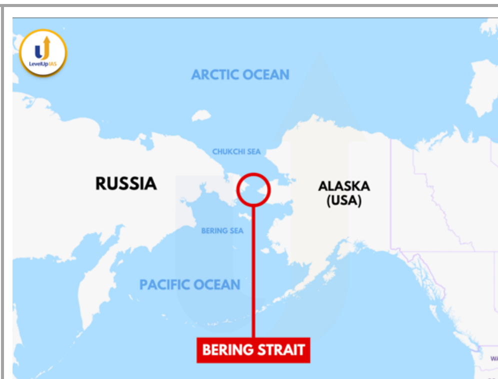


5) BERRING STRAIT

Location: Between Russia and Alaska (USA); Only marine gateway between icy Arctic and the Pacific Ocean. It joins Arctic ocean and Berring sea.

At its narrowest point the strait is only 55 miles wide.

Biodiversity: Though the strait is narrow, it is teaming with wildlife - Beluga whales, bowhead whales, walruses, polar bears, ringed and ribbon seals etc.



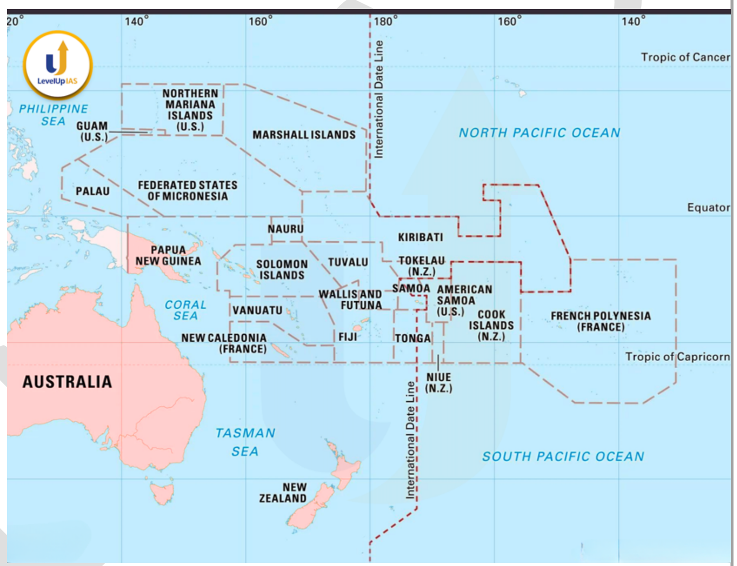
Wildlife Migration: Each spring, one of the largest wildlife migrations on earth passes through this narrow gateway to reach the Arctic's incredibly nutrient-rich and productive waters.	**Humans reaching north America:** Scientists studying land masses and climate know that the Pleistocene Ice Age, created a land bridge which allowed humans to reach Americas for the first time. This happened around 13,000 years ago

6) OCEANIA

Oceania collectively refers to the islands scattered throughout most of the Pacific Ocean.

In its **widest sense** it covers entire region between Asia and Americas.

In its **most restricted meaning**, it includes more than 10,000 islands, with a total land area (excluding Australia, but including Papua New Guinea and New Zealand) of approx. 822,800 sq km.

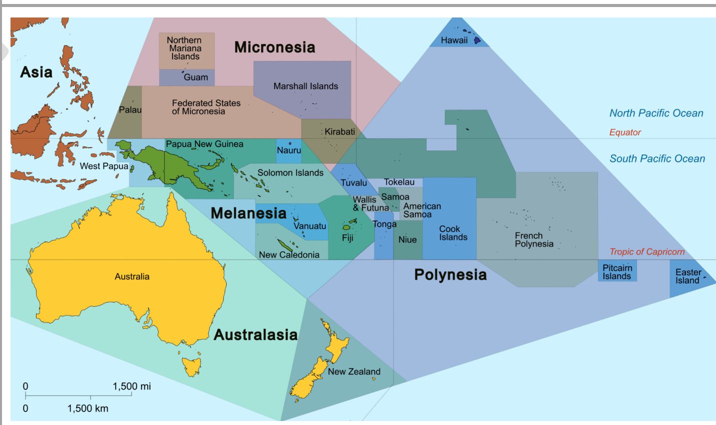


Oceania is traditionally divided into **four parts: Australasia** (Australia and New Zealand); **Melanasia**, **Micronesia**, and **Polynesia**.

Australasia: The term literally means "south of Asia" referring to all land that lies to the south of mainland Asia in its widest sense. However, its definition has evolved over the years and in its strictest sense include **Australia, New Zealand, and islands neighbouring these two countries** in the Pacific Ocean.

Melanasia: It includes Island of New Guinea and Island nation of Fiji, and the area in between the two islands. It thus includes area north and north east of Australia from the Arafura Sea to Fiji.

Micronesia: It is located in western Pacific ocean. It features thousands of islands. Five independent



nations (Kiribati, Marshal Islands, Palau, Nauru, and Federated State of Micronesia) and three US territories are part of Micronesia. The regions shares cultural heritage with Polynesia and Melanasia. **Polynesia**: It consist of over thousand islands in the central and southern part of the Pacific ocean. It is bounded by Hawaii to the north, Easter Island to the southeast and New Zealand to southwest. **Note:** As recently as 33,000 years ago no human beings lived in the region, except in Australasia.	

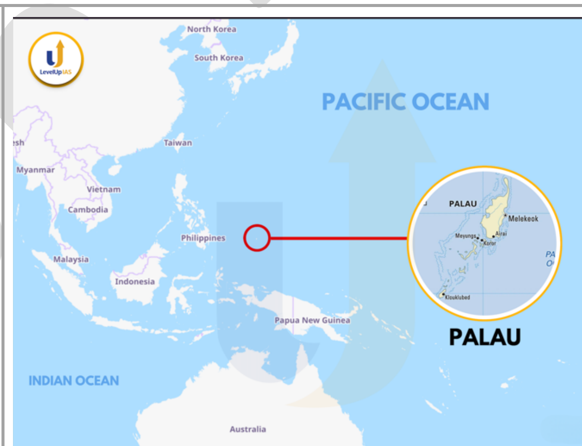
7) PALAU

Officially known as Republic of Palau, it is an **island country** located in the western Pacific Ocean.

The country has **more than 300 islands** and connects the western chain of the Caroline islands with parts of the Federated States of Micronesia.

Neighbours:
International Waters (North); Micronesia (East); Indonesia (South) and Phillipines (West)

Its territory consists an archipelago located in the Pacific Ocean.

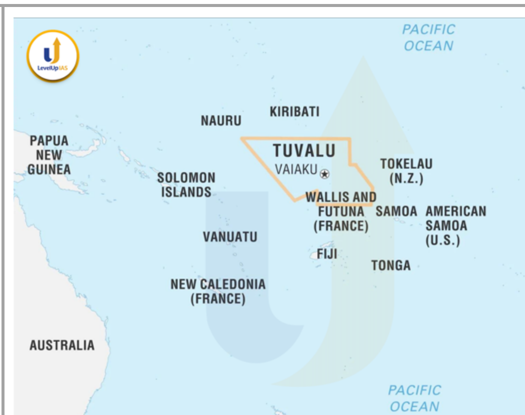


8) TUVALU

Tuvalu is a country in **West Central-Pacific Ocean**. It is composed of 9 coral islands scattered in chain lying approximately northwest to southeast.
History: Together with what is now Kiribati (formerly the Gilbert Islands), Tuvalu formed the British Gilbert and Ellice Islands Colony before separately gaining its independence in 1978.

De facto capital: **Vaiaku**. This is where most of the government offices are located.
Geography:

- The islands are low-lying, most being 13 to 16 feet above sea level.



- **No Rivers**: Rain catchment and wells are sources of fresh water.

Recent Developments: Australia Offers Climate Refuge to Tuvalu Citizens (Nov 2023)

- A new **treaty** - known as **the Australia-Tuvalu Falepili Union Treaty** - is the most significant agreement between Australia and Tuvalu.
    - It promises Australian assistance to the nation on **climate action** and **security**.
    - Under this Australia will provide **migration pathways** for people from Tuvalu facing the existential threat of climate change. It is the world's first bilateral agreement on climate mobility.
    - Under the treaty, Australia will implement **special visa agreement** to allow Tuvaluans to work, study and live in Australia. This is not a refugee visa, but rather will allow upto 280 Tuvaluans (from a population of around 11,200) to migrate to Australia each year - presumably on a permanent basis. This will provide people with both legal and psychological security.

9) NEW CALEDONIA

Details:

New Caledonia is a French territory comprising dozens of islands in the South Pacific. It was colonized by Napoleon's nephew in the 19th century.

It's known for its palm-lined beaches and marine-life-rich lagoon, which, at 24,000-sq.-km, is among the world's largest.

It also hosts a French Military base.

A massive barrier reef surrounds the main island, **Grand Terre**, a major scuba-diving destination.

The archipelago is located east of Australia, north of New Zealand, south of the Equator, and just west of Fiji and Vanuatu

Referendum (2021)

Voters in the French Island territory of New Caledonia chose overwhelmingly to stay part of France, in a referendum boycotted by pro-independence forces and closely watched around the south pacific.

10) TORRES STRAIT

The Torres Strait is a strait **between Australia and the Melanesian island of New Guinea**.

To the <u>**South** is the **Cape York** peninsula</u>, the northernmost extremity of the Australian mainland. To the <u>north</u> is the western province of Papua new Guinea.
It is named after the <u>Spanish navigator **Luis Vaz de Torres**</u>, who sailed through the strait in 1606.

The Torres Strait joins <u>Arafura Sea</u> and <u>Gulf of Papua</u>.

11) COOK STRAIT

Cook Strait separates, <u>northern and southern islands of New Zealand</u>, extending northwest to southeast from the **Tasman Sea** to the **South Pacific Ocean**.

In 1642 the <u>Dutch navigator **Abel Tasman**</u> entered the western end of the strait and believed it to be a bay. <u>Captain James Cook</u> discovered its true nature as a strait in 1770.

