Privatisation of Public Sector Banks

For Prelims: Public Sector Banks, Private Sector Banks, Non-Performing assets, Re-capitalisation, Financial Inclusion, Pradhan Mantri Jan Dhan Yojana (PMJDY).

For Mains: Significance of Privatising Public Sector Banks.

Why in News?

In the **Union Budget 2021-22**, the government announced its decision to privatise two **Public Sector Banks**.

What is Privatisation?

- The transfer of ownership, property or business from the government to the private sector is termed privatisation. The government ceases to be the owner of the entity or business.
- Privatisation is considered to bring more efficiency and objectivity to the company, something that a government company is not concerned about.
    - India went for privatisation in the historic reforms budget of 1991, also known as 'New Economic Policy or LPG policy'.

What are Public Sector and Private Sector Banks?

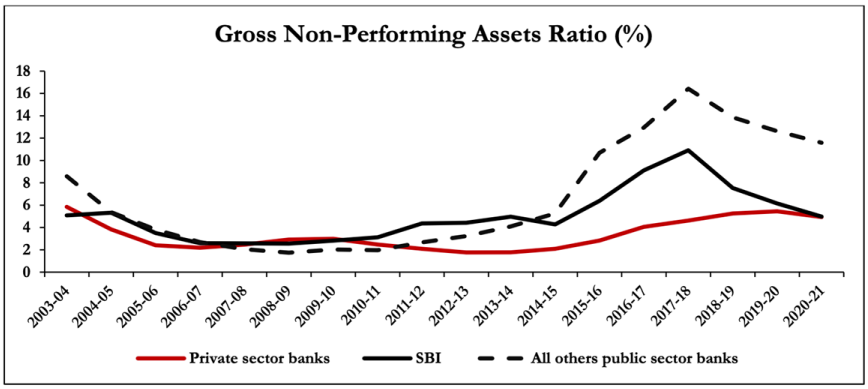
- **Public Sector:**
    - **Public Sector Banks (PSBs)** are those banks **where the government holds more than 50% ownership.**
    - Further, the government regulates the financial guidelines, because of government ownership, most depositors believe that their money is more secured in public sector banks.
        - As a result, most public sector banks have a large customer base.
    - For example, **The State bank of India (SBI) is the largest public sector bank in India.**
        - In this bank, the Indian government holds more than 63% share.
- **Private Sector Banks:**
    - **Private sector banks** are those banks where **private individuals or private companies own a major part of the bank's equity.**
        - Even though these banks follow the nation's central bank's guidelines, they can formulate their independent financial strategy for the customers.

Why is there a Need to Privatise Public Sector Banks?

- **Issues with Public Sector Banks:**
    - **NPA's:**

        - Non-Performing Assets (NPA) **are loans that the borrower fails to pay back to the bank,** further high levels of NPAs erode a bank's profitability.
        - Most of PSBs are also unable to maintain a **capital adequacy ratio.**
        - In the case of many a PSBs, the RBI had to restrict the normal functioning of the banks — this is referred to as the banks being put under **Prompt Corrective Action (or PCA)** — and forced them to improve their financial performance metrics before being allowed to resume normal banking activities.
    - **Losses in Rural Branches:**
        - Most of the rural branches are running at a loss because of high overheads and the prevalence of the barter system in most parts of rural India.
    - **Bureaucratisation:**
        - The smooth functioning of banks has been hampered by red-tapism, long delays, lack of initiative, and failure to take quick decisions.
    - **Financial Burden to Government:**
        - Rather than wasting taxpayers' money to **recapitalise PSBs,** the government should simply sell them off to the private sector.
        - This would reduce the **financial burden on the government while also ensuring that PSBs become more efficient and profit-making entities under private ownership.**
        - According to the **Union Budget 2021-22**, the government had announced its decision to start by privatising two PSBs.
- **Efficient Performance of Private Sector Banks:**
    - **Efficient:**
        - The Private sector Banks (PVBs) are far more efficient, far **more productive, and far less corrupt than the PSBs.**
    - **Less Amount of NPA:** //

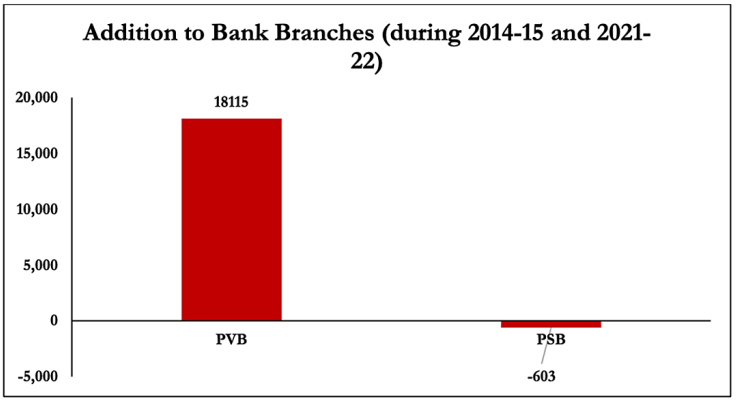
Gross NPAs as a Proportion of Gross Advances: 2003-04 to 2020-21

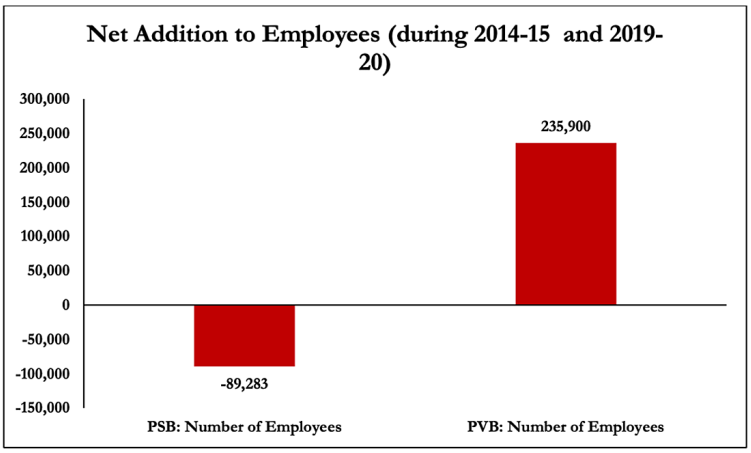


Reserve Bank of India statistical tables.

        - Private sector banks have lower gross NPAs.
    - **Enhanced Banking Facilities:**
        - They provide a more significant contribution **towards extending loans and a higher percentage of contribution to getting deposits from savers.**
    - **More Branches and More Jobs:**

The Change in Employment and Bank Branches in PSBs and Private Banks





RBI, Handbook of statistics on Indian Economy, Money and Banking, Bank Group wise distribution of Employees of Scheduled Commercial Banks.

        - They created **more branches and new jobs** while the public sector banks saw declines on both counts.
    - **Fetches More Market Value:**
        - When the Economic Survey reviewed bank nationalisation in 2020, it is found that every rupee of taxpayer money invested in **PSBs fetches a market value of just 71 paise.** This is called the market to book ratio.
        - In stark contrast, every rupee invested in **new private sector banks fetches a market value of Rs 3.70.** In other words, **private banks give more than five times more value than PSBs.**

Who is More Efficient?

