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1. Particularly Vulnerable Tribal Group (PVTG)

- Particularly vulnerable tribal group (PVTG) is a government of India classification created with the **purpose of enabling improvement in the conditions of certain communities with particularly low development indices.**
- The **Dhebar Commission (1960-1961)** stated that within Scheduled Tribes there existed an inequality in the rate of development.
- During the **fourth Five Year Plan** a sub-category was created within Scheduled Tribes to identify groups that considered to be at a lower level of development. This was created based on the Dhebar Commission report and other studies. This sub-category was named "**Primitive tribal group**".
- The **features of such a group include a.**
 - ✓ Pre-agricultural system of existence (that is practice of hunting and gathering)
 - ✓ Zero or negative population growth
 - ✓ Extremely low level of literacy (in comparison with other tribal groups)
 - ✓ A subsistence level of economy
- Groups that **satisfied any one of the criterion were considered as PTG.**
- At the conclusion of the Fifth Five year plan, 52 communities were identified as being a "primitive tribal group", these communities were identified on the basis of recommendations made by the respective state governments.
- At the conclusion of the Sixth Five year plan 20 groups were added and 2 more in the Seventh Five year plan, one more group was added in the eighth five-year plan, making a total 75 groups were identified as PTG.
- In 2006 the government of India proposed to rename "Primitive tribal group" as Primitive and vulnerable tribal group".
- PTG has since been renamed Primitive and vulnerable tribal group by the government of India.
- Currently, Total of 75 PVTGs out of 705 Scheduled Tribes, spread over 18 states and one Union Territory (A&N Islands) in the country (**2011 census**).
- Among the 75 listed PVTG's the highest number are found in Odisha (13), followed by Andhra Pradesh (12). (2011 Census).
- The Ministry of Tribal Affairs implements the Scheme of "Development of Particularly Vulnerable Tribal Groups (PVTGs)" exclusively for them.
- Under the scheme, Conservation-cum-Development (CCD)/Annual Plans are to be prepared by each State/UT for their PVTGs based on their need assessment, which are then appraised and approved by the Project Appraisal Committee of the Ministry.

- Priority is also assigned to PVTGs under the schemes of Special Central Assistance (SCA) to Tribal SubScheme (TSS), Grants under Article 275(1) of the Constitution, Grants-in-aid to Voluntary Organisations working for the welfare of Schedule Tribes and Strengthening of Education among ST Girls in Low Literacy Districts.

Why In News

- The Chhattisgarh government is processing habitat rights for Abujh Marias, a Particularly Vulnerable Tribal Group (PVTG).

2. Types of Port as Per NCERT Class 12th

Types of Port On The Basis Of Specialised Functions: Ports Of Call:

- These are the ports which originally developed as calling points on main sea routes where ships used to anchor for refuelling, watering and taking food items.
- Later on, they developed into commercial ports. Aden, Honolulu and Singapore are good examples.

Packet Station:

- These are also known as ferry ports.
- These packet stations are exclusively concerned with the transportation of passengers and mail across water bodies covering short distances.
- These stations occur in pairs located in such a way that they face each other across the water body.
- Dover in England and Calais in France across the English Channel.

Entrepot Ports:

- These are collection centres where the goods are brought from different countries for export.
- Singapore is an entrepot for Asia
- Rotterdam for Europe, and Copenhagen for the Baltic region.

Baltic States:

- The terms Baltic region, Baltic Rim countries (or simply Baltic Rim), and the Baltic Sea countries refer to slightly different combinations of countries in the general area surrounding the Baltic Sea in Northern Europe.
- The Baltic states is a geopolitical term, typically used to group the three sovereign states in Northern Europe on the eastern coast of the Baltic Sea: Estonia, Latvia, and Lithuania



Naval Ports:

- These are ports which have only strategic importance.
- These ports serve warships and have repair workshops for them. Kochi and Karwar are examples of such ports in India.

Oil Ports:

- These ports deal in the processing and shipping of oil. Some of these are tanker ports and some are refinery ports.
- Maracaibo in Venezuela, Esskhira in Tunisia, Tripoli in Lebanon are tanker ports.
- Abadan on the Gulf of Persia is a refinery port.

Types Of Port According To Cargo Handled: Industrial Ports:

- These ports specialise in bulk cargo-like grain, sugar, ore, oil, chemicals and similar materials.

Commercial Ports:

- These ports handle general cargo-packaged products and manufactured good.
- These ports also handle passenger traffic. **COMPREHENSIVE PORTS:**
- Such ports handle bulk and general cargo in large volumes

Types Of Port On The Basis Of Location: Inland Ports:

- These ports are located away from the sea coast.
- They are linked to the sea through a river or a canal. Such ports are accessible to flat bottom ships or barges.
- Manchester is linked with a canal; Memphis is located on the river Mississippi; Rhine has several ports like Mannheim and Duisburg; and Kolkata is located on the river Hoogli, a branch of the river Ganga

Out Ports:

- These are deep water ports built away from the actual ports.
- These serve the parent ports by receiving those ships which are unable to approach them due to their large size.
- Classic combination, for example, is Athens and its out port Piraeus in Greece.

