



drishti

Current Affairs (CONSOLIDATION)

**16-30th
NOVEMBER 2018**

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Polity and Governance

Highlights

- States Deny Consent to CBI (1)
- Maharashtra Governor's Nod to Bill For Reservation For Marathas (1)

States Deny Consent to CBI

The Andhra Pradesh and West Bengal governments withdrew “**general consent**” to the **Central Bureau of Investigation (CBI)** for investigating cases in their respective states.

- In past, several states have withdrawn consent like Sikkim, Nagaland, Chhattisgarh and Karnataka.

General Consent

- Unlike the **National Investigation Agency (NIA)**, which is governed by its own **NIA Act, 2008** and has jurisdiction across the country, the CBI is governed by the **Delhi Special Police Establishment Act, 1946 (DSPE Act, 1946)** that makes consent of a state government mandatory for conducting investigation in that state.
- There are two kinds of consent: **case-specific** and **general**.
- Given that the **CBI has jurisdiction only over central government departments and employees**, it can investigate a case involving state government employees or a violent crime in a given state only after that state government gives its consent.
- **Section 6 of the DSPE Act, 1946** empowers the state government to give or deny consent to CBI officer to investigate the matter within the state.
- “**General consent**” is normally given to help the CBI seamlessly conduct its investigation into cases of corruption against central government employees in the concerned state. Almost all states have given such consent.

Impact of Withdrawal of General Consent

- It means the CBI will not be able to register any fresh case involving a central government official or a private person stationed in these two states without getting case-specific consent.

- Withdrawal of consent will only bar the CBI from registering a case within the jurisdiction of Andhra and Bengal. The CBI could still file cases in Delhi and continue to probe people inside the two states.
- Cases registered anywhere else in the country, but involving people stationed in Andhra Pradesh and West Bengal, would allow CBI's jurisdiction to extend to these states.
- In simple terms withdrawal of consent simply means that CBI officers will lose all powers of a police officer as soon as they enter the state unless the state government has allowed them.
- It will have no impact on investigation of cases already registered with CBI as old cases were registered when general consent existed.

Maharashtra Governor's Nod to Bill For Reservation For Marathas

The Maharashtra governor gave nod to a Bill that grants 16% reservation for Maratha community in government jobs and education.

- The bill was unanimously passed by both the houses of legislature.
- The newly passed bill provides for reservation of seats for admission in educational institutions and posts in public services under **Article 15(4), 16(4)** of the Constitution of India.
- **Maratha community has been granted reservation under an independent category Socially and Educationally Backward Class (SEBC).**
- The approval of the Bill has increased the reservation in Maharashtra from the current 52% to 68%, thus crossing the 50% ceiling set by Supreme Court in **Indra Sawhney Case (1992)**.

Article 15(4) in The Constitution of India

- Nothing in this article or in clause shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes.

Article 16(4) in The Constitution of India

- Nothing in this article shall prevent the State from making any provision for the reservation of appointments or posts in favor of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State.

Maratha Community

- Marathas are the Marathi-speaking, politically dominant community in Maharashtra. They make up about **one-third of the population** of the state.
- Historically, they have been identified as a warrior class with large land-holdings.

Reasons for Demand of Reservation

- Division of land and agrarian problems over the years have led to a decline of prosperity among middle-class and lower-middle-class within Maratha community.
- Marathas are a predominantly agrarian community which have been hit by the rural distress, especially the crisis in agriculture, and their efforts to seek education and alternative employment has been hampered by locational disadvantages.
- Inability of the state governments to provide enough jobs is another factor for dissatisfaction.

Basis for Reservation

- The Maharashtra State Backward Class Commission

(MSBCC) submitted a report as per which Marathas have been declared as socially and educationally backward class of citizens and have inadequate representation in the services under state.

Issues Around Reservation➤ **Judicial Scrutiny**

- Reservation in Maharashtra is already beyond the Supreme Court imposed limit of 50% and 16% reservation to Marathas, would take it to 68%.
- However, there is no provision in the Constitution imposing ceiling on reservation. But it has provision that reservation should be given under exceptional and extraordinary cases.

➤ **Not a "Backward Community"**

- Marathas don't face any social stigma which hinders their economic development. Hence, there is no reason that calls for giving them affirmative action.
- The demand for reservations for Marathas, traditionally seen as "upper castes", goes against the spirit of affirmative action. They also play a central role in states electoral politics.

Way Forward

- Government should look at the bigger solution to the problem as quotas offer only a limited, short-term solution to these problems.
- Reservation is an instrument to rectify social and educational backwardness, **but it is not a solution for every social and economic ailment.** The government should focus on increasing economic growth which might lead to new employment opportunities.



Economic Scenario

Highlights

- RBI Eases Hedging Norms for External Commercial Borrowings (3)
- India-China Signed Amended DTAA (3)
- National Financial Reporting Authority (4)
- India's Disputes At WTO (5)
- City Gas Distribution Scheme (7)
- Minimum Wages Act for Domestic Workers (7)
- Sustainable Blue Economy Conference (9)
- Global Wage Report 2018: ILO (9)
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RBI Eases Hedging Norms for External Commercial Borrowings

The Reserve Bank has relaxed norms for external commercial borrowings (ECBs) by reducing the mandatory hedging provision to 70% from the current 100%.