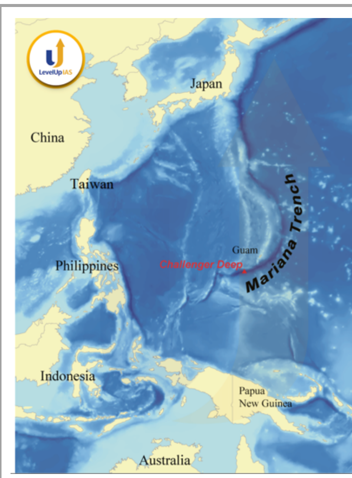
12) MARIANA TRENCH

The Mariana Trench or Marianas Trench is <u>located in the western Pacific Ocean about 200 kilometres east of the Mariana Islands</u>; it is <u>the **deepest oceanic trench on Earth**</u>.

It is <u>crescent-shaped and measures about 2,550 km</u> in length and 69 km in width.

What is trench?

Trenches are <u>long, narrow depressions on the seafloor that form at the boundary of tectonic plates where one plate is pushed, or subducts, beneath another</u>



13) EAST ASIA – SUMMARY OF WATER BODIES

14) KAMCHATKA PENINSULA

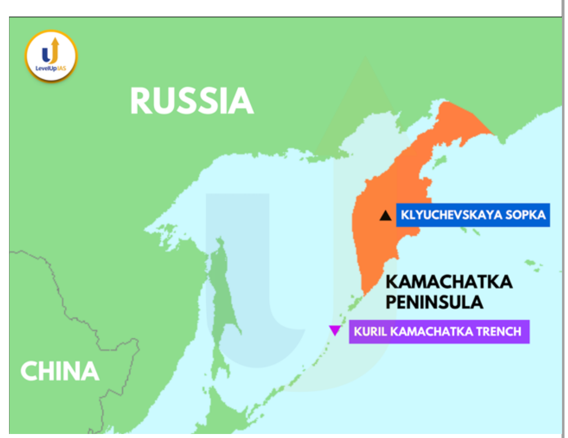
Kamchatka peninsula is a peninsula in the Russian Far East, with an area of about 2.7 lakh km^2. It is sparsely populated.

The Pacific Ocean and the Sea of Okhotsk make up the peninsula's eastern and western coastlines, respectively.

The peninsula is noted for its array of active and dormant volcano, geysers and geothermal springs.

Immediately offshore along the Pacific coast of the peninsula runs the 10,500 meter deep Kuril-Kamchatka Trench.

Biodiversity Disaster in 2020: Many dead sea creatures (Octopus, Seals, and other sea creatures) **have washed up on beaches in**



Kamchatka, in Russia's far east, in what is being treated as a **major marine pollution incident**. Initial analysis detected oil products and phenol in the water.	

15) KLYUCHEVSKAYA SOPKA VOLCANO:

It is the **tallest volcano of Eurasia** and is located on Kamchatka Peninsula. It is a stratovolcano with a height of 4,650 m.
It has been active in recent years and have released lava in June 2023. It also erupted in Nov 2023 and sent ash as high as 13 kms above sea level.

16) KURIL KAMCHATKA TRENCH:

It is an oceanic trench that lies off the **southeast coast** **of Kamchatka and parallels Kuril Island chain to meet the Japan Trench east of Hokkaido**.

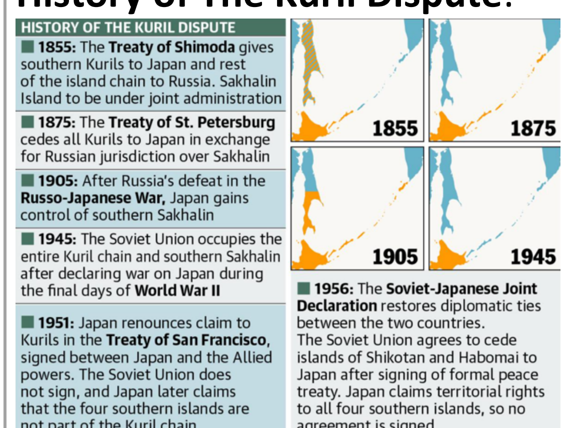
Detail: What is **Oceanic Trench?**
» Oceanic trenches are long, narrow, depressions on the seafloor. These chasms are the deepest parts of the ocean - and some of the deepest natural spots on Earth.
» **Oceanic trenches** are features of the **Earth's distinctive plate tectonics**. They mark the **location of convergent plate boundaries,** along which lithospheric plates move towards each other.

17) KURIL ISLANDS

Why in news?
- Russian President Vladimir Putin says that he plans to visit the Kurils and would consider building up the travel sector there (Jan 2024)
- **Reason**: Ukraine War: Territorial rows have long been a problem between the two countries. Japan's support for Ukraine is just another reason for Russia to challenge Japan which it calls an 'unfriendly state'.

About Kuril Islands:
- Kuril Islands (archipelago) extends for 12,00 km from the southern tip of Kamchatka Peninsula to the north eastern corner of Hokkaido island (Japan) and separates Sea of Okhotsk from the Pacific Ocean. There are more than 50 islands in this archipelago.
- **Disputed**: Both Russia and Japan claim sovereignty over them, though the island have been under Russian control

History of The Kuril Dispute:

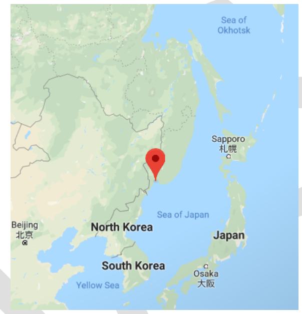


since the end of WW-2. Tokyo says that the disputed islands have been part of Japan since the early 19th century.	

18) VLADIVOSTOK

It is a city and the administrative centre of the **Far Eastern Federal District** and **Primorsky Krai, Russia**, located on the **Golden horn bay**, not far from Russia's borders with China and North Korea.

The city is **home to Russian Pacific Fleet** and is the largest Russian Port on the pacific coast.



19) JAPAN

It is an island country in East Asia. It is located in north-west Pacific Ocean and is bordered on the west by Sea of Japan in the north-east by Sea of Okhotsk and in the south and South-west by East China sea.

Nearly the entire land area is taken up by the country's **four main islands;** from north to south these are **Hokkaido, Honshu**, **Shikoku**, and **Kyushu**.

Honshu is the largest of the four islands. National Capital **Tokyo** is also located in east-central Honshu.

Mt Fuji (12,388 feet, 3,776 metres), is Japans' highest mountain and also located on Honshu island.

Important Straits: Korea Strait, Tsushima Strait; Tsugaru Strait

Note: The island of Tsushima defines Korean Strait on the Korea side and the Tsushima Strait on the Japanese side.

Important Islands:

Kuril Islands (Occupied by Russia since 1945, claimed by Japan)

Tok Islands (Take Islands) - Occupied by South Korea; claimed by Japan)

Senkaku Island (disputed by China and Japan):

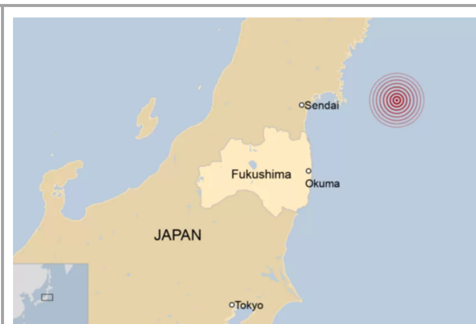
It is called Senkaku by Japan; *Diaoyu in* China *and* Tiaoyutai (in Taiwan)

It is a ground of uninhabited islands in the East China Sea, administered by Japan.

20) FUKUSHIMA

The Fukushima Daiichi Nuclear Power Plant is in the town of Okuma, in Fukushima Prefecture. It sits on the country's east coast, about 220 km (137 miles) north-east of the Capital Tokyo.

What happened at Fukushima?
In March 2011, after an earthquake of magnitude 9, a tsunami flooded the Fukushima Daiichi nuclear power plant in **Okuma** and damaged its **diesel generator**. The loss of power suspended coolant supply to reactors at the facility; the tsunami also disabled the backup system. This led to radioactive material leaking from the reactor pressure vessels, exploded in facility's upper levels, and exposed themselves to the ambient air, water, soil, and local population. Since then, the powerplant and the surrounding land have been uninhabitable.



21) SEA OF JAPAN

It is a marginal sea of the West Pacific Ocean. It is partially enclosed by Islands, archipelagos or peninsulas.
Land Boundaries: Boundaries:

It is bound by Russia north; North Korea in the West, South Korea in South West and by the Japanese Archipelago (Hokkaido island, Honshu Island, and Kyushu Island) in the east and South.

News (July 2023)
China and Russia have started joint air and sea drill in Sea of Japan. Codenamed "**Northern/Interaction - 2023"**, the drill marks enhanced military cooperation between China and Russia since Moscow's invasion of Ukraine and is taking place as Beijing continues to rebuff U.S. calls to resume military communication.

22) EAST CHINA SEA

The East China Sea is an arm of the Pacific Ocean.

It is bounded on the east by Kyushu and the Ryukyu Islands of Japan, on the south by the South China Sea, and on the west by the Asian continent.

It connects with the Sea of Japan through the **Korea Strait**; it opens in the north to the Yellow Sea

23) TAIWAN AND TAIWAN STRAIT

Taiwan, officially the Republic of China, is a country in East Asia.

It shares **maritime borders** with the People's Republic of China to the northwest, Japan to the northeast, and the Philippines to the south.

The **bilateral relations between India and Taiwan** have improved since the 1990s, despite both nations not maintaining official diplomatic relations.

India recognises only the People's Republic of China (in mainland China) and not the Republic of China's claims of being the legitimate government of Mainland China, Hong Kong, and Macau - a conflict that emerged after the Chinese Civil War (1945–49).

However, India's economic and commercial links as well as people-to-people contacts with Taiwan have expanded in recent years. China want to bring Taiwan under one country two system (like Hong Kong and Macau).

Taiwan Strait:
The Taiwan Strait is a 180-kilometer-wide strait separating the island of Taiwan and continental Asia.