3. Biofuels

- A fuel derived immediately from organic matter
- **Solid:** Wood, dried plant material, and manure
- **Liquid:** Bioethanol and Biodiesel
- Gaseous: Biogas

Types of Biofuels

First generation biofuels:

- These are made from food sources such as sugar, starch, vegetable oil, or animal fats using conventional technology. **Bio alcohols, Biodiesel, Vegetable oil, Bioethers, Biogas.**

Second generation biofuels:

- These are produced from non-food crops or portions of food crops that are not edible and considered as wastes e.g. Stems, husks, wood chips, and fruit skins and peeling. Cellulose ethanol, biodiesel.

Third generation biofuels:

- These are produced from micro-organisms like algae. Butanol

Fourth Generation Biofuels:

- In the production of these fuels, crops that are genetically engineered to take in high amounts of carbon are grown and harvested as biomass. The crops are then converted into fuel using second generation techniques.
- The fuel is pre-combusted and the carbon is captured. Then the carbon is geo-sequestered, meaning that the carbon is stored in depleted oil or gas fields or in unmineable coal seams.

National Policy on Biofuels, 2018:

- The National Policy on Biofuels-2018 envisages an indicative target of 20% blending of ethanol in petrol 5% blending of bio-diesel in diesel by 2030
- The Policy categorises biofuels as “Basic Biofuels” viz. First Generation (1G) bioethanol & biodiesel and “Advanced Biofuels” Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.
- **Scope of raw materials:** The Policy expands the scope of raw material for ethanol production by 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
- **Protection to farmers:** Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.
- **Viability gap funding:** With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
- **Boost to biodiesel production:** The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.

Other Schemes (Biofuels)

- **GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN scheme, 2018:** It focuses on managing and converting cattle dung and solid waste in farms to useful compost, biogas and bio-CNG, thus keeping villages clean and increasing the income of rural households.
- **Repurpose Used Cooking Oil (RUCO)** launched by Food Safety and Standards Authority of India (FSSAI) aims for an ecosystem that will enable the collection and conversion of used cooking oil to biodiesel.

- **Pradhan Mantri JI-VAN Yojana, 2019:** The objective of the scheme is to create an ecosystem for setting up commercial projects and to boost Research and Development in 2G Ethanol sector