- **Financial Inclusion:**
    - **Pradhan Mantri Jan Dhan Yojana (PMJDY)**, **envisages universal access to banking facilities** with at least one basic banking account for every household.
    - Public Sector Banks provide 36.2 crore beneficiaries while Private sector banks accounted for just Rs 1.3 crores of the total of almost Rs 46 crore beneficiaries.
    - While the **private banks dominate the metropolitan areas**, it is the **public sector banks that operate branches in rural India.**
    - PSBs provide more ATMs in rural India.
- **Efficiency:**
    - **PSBs are more efficient than PVB in Financial Inclusion,** while **when profit maximisation is the sole motive, efficiency of the PVBs has always surpassed that of their public sector counterparts.**
        - However, when the **objective function is changed to include financial inclusion**—like total branches, agricultural advances and PSL advances— **PSBs prove to be more efficient than PVBs** (middle and bottom panel).
- **Relevance in Economy:**

- The relevance of banking lies in knowing whether banks lend when borrowers need the money the most.
- Thus, **PSBs have a lion's share in infrastructure finance lendings** and their role has been especially crucial against the backdrop of the withering away of erstwhile development financial institutions.

Way Forward

- There is a **need for a nuanced approach** and further, members of RBI's Banking Research Division have **warned against the conventional perspective of viewing privatisation as a panacea for all ills.**
- The big bang approach of privatization of the public sector banks may do more harm than good as the repercussions could **lead to the vulnerable population losing their financial inclusion and further making it difficult for them to access banking and related facilities.**
    - That's why It is best to steer clear of an ideologically-driven stance and instead focus on **achieving a mix of public and private banks that best serves the needs of a diverse economy such as India.**

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. With reference to the governance of public sector banking in India, consider the following statements: (2018)

1. Capital infusion into public sector banks by the Government of India has steadily increased in the last decade.
2. To put the public sector banks in order, the merger of associate banks with the parent State Bank of India has been affected.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (b)

- The government has done capital infusion in state-owned banks to support credit expansion and to help them tide over losses resulting from the provisions that are to be made for non-performing assets (NPAs). But the capital infusion trend in state-owned banks has not been specific in a direction, like increasing or decreasing trend. While it has increased in some years, it has also decreased in a few years. **Hence, statement 1 is not correct.**
- **Union Government in February 2017 had approved the merger of five associate banks along with the Bharatiya Mahila Bank with SBI.** The purposes of the merger were rationalisation of public bank resources, reduction of costs, better profitability, and lower cost of funds leading to a better rate of interest to the public at large and improve productivity and customer service of the public sector banks. Parliament passed the State Banks (Repeal and Amendment) Bill, 2017 to merge six subsidiary banks with State Bank of India to affect rationalisation of public bank. **Hence, statement 2 is correct.**
- **Therefore, option (b) is the correct answer.**

Mains

Q. Pradhan Mantri Jan Dhan Yojana (PMJDY) is necessary for bringing the unbanked to the institutional finance fold.Do you agree with this for financial inclusion of the poorer section of the Indian society? Give arguments to justify your opinion **(2016)**

Source: IE

Sex Ratio at Birth

For Prelims: National Family Health Survey, Sex Determination, Government Initiative

For Mains: Issue of imbalance Sex Ratio, National Family Health Survey, Challenges in Ensuring Balances Sex Ratio, Government Initiative

Why in News?

A recent study has reported that **“son bias” is on a decline** in India as **Sex Ratio** at Birth normalised from **111 boys per 100 girls in 2011 to 108 boys per 100 girls in 2019-21.**

What are the Key Findings of the Report?

- **National Figures:**
  - The **average annual number** of baby girls **“missing”** in India fell from about 4.8 lakh in 2010 to 4.1 lakh in 2019.
    - The “missing” here refers to **how many more female births would have occurred during this time** if there were **no** female-selective abortions.
  - From 111 boys per 100 girls in India’s 2011 census, the sex ratio at birth have normalised slightly, narrowing to about **109 in the 2015-16** wave of the **National Family Health Survey (NFHS)** and to 108 boys in the NFHS 5 2019-21.
  - Between 2000-2019, **nine crore female births** went “missing” because of **female-selective abortions.**
- **Religion Wise Sex Ratio:**
  - The report has also analysed **religion-wise sex selection**, pointing out that the **gap was the highest for Sikhs.**
    - In the 2001 census, Sikhs had a sex ratio at birth of **130 males per 100 females,** far exceeding that year’s national average of 110.
    - By the 2011 census, the Sikh ratio had **narrowed to 121 boys per 100 girls.**
    - It now hovers around 110, about the same as the ratio of males to females at birth among the country’s Hindu majority (109), according to the latest NFHS.
  - Both **Chirstians** (105 boys to 100 girls) and **Muslims** (106 boys to 100 girls) have sex ratios close to the natural norm.
- **Religion Wise Share in Missing Girls:**
  - **Share in Indian Population:**
    - Sikh: 2%
    - Hindu: 80%
    - Muslim: 14%
    - Christian: 2.3%
  - **Share in Missing Girls due to Sex-Selective Abortion:**
    - Sikh: 5%
    - Hindu: 87%
    - Muslim: 7%
    - Christian: 0.6%

What has been the History of Sex Ratio in India?

- Globally, **boys modestly outnumber girls at birth**, at a ratio of approximately **105 male babies for every 100 female babies.**
  - This was the ratio in India in the 1950s and 1960s, **before prenatal sex tests became available across the country.**
- The problem began in the 1970s with the availability **prenatal diagnostic technology allowing for sex selective abortions.**
  - **India legalised abortion in 1971** but the trend of sex selection started picking up in the **1980s due to the introduction of** ultrasound technology.
- In the **1970s,** India's sex ratio **was at par with the global average of 105-100**, but this widened to **108 boys per 100 girls in the early 1980s**, and reached **110 boys per 100 girls in the 1990s.**

What are the Challenges in Ensuring Balanced Birth Sex Ratio?

- **Regressive Mindset:**
  - There is considerable **son preference** in all states, except possibly in Kerala and Chhattisgarh.
  - This son's preference is derived from a regressive mindset. E.g.: **People associate girls with** dowry.
- **Misuse of Technology:**
  - Cheaper technology like ultrasound helps in sex selection.
- **Failure in Implementation of Law:**
  - **The Prenatal Conception and Prenatal Determination Act (PC-PNDT)**, 1994 which punishes healthcare professionals for telling expectant parents the sex of a child with imprisonment and hefty fines, **has failed to control the sex selection.**
  - Reports found major gaps in the **training of personnel implementing PC-PNDT.**
    - Poor training meant that they were unable to prepare strong cases against violators to secure convictions.
- **Illiteracy:**
  - **Illiterate women** in the reproductive age group of 15-49 years have **higher fertility than literate women.**

Way Forward

- **Bringing Behavioural Change:**
  - Increasing **female education and economic prosperity** help to improve the ratio. In this pursuit, the government's **Beti-Bachao Beti Padhao Campaign** has achieved remarkable success in bringing behavioural change in the society.
- **Sensitizing Youth:**
  - There is an urgent need to reach young people for **reproductive health education** and services as well as to cultivate gender equity norms.
  - For this, the services of **Accredited Social Health Activist (ASHA)** can be leveraged, especially in rural areas.
- **Stringent Enforcement of Law:**
  - India must implement the **Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 more stringently** and dedicate more resources to fighting the preference for boys.
  - In this context, the **Drugs Technical Advisory Board** decision to include ultrasound machines in the Drugs and Cosmetics Act, 1940 is a step in the right direction.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. How do you explain the statistics that show that the sex ratio in Tribes in India is more favourable to women than the sex ratio among Scheduled Castes? **(2015)**

Q. Why do some of the most prosperous regions of India have an adverse sex ratio for women? Give your

arguments. **(2014)**

Source: TH

India’s Battery Storage Potential: NITI Aayog

Why in News?