The strait is part of the South China Sea and connects to the East China Sea to the north.

The narrowest part is 130 km wide.

Earlier, Taiwan strait was also called **Farmosa Strait** or Strait of Farmosa.

24) SOUTH CHINA SEA

The South China Sea is a marginal sea of the Western Pacific Ocean.

It is bounded in the north by the shores of South China (hence the name), in the **west** by the Indochinese Peninsula, in the east by the islands of Taiwan and Northwestern Philippines (mainly Luzon, Mindoro and Palawan), and in the south by Borneo, eastern Sumatra and the Bangka Belitung Islands, encompassing an area of around 3,500,000 km2 (1,400,000 sq. mi).

It **communicates with the East China Sea** via the Taiwan Strait, the **Philippine Sea** via the **Luzon Strait**, the Sulu Sea via the straits around Palawan (e.g. the Mindoro and Balabac Strait), the Strait of Malacca via the Strait of Singapore, and the Java Sea via the Karimata and Bangka Strait.

The **Gulf of Thailand and the Gulf of Tonkin** are also part of the South China Sea.

Triton Island:
It is one of the major islands in the Parcel group, which is roughly equidistant from the coast of Vietnam and China's island province of Hainan.

The shallow waters south of the Riau Islands are also known as the **Natuna Sea**.

The **South China Sea disputes** involve both island and maritime claims by several sovereign states within the region, namely Brunei, the People's Republic of China (PRC), Taiwan (Republic of China/ROC), Indonesia, Malaysia, the Philippines, and Vietnam

It is **claimed by** China, Vietnam and Taiwan.

News: Aug 2023 - China appears to be constructing an airstrip on the disputed South China Sea.

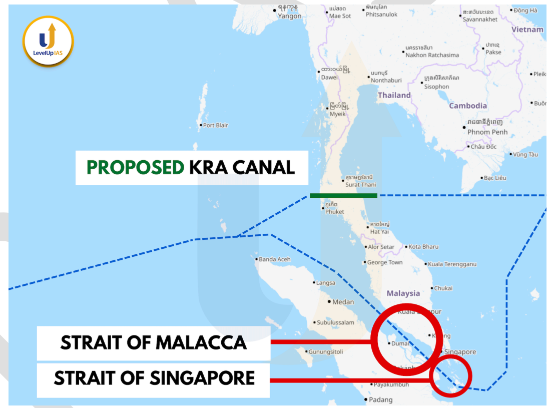
25) MALACCA STRAIT AND SINGAPORE STRAIT

MALACCA STRAIT:
It is a waterway connecting the **Andaman Sea (Indian Ocean) and South China Sea** (Pacific Ocean). It runs between the Indonesian Island of Sumatra to the west and peninsular (west) Malaysia and extreme southern Thailand to the east.

It is funnel shaped strait with width of only 40 miles in the south and that broadens northward to some 155 miles (250 km).

As the link between the Indian Ocean and South China Sea, the strait of Malacca is the shortest route between India and China and hence is **one of the most heavily travelled shipping channels** in the world.

Singapore, of the world's most important ports, is situated at the strait's southern end.



Singapore Strait: It lies between strait of Malacca in the west and the South China Sea in east. Singapore is on the north of the channel, and the Indonesian Riau Islands are on the south. The two countries share maritime border along the strait.

26) CHINA

People's republic of China is a country in East Asia. It is the second most populous country in the world.

Neighbouring Countries: China borders **13 countries by land**: North Korea, Russia, Mongolia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, India, Nepal, Bhutan, Myanmar, Laos and Vietnam.

Note: China doesn't have borders with Pakistan. Though currently, both Pakistan and China have illegally occupied Aksai Chin and thus have a working border.

It is also the 4th largest country in the world (note - some sources also mention it as the 3rd largest country). **Rivers**: Yangtze (third longest in the world) and the Yellow Rivers are the most important rivers of China.	**Gobi Desert** runs west to east along the border with Mongolia. **Important Sea:** China is also bound by Yellow Sea and East China Sea in the east and South China Sea in the southeast.

27) GOBI DESERT

The giant Gobi Desert in Asia, stretches across parts of China and Mongolia. It is the **sixth largest** desert in the world after Antarctic Desert, Arctic Desert, Sahara Desert, Great Australian Desert, and Arabian Desert.

The Gobi desert is **expanding through desertification**, most rapidly on the southern edge into China. It is mostly attributed to human activities, locally driven by deforestation, overgrazing, and depletion of water resources, as well as to climate change.

China's the Three North Shelter Forest Program (or **"Green Great Wall"**) is an initiative of China that began in 1978 and is set to continue through 2050.

28) IMP RIVERS OF CHINA: YELLOW RIVER (HUANG HE); YANGTZE RIVER; PEARL RIVER

Yellow River (Huang He)
It is the second-longest river in China, after the Yangtze River.

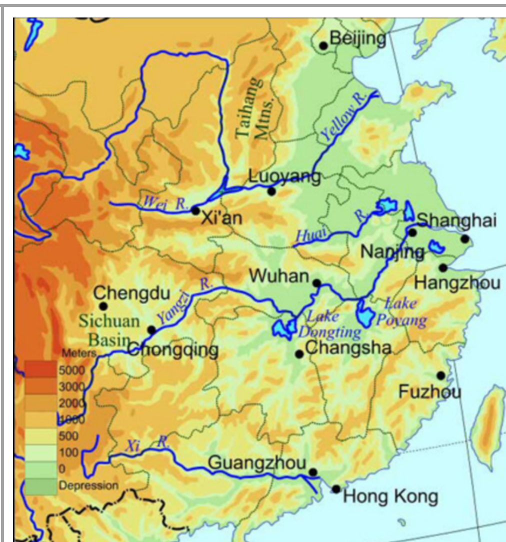
It **originates** in the Qinghat province of Western China and empties in Bohai Sea (Northwestern and innermost extension of the Yellow Sea, to which connects the Bohai strait)

Yangtze River:
It is the longest river in Asia, (the third longest in the world and the longest in the world to flow entirely within one country).

It originates at Jari Hill in the Tanggula Mountains (Tibetan Plateau) and flows 6,300 km in generally eastern direction to reach **east China Sea**.

The three Gorges Dam on the Yangtze river is the largest hydro-electric power station in the world.

Pearl River:
The Pearl River is an extensive river system in southern China.



It is the third-longest river of China, after the Yangtze River and the Yellow River

It also drains in the northern parts of Vietnam.

The name "Pearl River" is also often used as a catch-all for the watersheds of the Xi ("West"), Bei ("North"), and Dong ("East") rivers of Guangdong.

The Pearl River Delta is **notoriously polluted with sewage and industrial waste treatment** facilities failing to keep pace with the growth in population and industry in the area. A large portion of the pollution is brought about by factories run by Hong Kong manufacturers in the area

29) MEKONG RIVER

The Mekong is a trans-boundary river in East Asia and Southeast Asia.

It is the world's twelfth longest river and the sixth longest in Asia.

Its estimated length is 4,909 km and it drains an area of 795,000 km2

From the Tibetan Plateau the river runs through China, Myanmar, Laos, Thailand, Cambodia, and Vietnam.

The extreme seasonal variations in flow and the presence of rapids and waterfalls in the Mekong make **navigation difficult**. Even so, the river is a major trade route between western China and Southeast Asia.

30) KRA CANAL

Kra Canal, also known as Thai Canal or Kra Isthmus Canal, is a proposed canal that would connect the **Gulf of Thailand** with the **Andaman Sea** across southern Thailand.
The canal would provide an alternative to transit through the straits of Malacca and shorten transit for shipments of oil to Japan and China by 1200 kms.
China refers to Kra canal as part of its 21st century Maritime Silk Road.
In 2015 proposal, the canal was planned to be 102 km long, 400 meter wide and 25 meters deep

31) BORNEO ISLAND

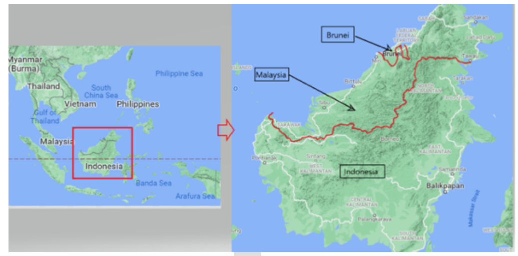
Borneo is the **third-largest island** (after Greenland and New Guinea) in the world and the largest in Asia.

At the **geographic centre of Maritime Southeast Asia**, in relation to major Indonesian islands, it is located north of Java, west of Sulawesi, and east of Sumatra.

The island is politically divided among **three countries**: Malaysia and Brunei in the north, and Indonesia to the south.

Approximately 73% of the island is Indonesian territory.

The **sovereign state of Brunei,** located on the north coast, comprises about 1% of Borneo's land area.



A little more than **half of the island is in the Northern Hemisphere**, including Brunei and the Malaysian portion, while the Indonesian portion spans the Northern and Southern hemispheres.

Borneo is home to one of the oldest rainforests in the world

32) INDONESIA

Indonesia is the largest archipelago in the world. It consists of five major islands and 30 smaller groups.

The **main Indonesian Islands** are: Sumatra, Java, Kalimantan (Indonesian Borneo), Sulawesi, and the Indonesian part of New Guinea (known as Papua or Irian Jaya).