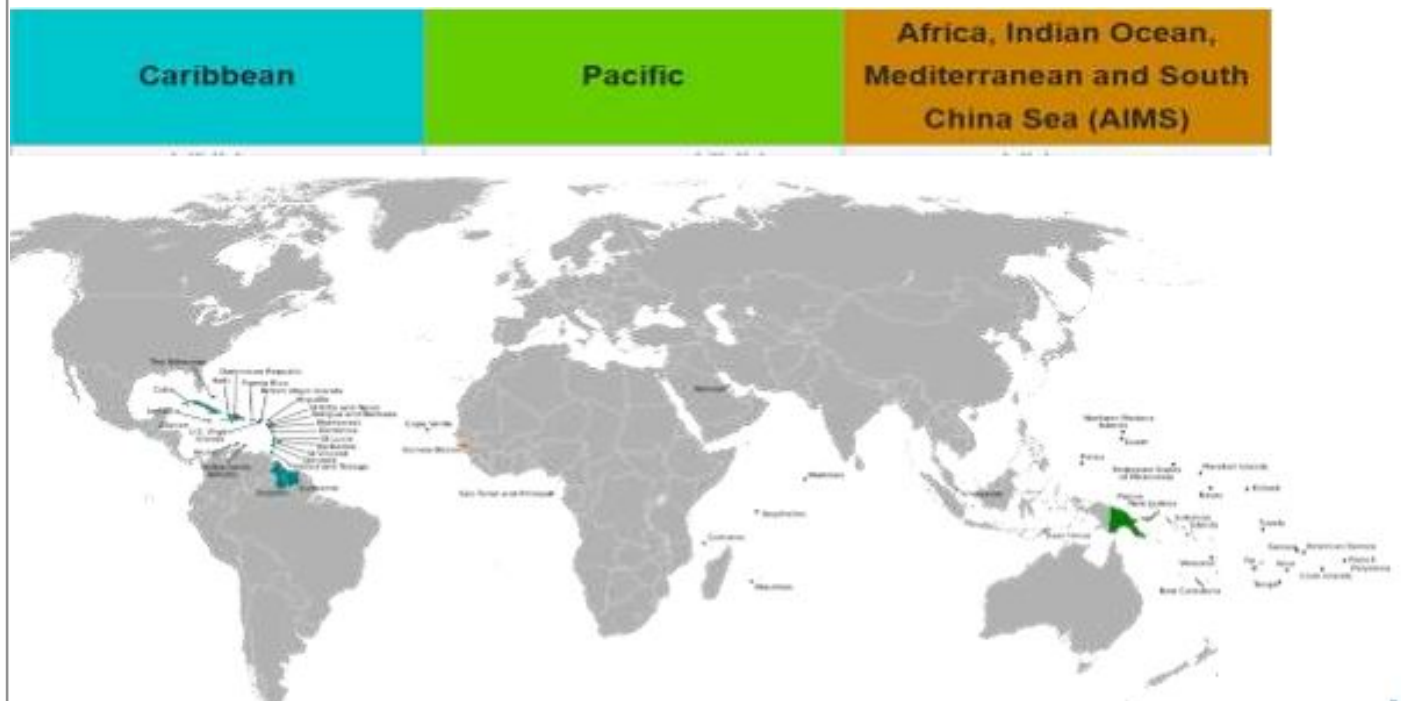
4. Small Island Developing States

Why In News?

- The United Nation (UN) in its report on World Population Prospects 2019 has warned that many Small Island Developing States (SIDS) may fail to achieve several Sustainable Development Goals (SDGs) by 2030 because of increasing population and climate change risks.

What Are SIDS?

- Small Island Developing States (SIDS) are a group of small island countries that tend to share similar sustainable development challenges, including small but growing populations, limited resources, remoteness, susceptibility to natural disasters, vulnerability to external shocks, excessive dependence on international trade, and fragile environments
- The SIDS were first recognized as a distinct group of developing countries at the United Nations Conference on Environment and Development in June 1992.
- The Barbados Programme of Action was produced in 1994 to assist the SIDS in their sustainable development efforts.
- Currently, the United Nations Department of Economic and Social Affairs lists 57 small island developing states. These are broken down into three geographic regions: the Caribbean; the Pacific; and Africa, Indian Ocean, Mediterranean and South China Sea (AIMS).



- In addition, most (but not all) SIDS are members of the Alliance of Small Island States (AOSIS), which performs lobbying and negotiating functions for the SIDS within the United Nations system.
- For list of Small Island Developing States click [here](#)

Alliance of Small Island States (AOSIS)

- Alliance of Small Island States (AOSIS) is an intergovernmental organization of low-lying coastal and small island countries.
- Established in 1990, the main purpose of the alliance is to consolidate the voices of Small Island Developing States (SIDS) to address global warming.

Reasons for Missing SDGS

- Population: Several SIDS, including Comoros, Guinea-Bissau, Sao Tome and Principe, the Solomon Islands and Vanuatu, are experiencing a sharper population growth, higher than the global average rate of 1.07 per cent.
- The total population of these countries is only 71 million, but growing fast: said to increase to 78 million by 2030 and 87 million by 2050, added the report.
- **Climate change:** The challenge is bigger for these small countries because of their vulnerability to climate change, climate variability and sea-level rise.
- **Geographical reasons:** One-third of the entire population of SIDS lives on lands that are less than five metres below the sea level. This makes them highly vulnerable to sea-level rise, storm surge and coastal destruction.

Impact of Climate Change on SIDS

- These countries contribute only 1 per cent of global greenhouse gas emissions, and yet are among the first to experience the worst impacts of climate change.
- Agricultural production, fisheries, and related sectors are declining as the climate changes, threatening livelihoods and economic growth.
- In addition, extreme weather spawned by climate change is destroying SIDS land, real estate and infrastructure, with economically catastrophic effects.
- Tourism forms the foundation of many SIDS economies, and climate change is impacting it. Tourists are being discouraged from travelling to SIDS in the fear of violent and life-threatening storms.

5. World Population Prospects 2019

- World Population Prospects 2019 has been released by the Population Division of the UN Department of Economic and Social Affairs.
- WPP 2019 is 26th edition of United Nations population estimates and projections.
- According to United Nations report 'World Population Prospects 2019', India is projected to surpass China as world's most populous country in eight years i.e. by 2027.
- It presents population estimates from year 1950 to 2019 for 235 countries or areas by analysing historical demographic trends.
- WPPP 2019 revision presents population projections to year 2100.

Key Findings:

- **Global Population:** Despite a slowing global birth rate world population is projected to increase by another 2 billion people by 2050 i.e. from billion in 2019 to 9.7 billion by 2050.
- **India:** According to report estimates India is expected to add 273 million people by 2050 and will remain most populated until the end of century (2100).
- **Ageing Population:** The report projects that overall world's population is ageing at such a fast rate that by 2050, 1 in 6 people in world will be part of age group of 65 (and above) as compared to 1 in 11 in 2019.
- **Shrinking Population:** Between 2019 and 2050, nearly 55 countries are estimated to face population shrinking by at least 1%. China will be the largest of these 55 countries whose population is projected to shrink by as much as 2.2% (about 31.4 million) by 2050.