Recently, **NITI Aayog** has released a report titled **“Advanced Chemistry Cell Battery Reuse and Recycling Market in India”,** stating India’s Battery demand will increase significantly by 2030.

What are the Findings of the Report?

- **Demand Projections:**
  - The total cumulative potential for battery storage in **India will be 600 GWh by 2030.**
    - Between 2010 and 2020, the **global demand for batteries grew at a compound annual growth rate (CAGR) of 25%** to reach an annual demand of about 730 GWh.
  - By 2030, the demand for batteries is expected **to grow four folds to reach an annual rate of 3,100 GWh.**
- **Current Deployment of Batteries:**
  - The current deployment of **Lithium-Ion Batteries (LIBs)** in India is **dominated by consumer electronics, which comprises smartphones, laptops, notebooks, tablets** and is further expected to grow **with the digitalisation of platforms and the integration of technology** in day-to-day life with a cumulative market of 4.5 GWh.
- **Drivers:**
  - **EVs (Electric Vehicles) and consumer electronics** will be the **major demand drivers** for the adoption of battery storage in India.
    - **EV sales accounted for around 10% of the LIB** (0.92 GWh).
  - The **electrification of transportation and battery energy storage in electricity grids are expected to be the key drivers** in the growth of battery demand.
- **Suggestions:**
  - A coherent regulatory framework **incentivising all stakeholders to participate in the recycling process** can help in the development of a battery recycling ecosystem in the country.

What are Lithium-ion Batteries?

- **About:**
  - It uses **an intercalated (Intercalation is the reversible inclusion or insertion of a molecule into materials with layered structures)** lithium compound as one electrode material, compared to the metallic lithium used in a non-rechargeable lithium battery.
  - The battery consists of **electrolyte, which allows for ionic movement,** and the two electrodes are the constituent components of a lithium-ion battery cell.
  - Lithium ions move from the negative electrode to the positive electrode during discharge and back when charging.
- **Lithium-ion Battery Applications:**
  - Electronic gadgets, Tele-communication, Aerospace, Industrial applications.
  - Lithium-ion battery technology has made it the favourite power source for electric and hybrid electric vehicles.

Source: TOI

Gold Jewellery Exports to UAE up 42%

For Prelims: Types of Trade Agreements, Different forms of Trade Agreements

For Mains: India-UAE CEPA

Why in News?

India's gold jewellery exports to the **United Arab Emirates (UAE) rose by a sharp 42%** in two months of a **Free Trade Pact** coming into effect in May 2022.

- Overall exports to the UAE in May-June, 2022 touched USD 5.4 billion, a 17% growth from a year ago.

What benefited the Growth of Jewellery Export?

- Indian exporters were facing **tough competition in gold jewellery from countries like Turkey**, and Indian exports were showing a decline before the FTA.
- The free trade pact came into effect in May 2022 with its **offer of duty-free access on jewellery to the Gulf nation.** This removal of **duties has benefited exports.**
- India got zero duty access to the UAE market for jewellery exports, **which attracted 5% duty earlier**, potentially **facilitating entry of Indian products in the North Africa, West Asia and Central Asia** markets.
- India in turn **allowed 1% duty concession on gold imports from the UAE for up to 200 tonnes of shipments** under the **Comprehensive Economic Partnership Agreement (CEPA).**

What will be the Benefits of India-UAE CEPA?

- **Trade-in Goods:**
  - India will benefit from preferential market access provided by the UAE, especially for all labour-intensive sectors.
  - Such as **Gems and Jewellery**, Textiles, leather, footwear, sports goods, plastics, furniture, agricultural and wood products, engineering products, medical devices, and Automobiles.
- **Trade-in Services:**
  - Both India and UAE have offered each other market access to the broad service sectors.
  - Such as 'business services', 'communication services', 'construction and related engineering services, 'distribution services', 'educational services', 'environmental services', 'financial services, 'health-related and social services, 'tourism and travel-related services, 'recreational cultural and sporting services' and 'transport services'.
- **Trade-in Pharmaceuticals:**
  - Both sides have also agreed to a separate Annex on Pharmaceuticals to facilitate access to Indian pharmaceuticals products, especially automatic registration and marketing authorisation in 90 days for products meeting specified criteria.

What is CEPA?

- It is a **kind of free trade pact that covers negotiation on the trade** in services and investment, and other areas of economic partnership.
- It may **even consider negotiation in areas such as trade facilitation** and customs cooperation, competition, and IPR.
- Partnership agreements or cooperation agreements are more comprehensive than Free Trade Agreements.
- CEPA also looks into the regulatory aspect of trade and encompasses an agreement covering the regulatory issues.
- India has signed **CEPAs with South Korea and Japan.**

What are other Types of Trade Agreements?

- **Free Trade Agreement (FTA):**
  - It is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country.
  - India has negotiated FTA with many countries e.g. Sri Lanka and various trading blocs as well e.g. **Association of Southeast Asians Nations (ASEAN).**
    - **Regional Comprehensive Economic Partnership (RCEP)** is a Free Trade Agreement (FTA) between the ten member states of the ASEAN and the five countries (Australia, China, Japan, South Korea, and New Zealand) with which ASEAN has existing FTAs.
- **Preferential Trade Agreement (PTA):**
  - In this type of agreement, two or more partners give preferential right of entry to certain products. This is done by reducing duties on an agreed number of tariff lines.
  - Tariffs may even be reduced to zero for some products even in a PTA. India **signed a PTA with Afghanistan.**
- **Comprehensive Economic Cooperation Agreement (CECA):**
  - CECA generally covers negotiation on trade tariff and TRQ (Tariff Rate Quotas) rates only. It is not as comprehensive as CEPA. **India has signed CECA with Malaysia.**
- **Bilateral Investment Treaty (BIT):**
  - It is a bilateral agreement in which two countries sit together and decide the conditions for private investments by citizens and firms of the two countries.
- **Trade and Investment Framework Agreement (TIFA):**
  - It is a trade pact between two or more countries which establishes a framework for expanding trade and resolving outstanding disputes between countries.

What are the Trade Agreements India had signed with other countries?