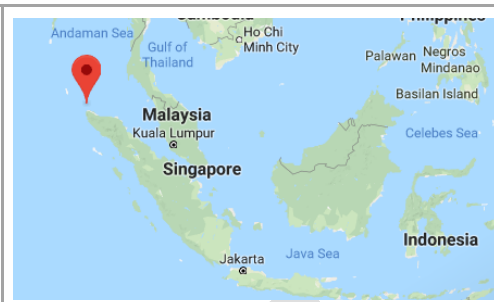
Note: Indonesia has nearly **130 active volcanoes**, more than any other country

33) KALIMANTAN

- Indonesia's Parliament has approved a bill to relocate the nation's capital from Jakarta to a jungled area of **Kalimantan on Borneo island**. (Jan 2022)
- The new state capital law, which provides a legal framework for President Joko Widodo's **ambitious $32 billion mega project**, stipulates how development of capital will be funded and governed.
- The new centre will be called "**Nusantara**", a Javanese name for the Indonesian archipelago.
- **Nusantara** will be led by a chief authority whose position is equivalent to a minister.
- The new capital has been envisioned as a **low-carbon "superhub"** that will support pharmaceuticals, health and technology sector and promote **suitable growth beyond Java Island**.
- **Problems with Jakarta:**
  - Chronic congestion (10 million population); Floods and air pollution;

34) SABANG

It is a city consisting of main island (Weh Island) and several smaller islands of the northern tip of Sumatra.
The Islands form a city within the Aceh Special Region, Indonesia.
It is also known as the northernmost and westernmost city of Indonesia.
It is considered a strategic location near the strait of Malacca.
It was in news recently as government of Indonesia is planning to develop a port here to promote tourism.



35) MOUNT SINABUNG

Mount Sinabung is a **Pleistocene-to-Holocene stratovolcano**.

It is located in a relatively cool area on a fertile plateau with mountains bounding the north on **Sumatra Island** of Indonesia.

The **plate tectonic setting** at Mount Sinabung is one of ocean-continent subduction between the Indo-Australian plate under the Eurasian plate.

It is one of many volcanoes located along the Sunda Arc, a 5000km long volcanic chain.

Mount Sinabung first erupted in 2010 after being inactive for centuries, and has seen an increase in its activity over the last year.

36) ANAK KRAKATOA VOLCANO

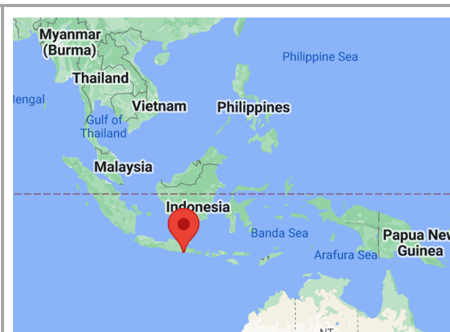
Anak Krakatoa Volcano
It is an active volcano in **Sunda Strait** roughly halfway between Sumatra and Java.
This volcano had emerged from the sea in 1928 in the Caldera of Krakatoa and has been on the high-level eruption watchlist for the past decade.
With subsequent lava flows it eventually converted into a small **volcanic Island** with an altitude of 300 meters above sea level.

Since its birth, Anak Krakatoa has been in a **state of semi-continuous eruptive activity**, growing bigger as it experiences eruptions every two to three years. It has been on the high-level eruption watchlist for the past decade.

The island is part of Ujung Kulan National Park "demonstrating on-going evolution of geological process".

37) MT SAMERU VOLCANO

Erupted in Dec 2022, after a year.
It is an active volcano located in **East Java**. It is a stratovolcano.
It is located in a subduction zone, where Indo-Australian plate subducts under Eurasian plate.
It is the highest mountain on the island of **Java**. The name "Semeru" is derived from Meru, the Central world mountain in **Hinduism**, or Sumeru, the abode of gods.



38) MERAPI VOLCANO

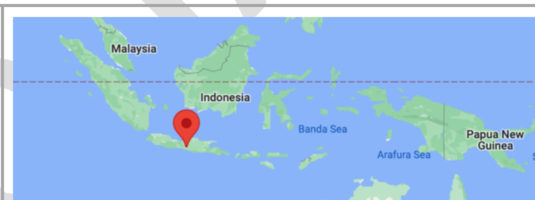
About Mount Merapi: It is the **most active volcano of Indonesia** and have **erupted regularly since 1548**. It is located on Java Island. It is a stratovolcano whose height is 2,930 miles.

It is located at a **subduction zone**, where the Indo-Australian Plate is subducting under the Sunda Plate.

Mount Merapi's last significant eruption was in 2010 which killed more than 300 people.
Dec 2023 Eruption:
Mount Merapi erupted again and killed at least 11 hikers. This eruption sent hot ash and other volcanic debris three kms into sky.

It is also **one of the 16 Decade Volcanoes**

About Decade Volcanoes
The Decade volcanoes are 16 volcanoes identified by the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) as being **worthy of particular study in light of their history of large, destructive eruptions and proximity to populated areas**.
The Decade Volcanoes project aims of achieving a better understanding of the volcanoes and the dangers they present, and thus being able to reduce the severity of natural disaster.
They are called decade volcanoes because the project was initiated in the 1990s as part of the United Nations - sponsored International Decade for Natural Disasters Reduction.



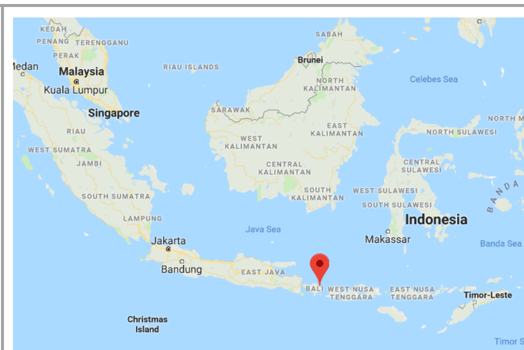
About IVCEI
It is an **international NGO** that focuses on research in volcanology, efforts to mitigate disasters, and research into closely related disciplines, such as igneous geochemistry and petrology, geochronology, volcanogenic mineral deposits, and the physics of the generation and ascent of magmas in the upper mantle and crust.

39) MOUNT AGUNG / GUNUNG AGUNG

Mount Agung or **Gunung Agung** is a volcano in **Bali, Indonesia**, south east of **Mt Batur Volcano**, also in Bali.

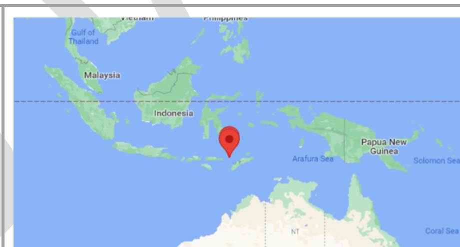
The Agung **Stratovolcano** is the highest point of Bali; it dominates surrounding area, influencing climate, especially rainfall patterns.

An **important temple** on Bali, **Pura Besakih**, is located high on the slopes of **Mount Agung**.



40) MT. ILLE LEWOTOLOK

Mount Ile Lewotolok or Lewotolo is a **stratovolcano** in the north-central part of **the island of Lembata** in the Province of East Nusa Tenggara in Indonesia.



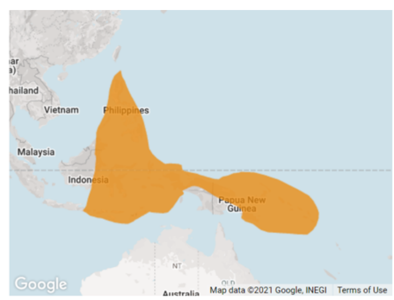
41) CORAL TRIANGLE

The Coral Triangle is a marine area located in the western Pacific Ocean.

It includes the waters of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste and Solomon Islands.

Named for its staggering number of corals (nearly 600 different species of reef-building corals alone), the region nurtures six of the world's seven marine turtle species and more than 2000 species of reef fish.

The Coral Triangle also supports large populations of **commercially important tuna**, fuelling a multi-billion dollar global tuna industry.

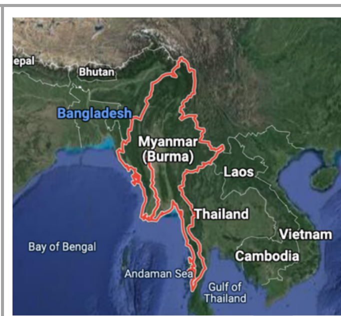


42) MYANMAR

Myanmar is a country in South-East Asia. It is the largest country in the mainland south-east Asia.

Neighbouring countries include (4): Bangladesh and India in Northwest; China to its northeast; Laos and Thailand to its east and South east.

Water Bodies: Andaman Sea and the Bay of Bengal to its south and southwest.



43) SITTWE PORT

Sittwe Port is a deep-water port **constructed by India in 2016 at Sittwe**, the **capital of Rakhine** State in Myanmar, on the Bay of Bengal.

Situated at the mouth of the Kaladan River, the USD 120 Million port is being financed by India as a part of the Kaladan Multi-Modal Transit Transport Project, a collaboration between India and Myanmar.

The project is aimed at developing transport infrastructure in Southwestern Myanmar and North-eastern India

44) RAKHINE STATE

Rakhine State is a state in Myanmar.

Situated on the western coast, it is bordered by Chin State to the north, Magway Region, Bago Region and Ayeyarwady Region to the east, the Bay of Bengal to the west and the Chittagong Division of Bangladesh to the northwest.

The **Arakan Mountains or Rakhine Yoma** separated Rakhine State from central Burma from North to South

45) BHASHAN CHAR ISLAND

Bhasan Char, also known as Char Piya, is an island in Hatiya Upazila, Bangladesh.
Until 2019 it was known as **Thengar Char**.

It is located in the Bay of Bengal, about 6 kilometres from Sandwip island and 37 miles from the mainland.

The island was formed by Himalayan silt in 2006.

It spans 40 square kilometres.

The Government of Bangladesh planned to construct a total of 1,440 buildings, including 120 cyclone shelters, **to relocate 100,000 Rohingya refugees from the mainland camps of Cox's Bazar**.

46) AFGHANISTAN

It is a landlocked country between Central Asia and South Asia.
It is bordered by: Pakistan, India, China, Tajikistan, Uzbekistan, Turkmenistan and Iran.
Taliban's return to Power in Aug - Sep 2021: Taliban now controls most of the country.
Important Cities:

47) PANJSHIR VALLEY

It is a valley in north-eastern Afghanistan, north east of Kabul and near Hindukush mountain ranges. It is divided by **Panjshir river**. This valley has the Afghan's largest concentration of ethnic Tajiks.

48) BAMYAN VALLEY

Bamyan is the capital of **Bamyan Province in central Afghanistan**.