6. Water Quality Report

- Recently, **Ministry of Consumer Affairs, Food & Public Distribution** has released **Water Quality Report for State capitals & Delhi**.
- In order to ensure that clean and safe drinking water is provided to all, Department of Consumer Affairs decided to undertake a study through the Bureau of India Standards (BIS) on the quality of piped drinking water being supplied in the country and also rank the States, Smart Cities and even Districts based on the quality of tap water.
- The study was conducted in two phases.
- In first phase, samples of drinking water were collected across Delhi and in the second phase the samples were collected from several state capitals.

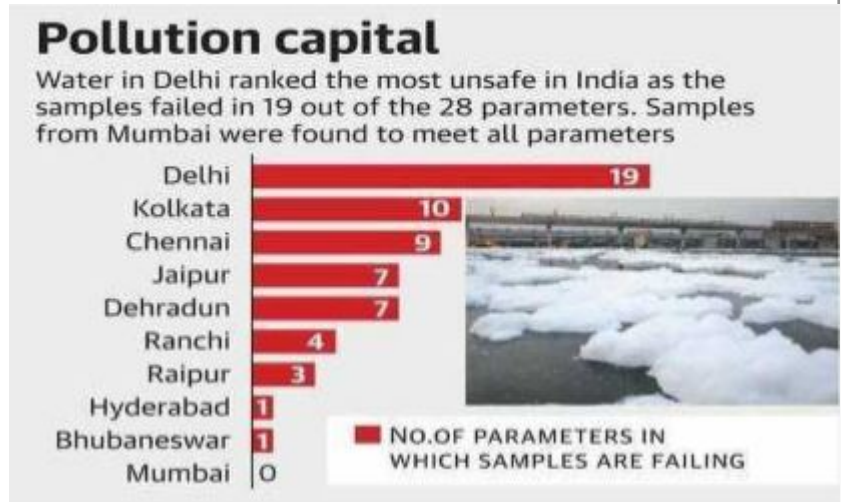
Tests were conducted on various parameters:

- Organoleptic and Physical
- Tests Chemical test
- Toxic
- Substances
- Bacteriological
- Tests
- Total Dissolve Solids
- (TDS) Turbidity
- Total hardness
- Total alkalinity
- Minerals and
- Metals

- Presence of Coliform and E Coli

Performance of Cities

- In Delhi, out of 11 samples, 10 failed to comply the standards of Indian Standards.
- All the 10 samples drawn from Mumbai were found to comply with the requirements. Mumbai is the only city where all samples of tap water met all the tested parameters under the Indian Standard 10500:2012 (specification for drinking water)



NOTE:

- While it is mandatory for bottled water manufacturers to meet quality standards, the BIS standard is voluntary for the public agencies which supply and distribute piped water.
- The best performing cities where almost all the samples were up to the standard were Ranchi, Shimla, Bhubaneswar, Amravati and Raipur.
- The worst performing cities where only very few or none of the samples were under the Indian Standards were Thiruvananthapuram, Chandigarh, Bhopal, Patna, Bengaluru, Gandhinagar, Lucknow, Chennai, Dehradun, Kolkata and Jaipur.

Why Such Report?

- This study was in line with Jal Jeevan Mission which aims to provide tap water to all households by 2024.

Jal Jeevan Mission

- **Ministry of Jal Shakti**
- India has **16% of the world population, but only 4% of freshwater resources.**
- Depleting groundwater level, overexploitation and deteriorating water quality, climate change, etc. are major challenges to provide potable drinking water.
- Therefore, ensuring **India's water security and providing access to safe and adequate drinking water** to all Indians is a priority of the Government.
- The Mission **was announced in August 2019.**
- The chief objective of the Mission is to provide piped water supply (Har Ghar Jal) to all rural and urban households by 2024.
- It also aims to **create local infrastructure for rainwater harvesting, groundwater recharge and management of household waste water for reuse in agriculture.**
- The Jal Jeevan Mission is set to be based on various water conservation efforts like point recharge, desilting of minor irrigation tanks, use of grey water for agriculture and source sustainability.

- The Jal Jeevan Mission will converge with other Central and State Government Schemes to achieve its objectives of sustainable water supply management across the country.