S. No.	Name of the Agreement
1	India-Sri Lanka Free Trade Agreement (FTA)
2	Agreement on South Asian Free Trade Area (SAFTA) (India, Pakistan, Nepal, Sri Lanka, Bangladesh, Bhutan, the Maldives and Afghanistan)
3	India-Nepal Treaty of Trade
4	India-Bhutan Agreement on Trade, Commerce and Transit
5	India-Thailand FTA - Early Harvest Scheme (EHS)
6	India-Singapore Comprehensive Economic Cooperation Agreement (CECA)
7	India-ASEAN CECA - Trade in Goods, Services and Investment Agreement (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)
8	India-South Korea Comprehensive Economic Partnership Agreement (CEPA)
9	India-Japan CEPA
10	India-Malaysia CECA
11	India-Mauritius Comprehensive Economic Cooperation and Partnership Agreement (CECPA)
12	India-UAE CEPA

13	India-Australia Economic Cooperation and Trade Agreement (ECTA)

In addition, India has signed the following 6 limited coverage Preferential Trade Agreements (PTAs):

S.No.	Name of the Agreement
1	Asia Pacific Trade Agreement (APTA)
2	Global System of Trade Preferences (GSTP)
3	SAARC Preferential Trading Agreement (SAPTA)
4	India-Afghanistan PTA
5	India-MERCOSUR PTA
6	India-Chile PTA

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. The term 'Regional Comprehensive Economic Partnership' often appears in the news in the context of the affairs of a group of countries known as (2016)

(a) G20
(b) ASEAN
(c) SCO
(d) SAARC

Ans: (b)

Q. With reference to the 'Trans-Pacific Partnership', consider the following statements: (2016)

1. It is an agreement among all the Pacific Rim countries except China and Russia.
2. It is a strategic alliance for the purpose of maritime security only.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (d)

Exp:

- In 2005, trade agreement between a small group of Pacific Rim countries comprising Brunei, Chile, New Zealand, and Singapore led to the formation of Trans- Pacific Partnership (TPP) consisting of 12 nation states.
- TPP is an economic partnership **covering elimination or reduction of tariffs, liberalization of services trade, investment rules, e-commerce guidelines, intellectual property protections, and labour and environmental standards** and many other aspects of global trade. **Hence, statement 2 is not correct.**
- TPP includes **Japan, Vietnam, Brunei, Malaysia, Singapore, Australia, New Zealand, Canada, Mexico, Peru, Chile, and the USA (withdrew from TPP in early 2018). Hence, statement 1 is not correct.**
- After withdrawal of US, remaining eleven signatories, known as the TPP-11, continued talks and their efforts led to the formation of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which was signed in March 2018. It has already been ratified by a majority of members and entered into force for those countries on December 30, 2018.
- **Therefore, option (d) is the correct answer.**

Source: MINT

Geothermal Power in Ladakh

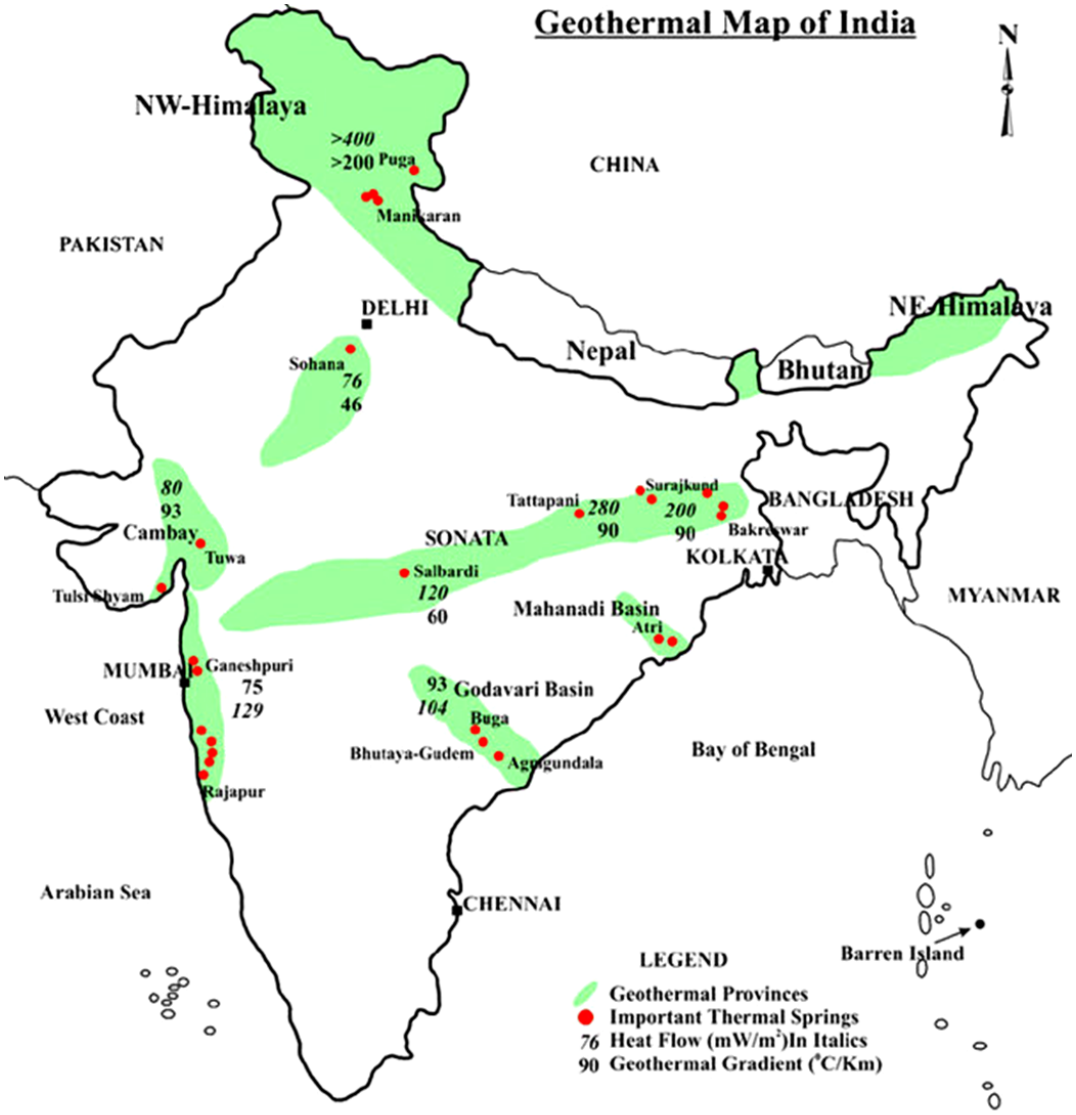
For Prelims: Geothermal Energy, Geography of Ladakh

For Mains: Geothermal Energy, It's Uses & Benefits, Significance of Geothermal Energy for India

Why in News?

State-run explorer Oil and Natural Gas Corporation (ONGC) will be participating to generate electricity through **Geothermal Energy** at Puga, a remote valley located in Ladakh, off the road to Chumar on the de-facto border with China.