With an altitude of about 2,550 m and a population of about 100,000 (in 2014), Bamyan is the largest town in the central Afghanistan region of Hazarajat, and lies approximately 240 kilometres north-west of Kabul, the national capital.

Many statues of Buddha are carved into the sides of cliffs facing Bamyan city.

At the end of the **10th century AD, there was a Buddhist culture** in which several thousand Buddhist monks lived in caves carved into the mountain.
The 53 and 35 meters high standing Buddha statues were two of the best known monuments left from the Buddhists, **which were then destroyed by the Taliban in 2001**.
Furthermore, there are several cultural sites left from both the Buddhist and from the later Islamic era of the valley. After the overthrown of

The valley is the **Center of the Hazara settlement area**, now known as Hazarajat.

49) SHATOOT DAM

Shatoot Dam is a proposed dam in the Char Asiab (11 km south of Kabul) District of Kabul Province.

The establishment of the dam will provide drinking, irrigation and environmental water for the city of Kabul.

The dam will be constructed by engineers from India.

In Feb 2021, India and Afghanistan signed an MoU to build Shahtoot Dam in Kabul. It will be constructed on the Kabul River Basin.

50) CENTRAL ASIA

Region: In modern context Central Asia includes the following five republics of former Soviet Union. They all became independent in 1991 after the fall of USSR.

- Kazakhstan (Astana (now called **Nur Sultan)**)
- Kyrgyzstan (Bishkek)
- Tajikistan (Dushanbe)
- Turkmenistan (Ashgabat)
- Uzbekistan (Tashkent)

The Great Game and Central Asia

Traditionally, Central Asia has been an arena of great game. The modern version is being played out even today. Russia, China, US, Turkey, Iran, Europe, EU, Japan, Pakistan, India, Afghanistan all have substantial security and economic stakes in the region.

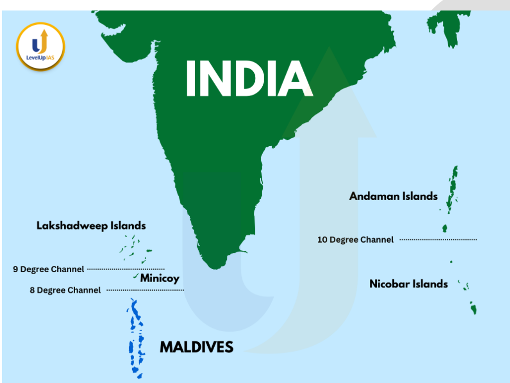
51) IMPORTANT INDIAN OCEAN COUNTRIES:

Note:

The **eight degree line** separates the islands of Minicoy and Maldives.

The **nine degree line** separates the island of Minicoy from the main Lakshadweep archipelago.

The **10 degree Channel** separates the Andaman Islands and the Nicobar Islands from each other in Bay of Bengal.



52) MALDIVES

- It is an archipelagic state in the Indian-subcontinent of Asia, situated in Indian ocean. It is located southwest of India and Sri Lanka about 750 km from Asian continent's mainland.
- The chain of **26 atolls** stretches from **Ihavandhippolhu Atoll** in the north to Addu Atoll in the south (Across the Equator)
- **Capital: Male** (also called King's Island)

- The Maldives archipelago is located on Chagos-Laccadive ridge, a vast submarine mountain range in the Indian Ocean;
- With an average ground level of 1.5 metres, and a highest natural point of only 5.1 meters, it is the **world's lowest lying country**.

A) ADDU CITY

- Cabinet approved opening up of a new consulate General of India in **Addu City**, Maldives in May 2022 (May 2021)
- **Significance:** Augment India's diplomatic presence and increase engagement

- **About Addu City:** It is a city in Maldives that consists of the inhabited islands of Addu atoll**, the southernmost atoll of the archipelago**. It is the second largest urban area of Maldives, in terms of population, and is one of the two urban areas to get the status of "city" other than the capital city.

- Maldives occupies an important place in the 'Neighbourhood First Policy' and the 'SAGAR' (Security and Growth for All in the Region) vision of the Government of India.

53) MAURITIUS

With an area of 2,040 sq km, it is one of the smallest countries in the world. It is located in the Indian Ocean, just east of Madagascar.

It is made up of the main island of **Mauritius** and several outlying islands like Ambre, Est, Cerfs, Benitiers etc. Off the coast of mainland Mauritius, there are nearly a hundred islets and rocks without any human habitation.

About Mauritius Island: It is a **volcanic island** formed due to volcanic activities around 8 million years ago. However, no volcanic activity has been reported in last 1 lakh years. Much of the island is made up of low-lying grasslands surrounded by towering mountains and rolling hills.

Coral Reef surround the island protecting the land from storms and waves.

Lake Vacoas, is the primary source of water for the islanders. Most of the islands water need is fulfilled by this lake and the three major rivers -> Grand River, South East River and Black River.

Capital: Port Louis

Pointe d'Ensy Wetland:
Wetland of international importance

Located in the south east Mauritius.

It was in news due to one of the worst oil spill (August 2020)

54) SEYCHELLES

Capital: Victoria

Seychelles, officially the Republic of Seychelles, is an archipelago and country in the India ocean. The 115-island country, whose capital is Victoria, lies 1500 km east of mainland East Africa.

Other nearby islands include: Comoros, Mayotte, Madagascar, Reunion and Mauritius to the south.

Population: Roughly 93,000, has the smallest population of any independent African state.

55) ALDABRA ATOLL

Aldabra atoll comprised of four large coral islands which encloses a shallow lagoon; the group of islands is itself surrounded by a coral reef.

Aldabra atoll is also one of the world's second-largest coral atoll and is situated in the Aldabra group of islands **in Seychelles** in the Indian Ocean.

It is also a UNESCO World Heritage Site.

Due to difficulties of access and the atoll's isolation, Aldabra has been protected from human influence and thus retains some 152,000 giant tortoise, the world's largest population of this reptile

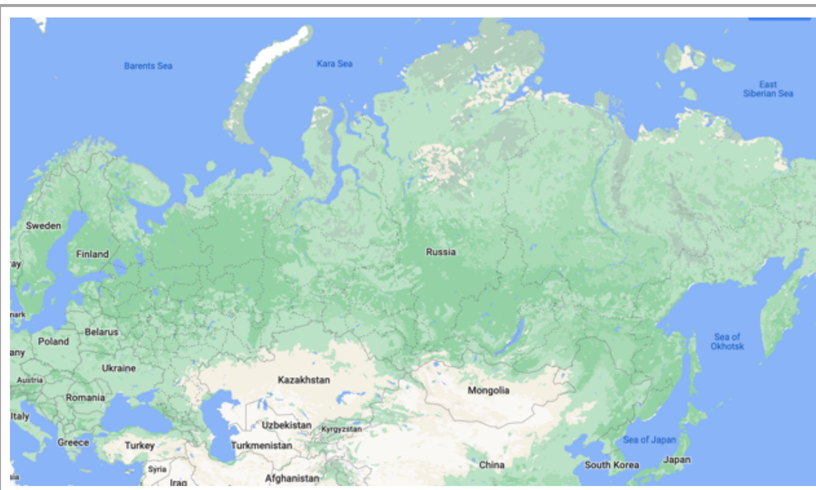
56) RUSSIA

Area: 17 million square km (largest country in the world)

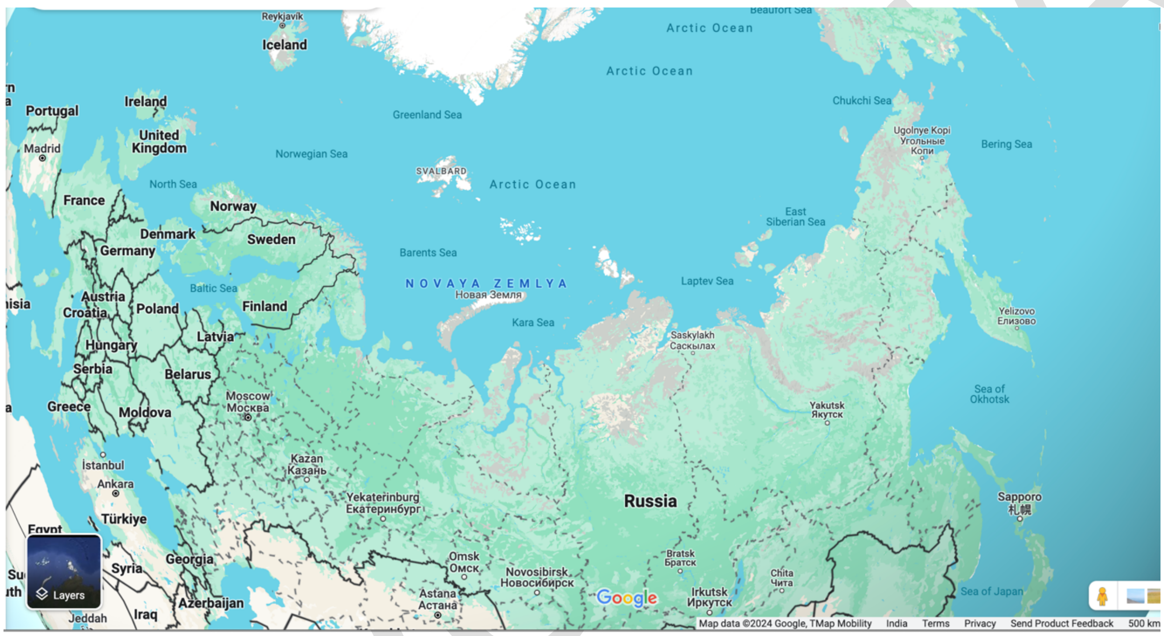
Population: 144 million (9th most populous)

Spans 11 time zones and incorporate a wide range of environments and landforms.