7. Paramparagat Krishi Vikas Yojana (PKVY)

- Launched in 2015.
- Ministry of Agriculture & Farmers Welfare
- Also called Traditional Farming Improvement Programme.
- Launched to promote organic farming
- Objective is to improve soil health via organic farming.
- It is an extended component of Soil Health Management (SHM) under the Centrally Sponsored Scheme (CSS), National Mission on Sustainable Agriculture (NMSA).
- Scheme will encourage farmers to adopt eco-friendly concept of cultivation and reduce their dependence on fertilizers and agricultural chemicals to improve yields
- It is a cluster based scheme. Fifty or more farmers will form a cluster having 50 acre land to take up the organic farming under the scheme.
- In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming.
- Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market
- Funding pattern under the scheme is in the ratio of 60:40 by the Central and State Governments respectively. In case of North Eastern and the Himalayan States, Central Assistance is provided in the ratio of 90:10 (Centre: State) and for Union Territories, the assistance is 100%.
- The objective is to produce agricultural products free from chemicals and pesticides residues by adopting eco- friendly, low- cost technologies. Other

Objectives:

- Promote organic farming among rural youth/ farmers/ consumers/ traders. Disseminate latest technologies in organic farming.
- Utilize the services of experts from public agricultural research system in India. Organize a minimum of one cluster demonstration in a village.

National Mission on Sustainable Agriculture (NMSA)

- Launched under NAPCC (National Action Plan for Climate Change) Started in 2010
- Department of Agriculture and Cooperation, Ministry of Agriculture & Farmers Welfare
- National Mission for Sustainable Agriculture (NMSA) seeks to transform Indian agriculture into a climate resilient production system through suitable adaptation and mitigation measures in domains of both crops and animal husbandry.

- Promotes location specific integrated/Composite Farming Systems; Conserve natural resources through appropriate soil and moisture conservation measures;
- Adopt comprehensive soil health management practices;
- Optimize utilization of water resources through efficient water management to expand coverage for achieving 'more crop per drop';
- Develop capacity of farmers & stakeholder

NAPCC (National Action Plan for Climate Change)

- Govt. missions under National Action Plan on Climate Change (NAPCC)
 1. National Solar Mission
 2. National Mission for Enhanced Energy Efficiency
 3. National Mission on Sustainable Habitat
 4. National Water Mission
 5. National Mission for Sustaining the Himalayan Ecosystem
 6. National Mission for a Green India
 7. National Mission for Sustainable Agriculture
 8. National Mission on Strategic Knowledge for Climate Change

8. International Migrant Stock 2019

- According to the International Migrant Stock 2019 report, released by the United Nations Department of Economic and Social Affairs (UN DESA), India has emerged as the leading country of origin for immigrants across the world.
- India has emerged as the leading country of origin for immigrants across the world, with 17.5 million international migrants in 2019 coming from India, up from 15.9 million in 2015
- Data shows that the number of international migrants in the world had reached an estimated 272 million 2019 – 51 million more than in 2010.
- The percentage of international migrants of the total global population has increased to 3.5% from 2.8% in 2000.
- The report provides the latest estimates of the number of international migrants as per their age, sex, and origin, for all countries and areas of the world.
- India remained the top source of international migrants constituting 6.4% of the total world's migrant population.
- The most preferred destination of the Indian migrants was the UAE followed by the US.
- In India, the highest number of international migrants came from Bangladesh, Pakistan, and Nepal.
- Around two-fifths of all international migrants had gone from one developing country to another.

- The **one-third** of all international migrants originated from mostly 10 countries.
 - ✓ **India** (17.5 million international migrants)
 - ✓ **Mexico** (12 million migrants)
 - ✓ **China** (11 million)
 - ✓ **Russia** (10 million)
 - ✓ **Syria** (8 million)
- The **European region** hosted the highest number of immigrants (82 million), followed by North America (59 million) and **Northern Africa and Western Asia** (49 million).
- Among countries, the U.S. hosted the highest number of international migrants that constitute about 19% of the global population.
- The share of **women and girls in the global number of international migrants fell slightly from 49% in 2000 to 48% in 2019.**

United Nations Department of Economic and Social Affairs (UNDESA)

- It was **formed in the year 1948.**
- UN DESA assists countries around the world in agenda-setting and decision-making with the goal of meeting their economic, social and environmental challenges.
- It supports international cooperation to promote sustainable development for all (SDG).
- It is also a member of the United Nations Development Group.

9. Indus Water Treaty

- The Indus Waters Treaty is a water-sharing agreement between India and Pakistan signed in 1960.
- The Indus Waters Treaty is a water-distribution treaty between India and Pakistan, brokered by the World Bank to use the water available in **the Indus System of Rivers located in India.**
- The Indus Waters Treaty (IWT) was signed in Karachi on September 19, 1960 by the first Prime Minister of India Pandit Jawaharlal Nehru and then President of Pakistan Ayub Khan.
- The Indus system comprises of main **Indus River, Jhelum, Chenab, Ravi, Beas and Sutlej.**
- According to this agreement, **control over the water flowing in three "eastern rivers" of India – the Beas, the Ravi and the Sutlej** with the mean annual flow of 33 million acre-feet (MAF) – **was given to India**, while **control over the water flowing in three "western rivers" of India – the Indus, the Chenab and the Jhelum** with the mean annual flow of 80 MAF – **was given to Pakistan.**
- Under the treaty signed between India and Pakistan in 1960, **all the waters of three rivers, namely Ravi, Sutlej and Beas (Eastern Rivers) were allocated to India for exclusive use.**
- While, the waters of Western rivers - Indus, Jhelum, and Chenab were allocated to Pakistan except for specified domestic , non-consumptive and agricultural use permitted to India as provided in the Treaty.