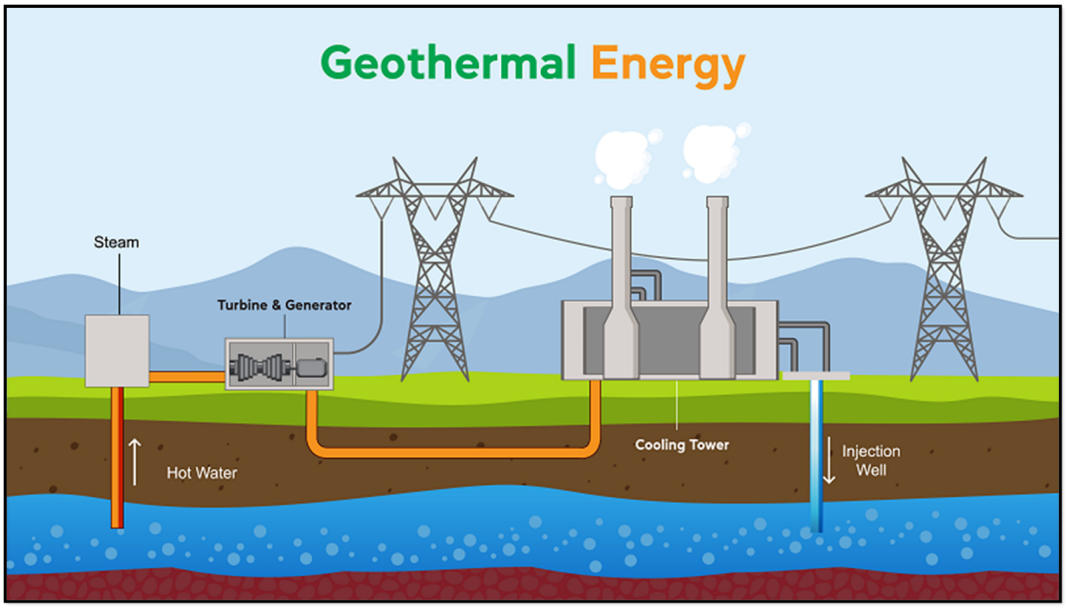
What do we need to know about the Puga Project?



- **About Puga Valley:**
  - Puga Valley is situated in the **Changthang Valley** in the south-eastern part of Ladakh, about 22 km away from the **Salt Lake Valley.**
  - It is a region of great significance known for its **natural beauty and geothermal activities.**
  - Puga is also visited for its **hot sulphur spring.**
- **About Geothermal Project:**
  - It will be India's **first geothermal energy project** and also the **world's highest at 14,000ft.**
  - ONGC has started drilling its first well for the project and encountered **high-pressure steam at 100 degrees Celsius** with a discharge rate of 100 tonne geothermal energy per hour, **considered as a good sign for the project.**
- **Phases:**
  - In the first phase, the company will drill 1,000-metre-deep wells to run a **one-megawatt power plant as a pilot.**
  - The second phase envisages a **deeper exploration of the geothermal reservoir** and a higher capacity demonstration plant.
  - The third phase would involve commercial development of the geothermal plant.
- **Benefits:**
  - It will **boost Ladakh's potential to emerge as one of the country's** clean energy **bowl** by expanding the area's horizon beyond **solar** or **wind power.**
  - The pilot plant provides **power and heating needs** of the nearby settlements of Tibetan pastoralist refugee settlements at Sumdo and nearby areas.
  - A bigger plant will provide **24X7 supply for the far-flung settlements and the large**

defence establishment in the eastern sector, reducing their dependence on **diesel for running generators.**
    - The plant can also play a vital role as a **stabiliser for the 15-gigawatt solar/wind project** being planned in the nearby Morey plains in the southwest.
- **Status of Geothermal Energy:**
    - **National:**
        - Geological Survey of India has identified about 340 geothermal hot springs in the country. Most of them are in the low surface temperature range from 370C to 900C, which is suitable for direct heat applications.
            - The potential for power generation at these sites is about 10,000 MW.
        - The hot springs in the country are grouped into seven geothermal provinces:
            - Himalayan, Sahara Valley, Cambay Basin, San-Narmada –Topi lineament belt, West Coast, Godavari Basin and Mahanadi Basin.
        - **Some of the prominent places where a power plant can be established based on geothermal energy are:**
            - Manikaran in Himachal Pradesh
            - Jalgaon in Maharashtra
            - Tapovan in Uttarakhand
            - Bakreshwar in West Bengal
            - Tuwa in Gujarat
    - **Global:**
        - Gigawatt-Size Geothermal Capacities:
            - The US:
                - The US leads the world in the amount of geothermal electricity generation.
            - Indonesia:
                - Indonesia was the second-largest geothermal electricity producer.
            - Philippines
            - Turkey
            - New Zealand
        - Mexico and Italy have 900 megawatt-plus capacity, while Kenya has over 800 mw, followed by Iceland, Japan and others.

What is Geothermal Energy?



- **About:**
    - Geothermal energy is the **heat from the earth.** This heat is used for bathing, to heat buildings, and to generate electricity.
    - The word geothermal comes from the Greek words **geo (earth)** and **therme (heat),** and geothermal energy is a **renewable energy source** because heat is continuously produced

inside the earth.

- **Sources:**
  - **Hot water or steam reservoirs** deep in the earth are accessed by **drilling.**
  - Geothermal **reservoirs located near the earth's surface**, mostly located in the western U.S., Alaska, and Hawaii.
  - The **shallow ground near the Earth's surface that maintains a relatively constant temperature** of 50-60°F.
- **Uses:**
  - Hot water and steam from reservoirs can be used to **drive generators and produce electricity for consumers.**
  - Other applications apply the **heat produced from geothermal directly to various uses** in buildings, roads, agriculture, and industrial plants.
  - The heat can also be used directly from the ground to provide **heating and cooling in homes and other buildings.**
- **Benefits:**
  - **Renewable Source:**
    - Through **proper reservoir management**, the rate of energy extraction can be balanced with a reservoir's natural heat recharge rate.
  - **Continuous Supply:**
    - Geothermal power plants **produce electricity consistently, running 24 hours per day/7 days per week**, regardless of weather conditions.
  - **Reduced Import Dependency:**
    - Geothermal resources **can be harnessed for power production** without importing fuel.
  - **Small Footprint:**
    - Geothermal power plants are **compact and use less land per GWh** (404 m2) than coal (3642 m2) wind (1335 m2) or solar PV with center station (3237 m2). *
  - **Clean Energy:**
    - Modern c**losed-loop geothermal power plants** emit **no** greenhouse gasses; life cycle GHG emissions (50 g CO_2 eq/kWhe) are four times less than solar PV, and six to 20 times lower than natural gas.
    - Geothermal power plants **consume less water** on average over the lifetime energy output than the most conventional generation technologies.
- **Disadvantage:**
  - If harnessed incorrectly, it can sometimes produce pollutants.
  - Improper drilling into the earth can release hazardous minerals and gases deep inside the earth.

What is ONGC?

- ONGC is a **public sector petroleum company.**
- **Under the leadership of Pandit Jawaharlal Nehru**, the foundation stone of ONGC was laid in 1955 as the Oil and Gas Division under the **Geological Survey of India.**
- It may be noted that on 14th August 1956, it was renamed as the Oil and Natural Gas Commission and in 1994 the Oil and Natural Gas Commission was converted into a corporation.
- In the year 1997 it was accepted as one of the Navaratnas by the Government of India, while in the year 2010 it was given the status of **Maharatna.**

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Consider the following: (2013)

1. Electromagnetic radiation
2. Geothermal energy
3. Gravitational force

4. Plate movements
5. Rotation of the earth
6. Revolution of the earth

Which of the above are responsible for bringing dynamic changes on the surface of the earth?