Neighbours: From northwest to Southeast, Russia shares **land borders** with Norway, Finland, Estonia, Latvia, Lithuania and Poland(both with Kaliningrad Oblast), Belarus,



Ukraine, Georgia, Azerbaijan, Kazakhstan, China, Mongolia and North Korea. Maritime borders with Japan (by sea of Okhotsk) and the US state of Alaska across Berring strait. Water bodies around Russia White Sea, Barents Sea, Kara Sea, Laptev Sea, East Siberian Sea, Chukchi Sea, Berring Sea, Sea of Okhotsk, Sea of Japan, Caspian Sea, Black Sea and Baltic Sea	



57) CASPIAN SEA

It is located to the east of Caucasus mountains and to the west of Central Asian steppes.

It is the **world's largest inland body of water** (largest salt lake in the world).

An **endorheic basin**, it lies between Europe and Asia; east of the Caucasus, west of the broad steppe of Central Asia, south of the fertile plains of Southern Russia in Eastern Europe, and north of the mountainous Iranian Plateau of Western Asia

The sea is bordered by **Kazakhstan (North-East), Turkmenistan (South-East), Iran (South), Azerbaijan (South West) and Russia (North-West) (Hint: KaTIAR) [Hint2: TARIK]**

Important rivers that drain in Caspian Sea are: **Volga (**longest in Europe**), Ural, Kura and Terek**.

Human made changes, particularly those resulting from construction of dams, reservoirs, and canals on the **Volga river**, have affected the contemporary hydrology.

58) SOUTH CAUCASUS REGION

It is a region between Black Sea and the Caspian Sea and mainly occupies **Georgia, Armenia, Azerbaijan and Southern Russia**.

It is home to the Caucasus Mountains which has been traditionally considered a natural barrier between Eastern Europe and Western Asia.

Europe's Highest Mountain - Mount Elbrus (5,642 meters) is in the western part of the Greater Caucasus Mountain range.

NAGORNO-KARABAKH CONFLICT BETWEEN ARMENIA AND AZERBAIZAJ

Straddling western Asia and Eastern Europe, Nagorno-Karabakh is internationally recognised as part of Azerbaijan, but most of the region is controlled by Armenian separatists.

Nagorno-Karabakh has been part of Azerbaijan territory since the Soviet era.

When the Soviet Union began to collapse in the late 1980s, **Armenia's regional parliament voted for the region's transfer to Armenia**; the **Soviet authorities turned down** the demand.

Note: Religious differences: People of Ngorno Karabakh are primarily Christians whereas Azerbaijan is Muslim dominate.

Years of clashes followed between Azerbaijan forces and Armenian separatists.

Highly tensed relations between Armenia and its long-time ally Russia.

- Armenia angered Russia, which maintains a military base in the country, by holding military exercise with the USA in Sep 2023 and by moving towards ratifying Rome Convention that created International

The violence lasted into the 1990s, leaving tens and thousands dead and displacing hundreds of thousands.

In 1994, Russia brokered a ceasefire, by which time **ethnic Armenians had taken control of the region**.

In **November 2020, Russia brokered a new peace deal between Armenia and Azerbaijan**, after the two countries engaged in military conflict for six weeks over the disputed region in South Caucasus. The armistice also placed a **Russian Peacekeeper contingent** in Nagorno-Karabakh.

2023:

In Sep 2023, Azerbaijan's forces opened fire on Armenian positions in the Ngorno-Karabakh region. It claimed that it was an **"anti-terrorist operation"**. There were concerns that the tensions could escalate into full-fledged war.

Later, on **20th Sep 2023, Azerbaijan halted military action** after its battlefield successes forced Armenian separatist forces to agree to a ceasefire. Key Highlights:

1. Azerbaijani military had routed separatists and then separatist agreed to cease fire.
2. They are meant to disband and disarm under the deal.
3. Talks on future of the region due to start in 1-2 days.

Criminal Court, which has indicted Russian President Vladimir Putin

59) WEST ASIA

The region is **surrounded by eight major seas**: Aegean Sea, Black Sea, Caspian Sea, the Persian Gulf, the Arabian Sea, the Gulf of Aden, the Red Sea and the Mediterranean Sea.

This region is delimited from Europe by the drainage divide of the Greater Caucasus; delimited from Africa by the Isthmus of Suez; It adjoins Central Asia in North East and South Asia in East. It is located South of Eastern Europe.

Countries: Turkey, Georgia, Armenia, Azerbaijan, Iran, Iraq, Kuwait, Bahrain, Qatar, UAE, Oman, Yemen, Saudi Arabia, Egypt, Israel, Jordan, Syria, Lebanon and Cyprus.

60) IRAN (PERSIA)

Iran (formerly known as Persia) is situated at the crossroads of Central Asia, South Asia, and Arab states of West Asia. This strategic position - and its access to Persian Gulf in the south - have made Iran an important country throughout its history.

Location and neighbouring countries:

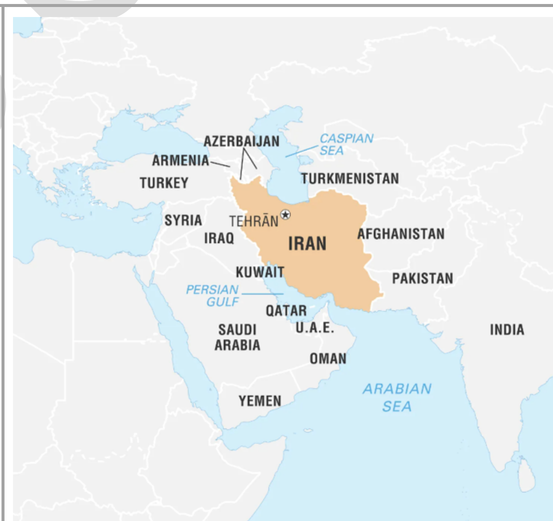
It is country located in West Asia and has land boundaries with Pakistan, Afghanistan, Turkmenistan, Azerbaijan, Armenia, Turkey and Iraq.

In the north, it touches **Caspian Sea**, and in the south, **the Persian Gulf** and **Gulf of Oman**.

Government and Economy: Iran's government is controlled by a religious figure called the **Supreme Leader**, who is appointed by a group of Islamic clerics called the assembly of experts. A President, elected by the people, is second in command.

History: Iran has seen **many great empire** - Achaemenid Persian Empire (beginning 559 BCE), Sassanids (beginning 224 CE), Safavids (beginning 1501);

In the North west, Iran also has some areas of Majority Kurdish Population**.**



Physical features: Iran has Gazros mountain (which runs from North west to South East) and Elbruz Mountain (which lies to its north). It also has Kavir Desert and Lut Desert.

Lut Desert often experience highest land and surface temperature: A temperature of 70.7 degree C has been recorded here.

It is also an UNESCO World Heritage Site.

Lake Urmia is located in the North-west of the country.

International North-South Transport Corridor (INSTC)

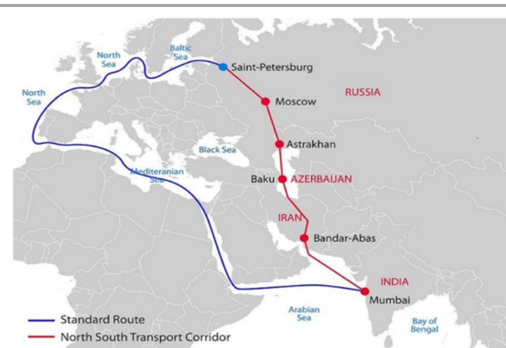
Important Ports:

1. Bandar Abass (Gulf of Hormuz)
2. Chabahar Port (Gulf of Oman):
    - The Chabahar port is located in the Southeastern province of Sistan-Baluchestan and is considered a crucial gateway for Iran to gain access to Afghanistan and Central Asia. The idea is that the **Port would enable India to bypass Pakistan and access Afghanistan** and ultimately **Central Asia**.
    - In May 2016, India signed a tripartite agreement with Iran and Afghanistan to develop the **Shahid Behesti** terminal at Chabahar Port. India has pledged to invest $85 million in the terminal and has already provides cranes and equipment worth a few million dollars.
    - Chabahar is India's **first foreign port project**.

61) INSTC

The International North-South Transport Corridor (INSTC) is a **7,200 km long multi-modal network of ship, rail, and road route**s for the transport of freight between India, Iran, Afghanistan, Armenia, Azerbaijan, Russia, Central Asia, and Europe. The objective of the corridor is to increase trade connectivity between major cities such as Mumbai, Moscow, Baku, Astrakhan, Tehran, Bandar Abbas, and Bandar Anzali.

Member States: India, Iran, Russia, Turkey, Azerbaijan, Kazakhstan, Armenia, Belarus, Tajikistan, Kyrgystan, Oman, Ukraine, and Syria.



62) PERSIAN GULF

The body of water is an extension of the Arabian Sea (Gulf of Oman) through the **Strait of Hormuz** and lies between Iran to the northeast and the Arabian Peninsula to the southwest.

Countries touching Persian Gulf: 8 - Iran, Iraq, Kuwait, Bahrain, Qatar, UAE, Oman and Saudi Arabia.

Rivers: The **Tigris-Euphrates** river system is a large river system in Western Asia which discharges into the Persian Gulf. Both Tigris and Euphrates originate in Turkey.

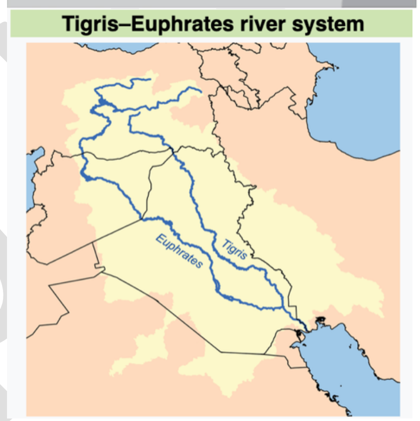
The river flows into a south-easterly direction through the central plains and combine with Al-Qurnah to form **Shatt al-Arab** and discharge into Persian gulf.

Mesopotamia is a historical region in Western Asia situated within Tigris Euphrates river system, in the northern part of the Fertile Crescent. Today, Mesopotamia occupy modern Iraq. In broader sense it covered parts of Iran, Syria, Turkey and Kuwait as well.

The Shatt al-Arab river delta forms the northwest shoreline.

Note: Shatt al-Arab river is formed at the confluence of Euphrates and Tigris rivers in Iraq.