- As per the treaty, **the water commissioners of Pakistan and India are required to meet twice a year and arrange technical visits to projects' sites and critical river head works.** Both the sides share details of the water flow and the quantum of water being used under the treaty.
- The treaty sets out a mechanism for cooperation and information exchange between the two countries regarding their use of the rivers.
- **A Permanent Indus Commission was set up by the United Nations for resolving any disputes that may arise in water sharing, with a mechanism for arbitration to resolve conflicts amicably.**
- Of the total 168 million acre-feet, India's share of water from the three allotted rivers is 33 million acre-feet, **which constitutes nearly 20 per cent. India uses nearly 93-94 per cent of its share under the Indus Waters Treaty.** The rest of the water remains unutilised and goes to Pakistan.
- The treaty has no provision for either country unilaterally walking out of the pact. Article XII of the treaty says "The provisions of this Treaty, or, the provisions of this Treaty as modified under the provisions of Paragraph (3), shall continue in force until terminated by a duly ratified treaty concluded for that purpose between the two governments."

Context

- Recently the Union Water Resources Minister has said that the government under the Indus Water Treaty 1960, has decided to stop its share of water which earlier used to flow to Pakistan.
- The government would divert water from eastern rivers to Jammu and Kashmir. The government's decision will not impact Pakistan's share of water under the Indus Water Treaty between the two nations.

10.The Global Liveability Index

- The concept of live ability is simple: it assesses which locations around the world provide the best or the worst living conditions.
- The Economic Intelligence Unit considered 140 cities for rankings.
- Each city is assigned a score for over 30 qualitative and quantitative factors across five broad categories of
 1. Stability
 2. Healthcare
 3. Culture and environment
 4. Education
 5. Infrastructure
- Each factor in a city is rated as acceptable, tolerable, uncomfortable, undesirable or intolerable.
- The list is topped by Vienna (Austria) for the second consecutive year.

India

- New Delhi has dropped by six places to rank 118th on the list.

- Mumbai also fell two places since last year to rank 119th.

Reasons for Decline in Live ability In Indian Cities:

1. Abuses against journalists.
2. Rise in Crime rates.
3. Climatic changes.
4. Constrained live ability conditions.

Asia:

- Among the ten least liveable cities globally, three are from Asia which are:
 1. Port Moresby in Papua New Guinea (135th)
 2. Pakistan's Karachi (136th)
 3. Bangladesh's Dhaka (138th)

BRICS

- Among the BRICS countries, Suzhou from China was ranked highest at 75, while India's capital New Delhi was ranked lowest at 118th.

11. Jaga Mission

- **Odisha Liveable Habitat Mission "JAGA"** is a society under Housing & Urban Development Department, Government of Odisha.

Aims

- Transform the slums into liveable habitat with all necessary civic infrastructure and services at par with the better off areas within the same urban local body (ULB).
- Continuously improve the standard of the infrastructure and services and access to livelihood opportunities.
- Leverage and converge various schemes/ programs/ funding opportunities by strengthening collaboration among various Departments and other Stakeholders.
- Provide advisory support to Government of Odisha to examine options for policy reforms required for the sustainable transformation of lives of urban poor.

Awards

- World Habitat Award
- **India Geospatial Excellence Award** - for technological innovation in transforming the lives of urban poor.

India Geospatial Excellence Award

- The award is bestowed to individuals who have made outstanding contributions to the development and dissemination of geospatial technologies in India.

World Habitat Award

- This award is given by World Habitat, in partnership with United Nations Habitat, every year, in recognition of innovative, outstanding, and revolutionary ideas, projects, and programmes from across the world in the field of housing.

World Habitat

- It is an international not-for-profit organisation/foundation established in the United Kingdom.
- It works internationally to help bring the best housing to the people who need it the most.

United Nations Habitat or United Nations Human Settlements Programme

- The United Nations Human Settlements Programme (UN-Habitat) is the United Nations programme for human settlements and sustainable urban development.
- It was established in 1978 as an outcome of the First UN Conference on Human Settlements and Sustainable Urban Development (Habitat I) held in Vancouver, Canada, in 1976.
- UN-Habitat maintains its headquarters at the United Nations Office at Nairobi, Kenya.
- It is mandated by the United Nations General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.
- It is a member of the United Nations Development Group.