(a) 1, 2, 3 and 4 only
(b) 1, 3, 5 and 6 only
(c) 2, 4, 5 and 6 only
(d) 1, 2, 3, 4, 5 and 6

Ans: (d)

Explanation:

- The Earth's surface is dynamic. The Earth's surface is being continuously subjected to by external forces (exogenic forces) originating above the earth's surface, mainly induced by the energy of the Sun and by internal forces (endogenic forces) from within the earth.
- Endogenic Processes
    - The energy emanating from within the earth is the main force behind endogenic geomorphic processes.
    - This energy is mostly generated by radioactivity, release of electromagnetic energy, rotational and tidal friction and primordial heat from the origin of the Earth.
    - This energy is due to geothermal gradients and heat flow from within the earth.
    - Endogenic process has induced volcanism and associated geothermal phenomena like geysers, hot water springs, etc.; earthquakes; plate movements resulting in the creation of different landforms (mountains, hills, plateaus, etc.) and water bodies (sea, ocean, lake, etc.).
- Exogenic Processes
    - The exogenic processes derive their energy from atmosphere determined by the ultimate energy from the Sun, e.g., weathering and erosion.
    - Temperature and precipitation are the two important climatic elements that control various processes.
- Seasonal and diurnal variation on Earth is due to revolution and rotation of Earth respectively.
- **Therefore, option (d) is the correct answer.**

Source: TOI

Drought in Europe

For Prelims: Drought, Heat waves, Land degradation, Climate Change

For Mains: Drought - Impacts, Causes and Ways to tackle it

Why in News?

After the **record-breaking summer heat**, 2022 may be the **worst** drought **year in Europe in 500 years**. Large rivers have been reduced to shallow streams, hitting power generation.

- **China and the US too are facing drought situations.**

What is a Drought?

- **About:**
  - Drought is generally considered as a **deficiency in rainfall /precipitation over an extended period**, usually a season or more, resulting in a **water shortage causing adverse impacts on vegetation, animals, and/or people.**
- **Causes:**
  - **Variability in rainfall**
  - **Deviation in the route of monsoon winds**
  - **Early withdrawal of the monsoon**
  - **Forest fires**
  - **Land degradation** in addition to **Climate change**
- **Types:**
  - **Meteorological Drought:** It is based on the degree of dryness or rainfall deficit and the length of the dry period.
  - **Hydrological Drought:** It is based on the impact of rainfall deficits on the water supply such as stream flow, reservoir and lake levels, and ground water table decline.
  - **Agricultural Drought:** It refers to the impact on agriculture by factors such as rainfall deficits, soil water deficits, reduced groundwater, or reservoir levels needed for irrigation.
  - **Socioeconomic Drought:** It considers the impact of drought conditions (meteorological, agricultural, or hydrological drought) on supply and demand of some economic goods such as fruits, vegetables, grains and meat.

How bad is the Drought Situation in Europe?

- **Present Scenario:**
  - The drought is considered the worst in 500 years. The European summer was this dry last in **1540**, when **a year-long drought killed tens of thousands of people.**
    - However, earlier European droughts such as those in **2003, 2010, and 2018** too were compared to the 1540 event.
  - Some of Europe's biggest rivers — **Rhine**, **Po**, **Loire**, **Danube** — which are usually formidable waterways, are unable to support even mid-sized boats.
  - As per an analytical report by the **Global Drought Observatory (GDO)**, an agency of the **European Commission**, about **64% of the continent's landmass was experiencing drought** conditions.
    - Nearly **90% of the geographical area in Switzerland and France**, about **83% in Germany**, and close to **75% in Italy,** was facing **agricultural drought.**
    - The **situation is unlikely to improve** substantially in the coming months.
- **Causes:**
  - Droughts are part of the natural climate system and are not uncommon in Europe. The extraordinary dry spell has been the result of a **prolonged and significant deviation from normal weather patterns.**
    - It is the **record-breaking** heat waves that have resulted in temperatures in many countries rising to historic highs.
    - Unusually high temperatures have led to **increased evaporation of surface water and soil moisture.**
  - The severity of the current drought can also be attributed, to an extent, to the fact that it occurred **so soon after the 2018 drought.**
    - **Many areas in Europe were yet to recover from the last drought,** soil moisture had also not been restored to normal.

What is Understood by Heat Waves?

- A heat wave is **a period of abnormally high temperatures** typically occurring between the

months of March and June, and in some rare cases even extending till July.
- According to **India Meteorological Department (IMD),** a heat wave is declared when the **maximum temperature of a station reaches at least 40°C for Plains** and at least **30°C for Hilly regions.**

- **Impacts:**
  - **Transportation:** Europe depends heavily on its rivers to move cargo in an economical manner, including coal to power plants. With water levels down to less than a metre in some stretches, **most large ships have been rendered unusable.**
  - **Power:** Power production has been hit, leading to **electricity shortages** and a further **increase in energy prices** which were already high due to the **war between Russia and Ukraine.**
    - Lack of adequate water has **affected the operation of** nuclear power plants, which use large amounts of water as coolant.
  - **Food Security: Food has become sharply more expensive** in many countries, and **drinking water is being rationed** in some regions. **Agriculture** has also been affected badly.

What about the Drought Situations in the US and China?

- **Drought in China:**
  - Many parts of China too are headed towards a serious drought, **being described as the worst in 60 years.**
  - The country's **longest river,** Yangtze, which caters to about a third of the Chinese population, is seeing water levels drop to record lows.
  - Two of the country's biggest freshwater lakes, **Poyang and Dongting, have reached their lowest levels since 1951.**
  - The water scarcity is leading to problems similar to those in Europe.
    - The drought has posed a **"serious threat" to China's autumn grain production** which makes up about 75% of the country's annual grain output.
    - Power shortages in some areas have begun to **force factories to shut,** adding to the **strain on global supply chains.**
- **Drought in the US:**
  - According to the US government, **over 40% of the area in the United States too is under drought conditions** currently, affecting about 130 million people.

How Drought is Declared in India?

- In India, there is **no single, legally accepted definition** of drought. The **State Government is the final authority** when it comes to declaring a region as drought affected.
- The Government of India has published two important documents in respect of managing a drought.
  - The first step is to **look at two mandatory indicators - rainfall deviation and dry spell.**
    - Depending on the extent of the deviation, and whether or not there is a dry spell, the manual specifies various situations that may or may not be considered a drought trigger.
  - The second step is to **look at four impact indicators — agriculture, vegetation indices** based on remote sensing, **soil moisture, and hydrology.**
    - The **States may consider any three of the four types** of the Impact Indicators (one from each) for assessment of drought, the intensity of the calamity and make a judgement.
    - If all three chosen indicators are in the 'severe' category, it amounts to **severe drought**; and if two of the three chosen impact indicators are in the 'moderate' class, it amounts to **moderate drought.**
  - The third step comes in after both previous triggers have been set off. In that event, **"States will conduct sample surveys for ground** in order to make a final determination of drought.

        - The finding of field verification exercise will be the final basis for judging the intensity of drought as ‘severe’ or ‘moderate’.
    - Once a drought is determined, the state government needs to **issue a notification specifying the geographical extent**. The **notification is valid for six months unless de-notified earlier.**

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. Consider the following pairs: (2014)

	Programme/Project	**Ministry**
1.	Drought-Prone Area	Ministry of Agriculture & Farmers Welfare
2.	Desert Development Programme	Ministry of Environment, Forests & Climate Change
3.	National Watershed Project Development for Rainfed Areas	Ministry of Rural Development

Which of the above pairs is/are correctly matched?