The Persian Gulf has many fishing grounds, extensive reefs (mostly rocky, but also coral), and abundant pearl oysters, but its ecology has been damaged by industrialization and oil spills



63) GULF OF OMAN AND STRAIT OF HORMUZ

GULF OF OMAN:
It connects Arabian sea with the Strait of Hormuz, which then runs into the Persian Gulf.

Neighbouring Countries
UAE, Oman, Iran and Pakistan

Important Ports on the Gulf
- Port of Fujairah, UAE
- Port of Khor Fakkan, UAE
- Port of Sultan Qaboos, Oman
- Port of Chabahar, Iran

STRAIT OF HORMUZ

It is a strait between Persian Gulf and Gulf of Oman.

It provides the only sea passage from Persian Gulf to the open ocean and is **one of the world's most strategically important choke points**.

Neighbouring Countries

- Iran, UAE and Oman (Musandam, an exclave of Oman)

Significance

- A third of the world's liquefied natural gas and almost 20% of total global oil consumption passes through the strait, making it a highly important strategic location for international trade.

64) QATAR

About Qatar: It is an independent emirates on the west Coast of Persian Gulf. It shares land boundary only **with Saudi Arabia** to its south. It also shares maritime borders with Iran, Bahrain and UAE.

A very interesting aspect about Qatar is **that non-**Qatari population form around 88% of the total population.

Oil Resources: Qatar has one of the world's largest reserves of petroleum and thus employs large number of foreign workers in the production process.

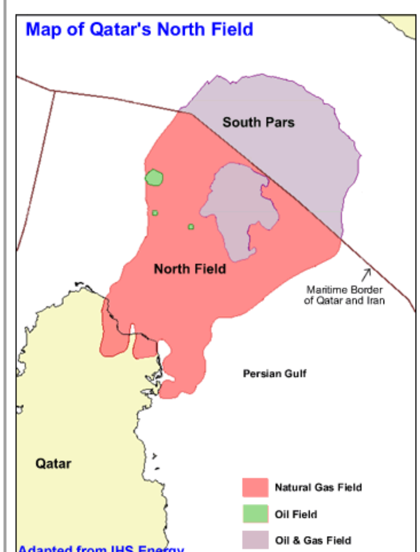
High Standard of Living: Because of oil wealth, country's residents enjoy a very high standard of living.

Capital: Doha - an eastern coast city

North Field and South Pars is a natural-gas condensate field located in the **Persian Gulf**. It is by far the world's largest natural gas field. With North field being owned by Qatar and South Pars by Iran.

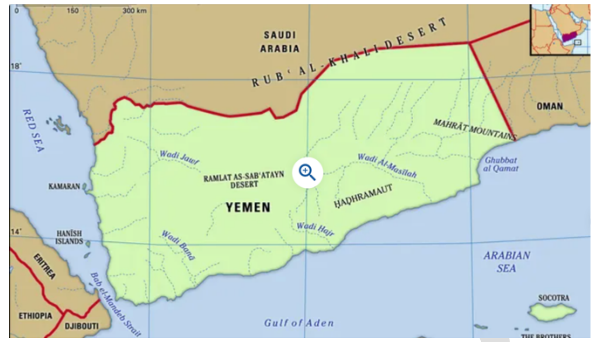
Non-NATO Aly: Qatar is also a major non-NATO ally. Major non-NATO ally (MNNA) is a designation given by the US government to close allies that have strategic working relations with the US Armed forces, but are not members of NATO. Important Non-Nato Ally of USA include

Significance: The status of MNNA doesn't automatically include a mutual defense pact with the USA, it confers variety of military and financial advantages.



65) YEMEN

- **Geographical basics**
  - It is situated on the South-western corner of the Arabian Peninsula.
  - Most of the Yemen's northern frontier with Saudi Arabia traverses the great desert of the peninsula, the Rub' al-Khali ("Empty Quarter"), and until 2000 remained non demarcated, as did the eastern frontier with Oman until 1992.
  - It is bound on the south by Gulf of Aden and Arabian Sea and the west by Red Sea.



- **The ongoing Civil War:**
  - The war began in 2014, when **Iran-backed Houthi rebels seized Sanaa and the country's northwest**, sending the ruling party in exile. Very soon, a **military coalition led by Saudi Arabia intervene**d with a massive air campaign to drive back Houthis and restore the government.
  - **Yemeni Officials and Sunni States** have repeatedly alleged that Iran and its proxy Hezbollah have provided arms, training and financial support to the Houthis.
  - Several ceasefire agreements over the years have seen no impact on reducing the military action on the ground. T**he UN, USA, and Gulf nations diplomats** have been trying to broker a peace deal for years now.

  - **Who are Houthis?**
    - The Houthis are a large clan originating from Yemen's **Northwest Saada province**. They practice the Zayadi from of Shiism. They make around **35% of Yemen's population**.
    - **They Zayadi imamate ruled Yemen** for 1,000 years, before they were **overthrown in 1962**. Since then, they have struggled to restore their authority and influence in Yemen.

  - **Current Situation**:
    - Clashes continue, with the Houthis disrupting **Red Sea** shipping in late 2023.
      - **For e.g.** Yemen's Houthi rebel seized an Israeli linked cargo ship **(the Galaxy Leader)** in a crucial Red Sea shipping route on Nov 19, 2023, and took its 25-crew member hostage. The rebels said that they hijacked the ship over its connection to Israel and would continue to target ships in international waters that were linked to or owned by Israelis. This shows that **regional tensions heightened over the Israel-Hamas war** were playing on a new maritime front. The **issue remains unresolved** as of today.

66) SINAI PENINSULA

The Sinai Peninsula is a peninsula in Egypt, and the only part of the country located in Asia.
Sinai has a land area of about 60,000 km^2.
Sinai is triangular in shape, with its **northern shore lying on the southern Mediterranean Sea**, and its **southwest and southeast shores on the Gulf of Suez** and the **Gulf of Aqaba of the Red Sea**.

Note: Israel also border Gulf of Aqaba. **Note:** Sharmel Sheikh is located at the mouth of Gulf of Aqaba. It is linked to the African continent by the **Isthmus of Suez, 125 kilometres (78 mi) wide strip of land**, containing the **Suez Canal**. The eastern isthmus, linking it to the Asian mainland, is around 200 kilometres (120 mi) wide. The peninsula's eastern shore separates the Arabian plate from the African plate	

67) SUEZ CANAL

The Suez Canal is an artificial sea-level waterway in Egypt, connecting the Mediterranean Sea to the Red Sea through the **Isthmus of Suez** and dividing Africa and Asia.

The canal is part of the Silk Road that connects Europe with Asia.

68) RED SEA

It is a sea-water inlet of the Indian ocean, lying between Africa and Asia.
It connects to Gulf of Aden through the **Bab el Mandeb strait.**
In North it is bound by Sinai Peninsula, Gulf of Aqaba and the Gulf of Suez.
Countries neighboring Red Sea: Egypt, Sudan, Eritrea, Djibouti, Yemen, and Saudi Arabia.

Why in news?
More than 3,000 US military personnel have arrived in the Red Sea aboard two warships, part of beefed-up response from Washington after tanker seizure by Iran (Aug 2023).

69) CITY OF NEOM

Details of Neom:

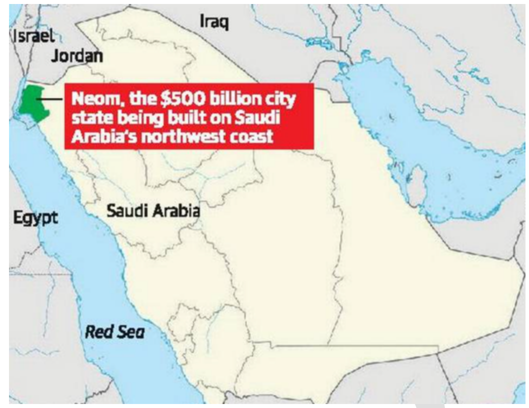
The planned city along the Red Sea is emerging as the new centre of power in the Kingdom of Saudi Arabia as the Crown prince Mohammed Bin Salman (MBS) is largely running government from here. Since the COVID-19 outbreak he has been chairing the cabinet meeting in Neom.

The **plan** for the building of the city was first unveiled in 2017.
As part of the **vision 2030 plan**, which seeks to diversify the Kingdom's economy and reduce its dependency on oil, the $500 billion ambitious project plans to build a carbon-neutral, technologically advanced city state that can house upto 1 million people.

The city is expected to be opened up for the residents by 2025. It will have flying cars, artificial rain generated through cloud seedings, a giant fake moon and a robot dinosaurs once it is complete.

The entire project is coming up on 26,500 sq km of land in the **Tabuk** province.

The autonomous city will have its own tax and labour laws and judicial system, independent of the existing governing system in Saudi Arabia.



70) ISRAEL-PALESTINE CONFLICT

- **Brief Historical Trail of Events**
  - **Creation of Israel**: In 1948, the state of Israel was created by an UNGA resolution, on land inhabited by both Jews and Arab Palestinians. The resolution divided Palestine into two countries. But **Arabs didn't accept this**. This has led to several wars since then and Israel has won all the wars mostly because of military supremacy, US support and Disunity among Arabs.
  - **Hostilities between two communities** in 1948 led to mass displacement of Palestinians. Many of them became refugee in Gaza strip, a narrow swath of land that had come under control of Egyptian forces in 1948-49 Arab-Israel war. The Fate of Gaza strip fell into the hands of Israel when it occupied the territory in the six-day War of 1967.
  - **Israel's continuous increase in Area:** All areas allotted to Palestine

Palestinian Loss of Land 1947 to Present

have come under Israel Occupation - Israel has continuously increased settlements in West Bank and Gaza.

» **In 1987**, the First Intifada (the first uprising), a popular uprising by the Palestinians against the Israeli occupation began.
  - **Hamas**, a militant Palestinian group was also founded in 1987.