Habitat Agenda

- The mandate of UN-Habitat derives from the Habitat Agenda, adopted by the United Nations Conference on Human Settlements (Habitat II) in Istanbul, Turkey, in 1996.
- The twin goals of the Habitat Agenda are adequate shelter for all and the development of sustainable human settlements in an urbanizing world.

12.Railways: Important Programmes

Diamond Quadrilateral

- It is a project of the Indian railways to establish a high speed rail network in India connecting across the four mega cities i.e. Delhi, Mumbai, Kolkata and Chennai, similar to the Golden Quadrilateral expressways.
- Six corridors under it connecting the metropolitan cities include –
 1. Delhi-Mumbai;
 2. Mumbai-Chennai;
 3. Chennai-Kolkata;
 4. Kolkata-Delhi;
 5. Delhi-Chennai diagonal
 6. Mumbai - Kolkata diagonal.

Mission 41K

- In order to save 41000 crore rupees in Railway's energy cost Railway Ministry has launched Mission 41K, which aims to move 90% of the traffic to the Electric traction over diesel.

UNESCO World Heritage Sites

- Indian Railway has 2 UNESCO World Heritage Sites: the mountain railways of India and the Chhatrapati Shivaji Maharaj Terminus, Mumbai.

E-Drishti Software

- The E-Drishti software is developed by Centre for Railway Information Systems (CRIS). This software includes an interface which provides summary information on punctuality of trains for the previous day.
- There is also an interface which provides information on current train running on the Indian Railway network.
- In addition, there are interfaces providing details of freight earning, freight loading and passenger earnings for the previous day & month and cumulative for the year, in comparison to the corresponding period of the previous year.

Train 18

- Train 18 is a flagship train set; the first prototype has been built by the Integral Coach Factory, Chennai, in a record time of 20 months. It will be modified for subsequent production based on the feedback from RDSO (Research Designs and Standards Organisation).
- The train is a 100% 'Make in India' project and is claimed to be built at half the cost of a similar train set that is imported.

Mission Raftarr

- The mission envisages a target of doubling of average speed of freight trains and increasing the average speed of all non-suburban passenger trains by 25 kmph in the next 5 years.

Smart Freight Operation Optimisation & Real Time Information (SFOORTI)

- App for Freight Managers which provides features for monitoring and managing freight business using Geographic Information System (GIS).
- With this application, movement of freight trains on Geographic Information System (GIS) view can be tracked Both passenger and freight trains can be tracked over Zones/Divisions/ Sections in single GIS View.

RPGRAMS – Rail Madad

- It is a mobile App to register complaints by passengers through mobile phone/web. It relays real time feedback to passengers on the status of redressal of their complaints- the passenger gets an instant ID through SMS on registration of complaint followed by a customized SMS communicating the action taken thereon by Railway.

13.Kelp Forests

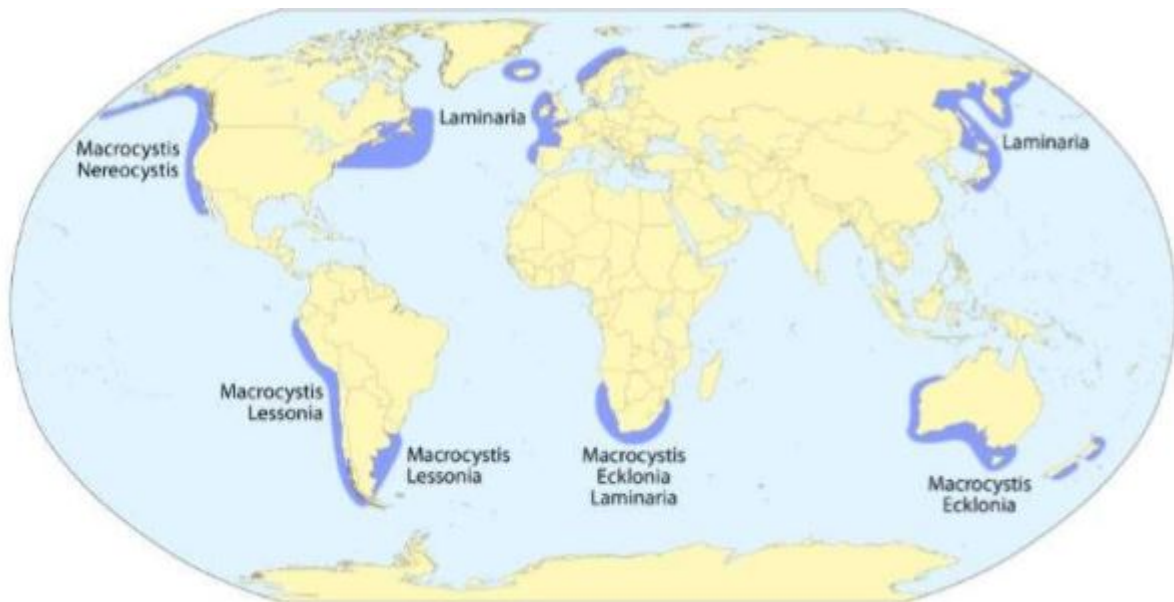
News

- Climate change is altering marine habitats such as kelp forests on a global scale.