(a) 1 and 2 only
(b) 3 only
(c) 1, 2 and 3
(d) None

Ans: (d)

Mains

Q. The process of desertification does not have climate boundaries. Justify with examples. **(2020)**

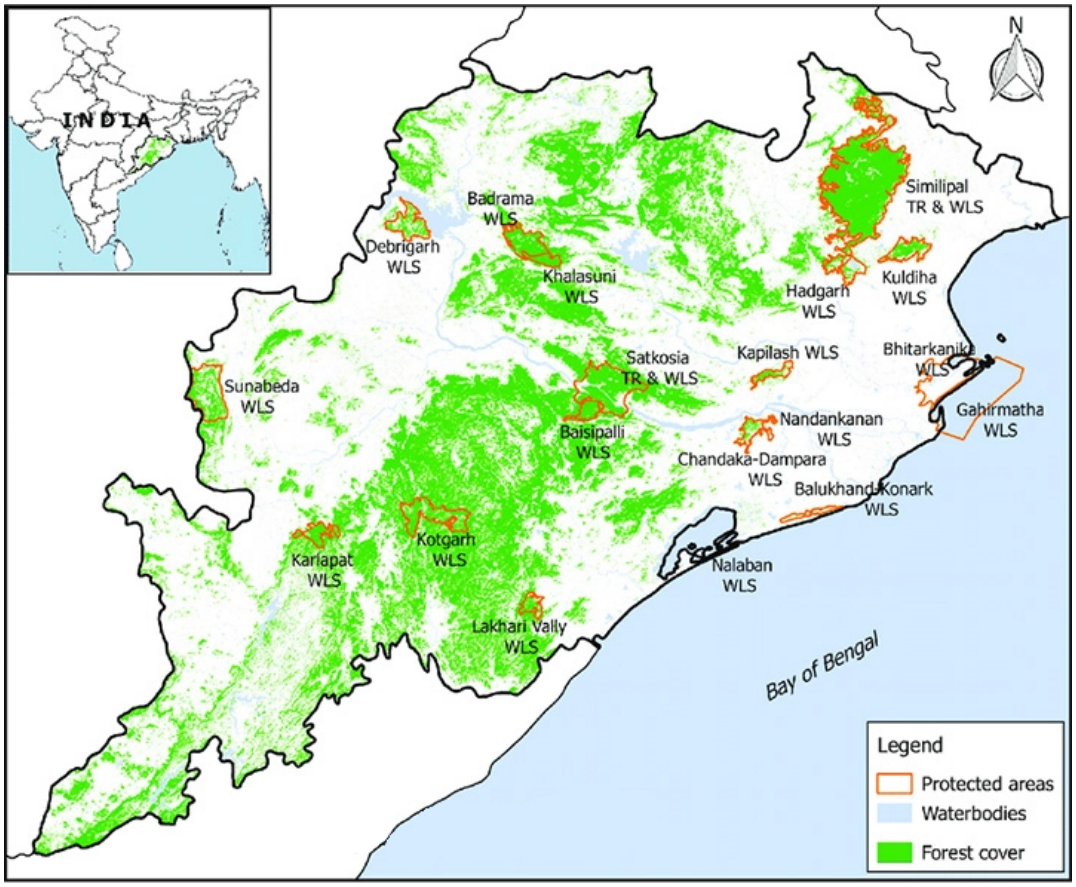
Q. In what way micro-watershed development projects help in water conservation in drought-prone and semi-arid regions of India? **(2016)**

Source: IE

Bhitarkanika National Park

Why in News?

Recently, the **Bhitarkanika National Park** have reached a saturation point in the population of crocodile which could lead to more human-Crocodile conflict.



What is Bhitarkanika National Park?

- **About:**
  - Bhitarkanika National Park is spread in a vast area of 672 Kms in **Orissa.**
  - It is the second largest **Mangrove ecosystems** of India.
  - The National Park is essentially a network of creeks and canals which are inundated with waters from rivers **Brahmani, Baitarani, Dhamra and Patasala** forming a unique ecosystem.
  - Its proximity to **Bay of Bengal** makes the soil of the area enriched with salts, the vegetation and the species of the sanctuary is comprised of those which are mainly found in the tropical and subtropical inter tidal regions.
  - **It is the breeding place for the** Salt Water Crocodiles.
  - The Gahirmatha Beach which forms the boundary of the sanctuary in the east is the **largest colony of the** Olive Ridley Sea Turtles.
  - The other unique phenomenon is the **Bagagahana or the heronry near Surajpore** creek.
    - Thousands of birds colonise the creek for nesting and the aerial acrobatics performed prior to mating make for an impressive sight.
  - Bhitarkanika is also home to **eight varieties of Kingfisher birds** which is also a rarity.

What are the Issues?

- **Rising conflict:**
  - Almost, 50 people have been killed by crocodiles since 2012 in and around the park, while 25 crocodiles died during the same time after entering human settlements or getting caught in fishing nets.
- **Territorial Reptile:**
  - Crocodile is a **territorial aquatic reptile,** that means too many crocodiles can't live in a small area as there will be **increased competition for food, mating partners, basking sites.**
- **Historical perspective:**

- The **Union Ministry of Forest and Environment** in 1991 had directed the state forest department to stop the crocodile rearing programme in Bhitarkanika due to the saturation point reached by crocodile population.
    - However, the government **stopped funding** for the crocodile breeding and rearing project in 1990.
    - Further, the forest department had stopped the crocodile breeding and release programme in 1995 in the park as the crocodile population had reached around 1,000, from 94 in 1975.

What is Crocodile Conservation Project?

- The **crocodile conservation project in Bhitarkanika** was started in 1975.
- Its main objective was **to protect the reptiles' natural habitats and to rebuild the population quickly through captive breeding** as the survival rate of crocodile hatchlings in nature is low because of predation.
- Since Odisha is recognized for the existence of all the **three species of Indian crocodilians,** the Gharial and Saltwater crocodile conservation programme was first implemented in Odisha in early 1975 and subsequently, the Mugger conservation programme was initiated.
- The **UNDP/ FAO** provided funds and other technical support through the Government of India.

Way Forward

There is a need to take steps for the reduction in the crocodile population and also the Government needs to take measures for the redistribution of crocodiles into wetlands of entire mangrove forests of Bhitarakanika and Mahanadi River system.

UPSC Civil Services Examination Previous Year Question:

Prelims

Q. if you want to see gharials in their natural habitat, which one of the following is the best place to visit? (2017)

(a) Bhitarkanika Mangroves
(b) Chambal River
(c) Pulicat Lake
(d) Deepor Beel

Ans: (b)

Exp:

- National Chambal Sanctuary, also called the National Chambal Gharial Wildlife Sanctuary, is a 5,400 sq km tri-state, namely MP, Rajasthan and UP protected area in northern India for the protection of the critically endangered gharial, the red-crowned roof turtle and the endangered Ganges river dolphin.
- **The gharial (Gavialis gangeticus), also known as the gavial, and fish-eating crocodile is a crocodilian in the family Gavialidae, and is native to the northern part of the Indian subcontinent.**
- The global wild gharial population is estimated at fewer than 235 individuals, which are threatened by loss of riverine habitat, depletion of fish resources, and entanglement in fishing nets. As the population has declined drastically since the 1930s, the gharial is listed as critically endangered on the IUCN Red List. **Therefore, option (b) is the correct answer**

Source: DTE

Nikshay Poshan Yojna

For Prelims: Tuberculosis, Efforts to Combat Tuberculosis.