» **1993 Oslo Agreement between Palestinian Liberation Organization (PLO) and** Israel came as a glimmer of hope.
  - **PLO** accepted the 2-state solution and recognized Israel for the first time.
  - **Israel agreed** to vacate occupied territory.

» **Opposition from both sides and derailment of Plan**:
  - **Hamas** opposed to the more conciliatory stance taken by PLO, rejected the plan, and carried out a **terror campaign** to disrupt it.
  - The Plan was ultimately derailed among suicide bombing by Hamas and assassination of Israeli PM Yitzhak Rabin by a Jewish extremist in 1995.

» **The second Intifada** (2000-2005), was a major uprising by Palestinians against **Israeli Occupation**, characterized by a period of heightened violence.
  - It ended with the **Sharm el-Sheikh Summit** and Israel's military withdrawal from Gaza in 2005.

» **Gaza under Hamas Control**: After collapse of peace process, Israel unilaterally withdrew from the settlements it had constructed in the Gaza strip after 1967. In **2007**, there emerged a **factional conflict within Palestinian authorities** (PA) (between Hamas and Fatah) and **Hamas emerged as the defacto ruler in the Gaza strip**.
  - This takeover by Hamas promoted blockade of Gaza strip by Israel and Egypt and set the stage for the next 17 years of **continued unrest**.
  - There were regular hostilities in 2008, 2012, 2014 and 2021.
    - **High population density of Gaza strip** and the **proliferation of subterranean tunnels** there have complicated the situation. These tunnels have been used by Gazans to sidestep the blockade and also to hide from Israeli forces.
  - But, before the 2023-24 conflict, the conflicts generally lasted only weeks. Though these conflicts did a lot of damage in Gaza, Israel saw very few causalities and losses.

A) 2023-24 CONFLICT BETWEEN ISRAEL AND HAMAS

- On 7th Oct 2023, **Hamas**, officially designated a terrorist organization by many countries including Israel, USA, UK etc. led a stunning coordinated attack which took place on Shemini Atzeret, a Jewish Holiday.

- It launched several thousand rockets into Israel and conducted attacks on border areas, **killing 1200 civilians** and taking 253 hostages. This was called "**Operation Al Aqsa Flood"**. Families were attacked in their homes in **Kibbutzim** and an outdoor music festival was also attacked.

- **Overwhelming of Iron Dome System**: During the attack Hamas launched at least 2,200 rockets into Israel in just 20 mins. This overwhelmed the iron dome system.

- It was the **deadliest day for Jews** since the Holocaust.

- In **response**, Israel conducted **air strikes** and later **ground assault** against Hamas in Gaza with the aim to "destroy Hamas" governing and military capabilities and to bring hostages home. Hamas continues to fire rocket into Israel.
- **Clashes in other areas:**
    - **Hostilities are also going** on between Israel and Iran-Aligned Hezbollah in **Lebanon and north Israel**.
    - Other **Iran-aligned groups in Syria and Iraq** have conducted attacks against US forces, killing three troops in Jordon in Jan 2024, drawing a US response.
    - From Yemen, the **Houthis** have launched attacks on shipping lane in Red Sea.
    - Israeli Defense forces (IDF) have also intensified **raids in the West bank,** blockading several urban areas.
- **Estimated Causalities and Displacements**: As of Feb 2024, more than 29,000 Palestinians were reportedly killed. As per UN Office for the Coordination of Humanitarian Affairs (UNOCHA), an estimated **1.7 million** of Gaza's population (or the total 2.2 million) are now displaced.
    - This has become the **deadliest conflict** for the Palestinians since the 1948 Arab Israeli war.

Important Places in news recently:

- **Rafah Crossing** (between Egypt and Gaza): On 18th Oct, Israel agreed to reopening of Rafah crossings between Egypt and Gaza for humanitarian aid. Around 5,00 foreign nationals and injured Palestinians have been able to leave daily from the crossing.
- **Kerem Shalom Crossing** between Israel and Gaza was opened for aid in Dec 2023.

71) ISRAEL - PALESTINE (WEST BANK)

West Bank:

The West Bank is a **landlocked territory** near the Mediterranean coast of Western Asia, bordered by Jordan and the Dead Sea to the east and by Israel to the south, west and north.

The "West Bank" name was given to the territory after it was captured by Jordan in the 1948 Arab–Israeli War because it sits on the west side of the Jordan River.

Jordan subsequently annexed the territory in 1950 and held it until 1967 when it was occupied by Israel during the 1967 Six-Day War.

Note: After the six-day war in 1967, Israel gained control of Sinai Peninsula and Gaza strip from Egypt; West Bank and East Jerusalem from Jordan; and Golan Heights from Syria.

72) GOLAN HEIGHTS

- Golan Heights (also called Golan Plateau) are **hilly areas overlooking the upper Jordan River valley** on the west. It is an area of conflict between Syria and Israel

- The area was part of extreme South West Syria till 1967, when it came under Israeli military occupation, and in Dec 1981 Israel unilaterally annexed the part of the Golan it held.

- Geographically, it is bound by the Jordan River and the Sea of Galilee on the West.
- In April 2023, 6 rockets fired from Syria to Golan Heights. Three of them landed in Israeli territory.
- After this, the Israel Defence Forces carried out artillery and drone strikes in southern Syria, targeting the launchers that had been used to fire the rockets.

73) SEA OF GALILEE

The Sea of Galilee is a freshwater lake in Israel.

It is the lowest freshwater lake on Earth and the second-lowest lake in the world, at levels between 215 metres and 209 metres below sea level.

The lake is fed partly by underground springs but its **main source is the Jordan River**, which flows through it from north to south and exits the lake at the Degania Dam.

The **Sea of Galilee is situated** in northeast Israel, between the Golan Heights and the Galilee region, in the Jordan Rift Valley, the valley caused by the separation of the African and Arabian plates. Consequently, the area is subject to earthquakes, and in the past, volcanic activity. This is evident from the abundant basalt and other igneous rocks that define the geology of Galilee

74) JORDON RIVER

Jordon river in west Asia has the **lowest elevation of an**y river in the world. It lies in a structural depression.
Origin: The river rises on the slopes of **Mount Hermon**, on the border between Syria and Lebanon, and flow southwards through northern Israel to the Sea of Galilee (Lake Tiberius). After that it continues south, forming a border between West Bank and Jordon. It eventually empties in Dead Sea.

Jordon river is shared by Lebanon, Syria, Israel, Jordon, and the Palestinian Authority.
Jordon Valley: The lower course of the Jordon river from the exact point where it exits the sea of Galilee to the Dead Sea is referred to as the Jordon Valley. This 105km long Jordon valley forms a part of the Jordon Rift Valley

and has the lowest elevation in the world **starting from -212m** and **ending** at **-400m**.	

75) JORDON RIFT VALLEY

- It is an elongated depression located in modern day Israel, Jordan, and the West Bank. The geographic region include entire length of Jordon River - from its sources, through the Hula valley, the Sea of Galilee, the Lower Jordon Valley, the Dead sea (lowest land elevation on earth) and then continues through the Arabah depression, the Gulf of Aqaba, whose shorelines it incorporates, until finally reaching Red Sea proper at the Straits of Tiran.
- **Why was it formed?**
  - It was formed many million years ago when the **Arabian Plate** moved northward and then eastward away from Africa.

76) DEAD SEA

- It is a landlocked salt lake between Israel and Jordon. It's eastern shore belongs to Jordon, and the western shore belongs to Israel.

- The sea has the lowest elevation and is the lowest body of water on the surface of earth. The surface of dead sea, at an elevation of about 430 meters below sea level, is the **lowest land point on earth**.

- Dead sea receives almost all its water from Jordon river.

- **Continuous dropping water levels**:
- The water level has dropped from 390 to 550m (below sea level), while the surface area shrank from 950 km2, in the beginning of the 20th century, to the current 392 km2. It's because of **excess utilization by both Israel and Jordon**. Most of the water is being diverted upstream.

77) TURKIYE (OLD NAME TURKEY)

- **Details**
  - Following an official letter submitted to the UN by the Republic of Turkiye, the country's name has been changed to Turkiye at the UN.

- **Why the name change:**
  - President Recep Tayyip Erdogan issued a statement saying the "word Turkiye represents and expresses the culture, civilization, and values of the Turkish nation in the best way.
  - Domestically, citizens refer to the land as Turkiye, but its anglicised version "Turkey" was adopted internationally.

Turkiye is a transcontinental country bridging South-eastern Europe and Western Asia.

Asian Turkey, which includes 97 percent of the country's territory, is separated from European Turkey by the **Bosphorus, the Sea of Marmara, and the Dardanelles**. European Turkey comprises only 3 percent of the country's territory.

Dardanelles Strait (also known as Gallipoli strait) is a narrow natural strait and internationally significant waterway in the northwest of Turkey. It forms the continental boundary between Asia and Europe and separates Asian Turkey from European Turkey.

Bosphorus Strait: it is an internationally significant waterway located in Istanbul in north-western Turkey. It also forms part of continental boundary between Asia and Europe and divides Turkey by separating Anatolia and Thrace. It is world's narrowest strait used for international navigation.

Dardanelles Strait and Bosphorus Strait are together called **Turkish Straits**.

Sea of Marmara: In 2021, the Sea of Marmara saw the largest outbreak of '**Sea Snot**'. Sea snot refers to marine mucilage that is formed when algae are overloaded with nutrients due to pollution. It looks like vicious brown and foamy substance.

The country is **encircled by seas on three sides**: the Aegean Sea to the west, the Black Sea to the north and the Mediterranean Sea to the south.

Turkey also contains the Sea of Marmara in the northwest

Neighbouring Countries: Syria, Iraq, Iran, Azerbaijan, Armenia, Georgia, Bulgaria, and Greece.

Note: **Anatolia** (also known as Asia Minor), is a large peninsula in Western Asia and is the westernmost extension of continental Asia. The landmass of Anatolia constitute most of the territory of contemporary **Turkey.** Geographically, Anatolia consist of Turkish Straits in the North-west, Black Sea to the north, the Armenian Highlands to the east, the Mediterranean Sea to the South, and the Aegean Sea to the west.