- **Underwater Arctic Forests (Kelps) are expanding** according to a research by Canadian Marine Ecology, Universite Laval published in Global Change Biology.

Kelp Forests

- Kelp forests are underwater areas with a high density of kelp, which covers about 25% of the world's coastlines.



- Kelp are **large brown algae that live in cool, relatively shallow waters close to the shore.**
- Kelp forests occur worldwide throughout temperate and polar coastal oceans.
- Although kelp forests are unknown in tropical surface waters, a few species have been known to occur exclusively in tropical deep waters.
- The longest kelp recorded in the Arctic in Canada was 15 metres, and the deepest was found at 60-metre depth (Disko Bay, Greenland).

Significance

- They are **recognized as one of the most productive and dynamic ecosystems on Earth.**
- Kelps function underwater in the same way trees do on land. They create habitat and modify the physical environment by shading light and softening waves.
- The underwater forests that kelps create are used by many animals for shelter and food.
- Genetic evidence reveals that most kelps reinvaded the Arctic from the Atlantic Ocean quite recently (approximately 8,000 years ago, following the last Ice Age). As a result, most kelps in the Arctic are living in waters colder than their optimal temperature.
- Kelps have adapted to the severe conditions.
- These cool water species have special strategies to survive freezing temperatures and long periods of darkness, and even grow under sea ice. In regions with cold, nutrient-rich water, they can attain some of the highest rates of primary production of any natural ecosystem on Earth.

- They are considered as **Keystone Species** and their removal is likely to result in a relatively **significant shift in the composition of the community and perhaps in the physical structure of the environment**
- Kelp forests also help protect coastlines by decreasing the power of waves during storms and reducing coastal erosion.
- Kelp is a coveted **food source in many countries**, full of potassium, iron, calcium, fibre and iodine. It increases **productivity of the near shore ecosystem and dumps carbon into that ecosystem.**

Threats:

- Thawing **permafrost and crumbling Arctic coasts are dumping sediments into coastal waters at alarming rates, which blocks light and could limit plant growth.**
- Ocean warming will also move conditions closer to temperatures of maximum growth, and could increase the productivity of these habitats.
- The run-off from melting glaciers will also lowers salinity and increase turbidity, which impacts young kelp.
- Destructive fishing practices, coastal pollution, and accidental damage caused by boat entanglement are known to negatively affect kelp forests.

14. Deep Ocean Mission

- Ministry of Earth Sciences (MoES)
- Deep Ocean mission is the Government of India mission to study the various aspects of ocean in an integrated frame work as the Indian Space Research Organisation (ISRO) has been studying the space.
- The focus of the mission will be on **deep-sea mining, ocean climate change advisory services, underwater vehicles and underwater robotics related technologies.**
- These technological developments are funded under an umbrella scheme of the government – called Ocean Services, Technology, Observations, Resources Modelling and Science (O-SMART). The scheme encompasses a total of 16 sub-projects addressing ocean development activities such as Services, Technology, Resources, Observations and Science.

Key deliverables to achieve these goals:

- Offshore tidal energy desalination plant that will work with tidal energy.
- Developing a submersible vehicle to explore depths of at least 6000 Meters with three people on board.

It will promote exploration by India in its Exclusive Economic Zone (EEZ).

India has been allotted 75,000 square kilometres in the Central Indian Ocean Basin (CIOB) by UN International Sea Bed Authority for exploration of poly-metallic nodules.

Note:

- India is the **first country to have received the status of a pioneer investor in 1987 and was allocated an**

exclusive area in Central Indian Ocean Basin by UN for exploration and utilization of nodules.

Un International Sea Bed Authority (UN ISBA)

- It was established under the 1982 United Nations Convention on the Law of the Sea(UNCLOS) ,to organize, regulate and control all mineral-related activities in the international seabed area beyond the limits of national jurisdiction
- It is based in **Kingston, Jamaica.**
- India is one of the member countries.

Poly-Metallic Nodules (PMN)

- Polymetallic nodules (also known as manganese nodules) are potato-shaped, largely porous nodules found in abundance carpeting the sea floor of world oceans in deep sea.
- Polymetallic nodules, also called manganese nodules, are rock concretions formed of concentric layers of iron and manganese hydroxides around a core.
- Polymetallic nodules contain multiple metals like **copper, nickel, cobalt, manganese, iron, lead, zinc, aluminum, silver, gold, and platinum etc. in variable constitutions and are precipitate of hot fluids from upwelling hot magma from the deep interior of the oceanic crust.**

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