For Mains: Nikshay Poshan Yojna, Health, Government Policies & Interventions.

Why in News?

Only two-thirds of people living with tuberculosis benefitted from the Union government's Nikshay Poshan Yojana (NPY), sole nutrition support scheme, in 2021, which raises major public health concern.

What is Tuberculosis (TB)?

- **About:**
  - TB is caused by a **bacterium called Mycobacterium tuberculosis,** belonging to the Mycobacteriaceae family consisting of about 200 members.
    - Some Mycobacteria cause diseases like TB and **Leprosy in humans** and others infect a wide range of animals.
  - In humans, TB most **commonly affects the lungs (pulmonary TB),** but it can also affect **other organs (extra-pulmonary TB).**
  - TB is a **very ancient disease** and has been documented to have existed in Egypt as early as 3000 BC.
- **Transmission:**
  - TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.
- **Symptoms:**
  - Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- **Treatment:**
  - **TB is a treatable and curable disease. It is treated with a standard 6-month course of 4 antimicrobial drugs** that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
  - **Anti-TB medicines** have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.
    - **Multidrug-resistant tuberculosis (MDR-TB)** is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs.
    - **Extensively drug-resistant TB (XDR-TB)** is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

What is Nikshay Poshan Yojna?

- **About**
  - The NPY was launched in 2018 by the Ministry of Health and Family Welfare.
  - It aims to support every Tuberculosis (TB) Patient by providing a Direct Benefit Transfer

(DBT) of Rs 500 per month for nutritional needs.
        - Since its inception around Rs 1,488 crore has been paid to 5.73 million notified beneficiaries.
- **Performance:**
    - As per India TB Report 2022, only 62.1 % of 2.1 million notified cases across the country **received at least one payment in 2021.**
    - In Delhi, which has the highest burden of all forms of TB at 747 cases per 100,000 people, only 30.2 % of patients have got at least one DBT.
        - Other poor performers are Punjab, Jharkhand, Maharashtra, Bihar, Rajasthan and Uttar Pradesh. In the North East, Manipur and Meghalaya fared the worst.
- **Challenges:**
    - Several hurdles were found in the DBT for both health providers and patients such as non-availability of bank accounts and unlinked bank accounts.
    - Lack of communication, stigma, illiteracy and the multi-step approval process as key hurdles.
    - States have their own nutritional support schemes, but caveats remain here too; for instance, **some schemes are only for patients showing resistance to TB drugs.**

What is the Status of TB in India?

- As per **India TB Report 2022**, during 2021, the total number of TB patients was more than 19 lakhs. In 2020 it was around 16 lakhs, increasing 19 %.
- In India, the mortality rate due to all kinds of tuberculosis **increased by 11% between 2019 and 2020.**
- The total number of estimated TB-related deaths for the year 2020 was 4.93 lakh, which is **13 % higher than the estimates of 2019.**
- Malnutrition, HIV, diabetes, alcohol, and tobacco smoking are the comorbidities that impact a person suffering from TB.

What are the Initiatives to Combat TB?

- **Global Efforts:**
    - The WHO has launched a joint initiative “Find. Treat. All. #EndTB” with the **Global Fund** and **Stop TB Partnership.**
    - WHO also releases the **Global Tuberculosis Report.**
- **India’s Efforts:**
    - **National Strategic Plan (NSP)** for Tuberculosis Elimination (2017-2025), The Nikshay Ecosystem (National TB information system), Nikshay Poshan Yojana (NPY- financial support), **TB Harega Desh Jeetega Campaign.**
    - Currently, two vaccines VPM (Vaccine Projekt Management) 1002 and MIP (Mycobacterium Indicus Pranii) have been developed and identified for TB, and are under **Phase-3 clinical trial.**
    - **The Saksham Project**: It is a project of the Tata Institute of Social Sciences (TISS) that has been providing psycho-social counselling to DR-TB patients.

Way Forward

- India has set a target to **eliminate TB by 2025**. Experts believe that **to reach this goal, the country must go beyond the medical aspects.**
- The government needs to take stock of where the bottlenecks are. There is no point in pouring more money into a failing system.
- Any investment in diagnostic treatments is irrelevant if people fighting TB are living on an empty stomach. It affects the poorest populations and almost every family is in financial distress due to medical costs and lost wages.
- A broader approach is needed to prevent TB, there should be schemes to **include food support for those in close contact with the patient** as they are also at high risk of contracting the disease.

Source: DTE

Chief of Royal Malaysian Navy Visits India

For Prelims: India Malaysia Relations, Trend of Trade and exchange between India Malaysia

For Mains: India- Malaysia Relations and Recent developments.

Why in News?

Recently, the Chief of **Royal Malaysian Navy visited India** at the invitation of **Chief of the Naval Staff,** Indian Navy**.**

- Both Navies have recently concluded the **Bilateral Exercise** Samudra Laksamana in May 2022 and the **Navy-to-Navy Staff Talks** in June 2022.

How has India Malaysia Relations been?

- India established **diplomatic relations with Malaysia in 1957.**
- **Economic Relation:**
  - India and Malaysia have signed the **Comprehensive Economic Cooperation Agreement (CECA).**
    - CECA is a kind of **Free Trade Agreement (FTA).**
  - India has also signed the Free Trade Agreement (FTA) in services and investments with the 10-member **Association of Southeast Asian Nations (ASEAN).**
    - Malaysia is the third largest trading partner in **ASEAN.**
  - Bilateral trade between India and Malaysia is significantly biased in favour of Malaysia.
- **Defence & Security Cooperation:**
  - Joint military exercises **"Harimau Shakti"** are held annually between the two countries.

- **Traditional medicine:**
  - India and Malaysia signed a MoU on cooperation in the field of **Traditional Medicine** in October 2010.
  - The Government of Malaysia has been working to popularize **AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy)** systems in Malaysia.
    - AYUSH systems are practiced in Malaysia.
- **Recent Developments:**
  - In 2020, **India resumed purchases of** Malaysian palm oil after a gap of four-month **following a diplomatic row between the two countries.**
  - The former Prime Minister of Malaysia had criticised India's **Citizenship Amendment Act (CAA)** which was considered as an interference in the internal matters of India.

What is the Significance of Malaysia for India?

- As a country where **7.2% of the population is of Indian origin**, Malaysia assumes an important place in **India's foreign policy.**
- Surrounded by busy sea lines of communications such as the **Strait of Malacca** and the **South China Sea,** Malaysia is also a **key pillar of** India's Act East policy and critical to **India's maritime connectivity strategies.**

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Indian Diaspora has an important role to play in South East Asian countries' economy and society. Appraise the role of Indian Diaspora in South-East Asia in this context. **(2017).**

Q. With respect to the South China sea, maritime territorial disputes and rising tension affirm the need for safeguarding maritime security to ensure freedom of navigation and overflight throughout the region. In this context, discuss the bilateral issues between India and China. **(2014)**

Source: PIB