- The **cost of hedging has gone up** in the last six months with the strengthening of the dollar. As a result, the ECB route was becoming unattractive to firms.
- The move will help **bring down the final cost of overseas loans** for Indian firms but could leave them more exposed to volatility in the foreign exchange markets.
- The relaxed norms will apply to the ECBs with a maturity period between 3 and 5 years.

Hedging

- Hedging is a financial technique that helps to **reduce or mitigate the effects of measurable type of risk** from the future changes in the fair value of commodities, cash flows, securities, currencies, assets and liabilities.
- It is a **kind of an insurance** that do not eliminate the risk completely but mitigate its effect.
- It consists of the purchase or sale of equal quantities of the same or very similar commodities, approximately simultaneously, in two different markets with the expectation that a future change in price in one market will be offset by an opposite change in the other market.

External Commercial Borrowings

- External Commercial Borrowings is a **loan availed by an Indian entity** from a nonresident lender with a **minimum average maturity of 3 years**.
- **Advantages of ECBs:**
 - ECBs provide **opportunity to borrow large volume** of funds.
 - The funds are available for **relatively long term**.
 - **Interest rate are also lower** compared to domestic funds.
 - ECBs are in the **form of foreign currencies**. Hence, they enable corporates to have foreign currency to meet the import of machineries etc.
 - Corporates can raise ECBs from internationally recognized sources such as banks, export credit agencies, international capital markets etc.

India-China Signed Amended DTAA

- India and China have signed a protocol to amend the existing **Double Taxation Avoidance Agreement (DTAA)** to update the existing provisions to the latest international standards.
- It also incorporates changes required to implement a treaty-related minimum standards under the action reports of **Base Erosion & Profit shifting (BEPS) Project**.

Double Tax Avoidance Agreements (DTAAs)

- A DTAA is a tax treaty signed between two or more

countries so that **taxpayers in these countries can avoid being taxed twice for the same income.**

- A DTAA applies in cases where a **taxpayer resides in one country and earns income in another.**
- **Significance of DTAA:**
 - DTAAAs are intended to make a country **an attractive investment destination** by providing relief on dual taxation.
 - DTAAAs also provide for **concessional rates of tax in some cases.**
 - However, DTAAAs can become an incentive for even legitimate investors to route investments through low-tax regimes to sidestep taxation. This leads to loss of tax revenue for the country.

Base Erosion and Profit Shifting (BEPS)

- BEPS is a term used to describe **tax planning strategies that exploit mismatches and gaps that exist between the tax rules of different jurisdictions.**
- It is done to **minimise the corporation tax** that is payable overall, either making tax profits 'disappear' or shift profits to low tax jurisdictions where there is little or no genuine activity.
- In general BEPS strategies are not illegal; rather they take advantage of different tax rules operating in different jurisdictions.
- **The BEPS initiative is an Organisation for Economic Co-operation and Development (OECD) initiative, approved by the G20, to identify ways of providing more standardised tax rules globally.**

National Financial Reporting Authority

The Ministry of Corporate Affairs has notified rules determining the jurisdiction, powers, function and duties of the National Financial Reporting Authority (NFRA).

- The Companies Act, 2013 provided for the creation of a National Financial Reporting Authority.
- Earlier, the Union Cabinet on March 1, 2018 approved the creation of a National Financial Reporting Authority (NFRA) as an independent regulator for the auditing profession, in an attempt to tighten regulatory oversight over chartered accountants and plug loopholes.

Background

- The need for establishing NFRA was felt in the wake of accounting scams and to establish an independent regulator for enforcement of auditing standards and ensuring the quality of audits.
- **Section 132 of the Companies Act 2013 gives the central government the power to set up such an authority.**
- A Parliamentary Standing Committee had also recommended that the National Advisory Committee on Accounting Standards be institutionalized by setting up an NFRA.
- At present, Institute of Chartered Accountants of India (ICAI) is the auditing regulator. ICAI plays the advisory role with respect to accounting and auditing standards and policies.

Institute of Chartered Accountants of India

- The Institute of Chartered Accountants of India (ICAI) is a statutory body, established by The Chartered Accountants Act, 1949.
- The Institute functions under the administrative control of the **Ministry of Corporate Affairs.**
- It is aimed at regulating the profession of Chartered Accountancy in the country.

Key points

- NFRA will oversee the quality of service and undertake investigation of the auditors of listed entities and unlisted entities with paid-up capital of not less than ₹500 crore or annual turnover of over ₹1,000 crore or those having aggregate loans, debentures or deposits of not less than ₹500 crore as of March 31 of the preceding financial year.
- ICAI retains jurisdiction of small listed companies.
- The NFRA will also have oversight over auditors of banks, insurers, electricity firms and also those body corporates referred to it by the Centre.
- It will investigate matters, either suo moto or on a reference made to it by the Central Government, of professional misconduct by chartered accountants (CA) or CA firms, impose penalty and debar the CA or CA firm for up to 10 years.
- Make recommendations to the Central Government on the formulation and laying down of accounting and auditing policies and standards for adoption by companies or class of companies or their auditors.

- Monitor and enforce the compliance with accounting standards and auditing standards in such manner as prescribed.
- Oversee the quality of service of the professions associated with ensuring compliance with such standards, and suggest measures required for improvement in quality of service and such other related matters.
- The rules also provide for a detailed procedure on disciplinary proceedings that will be undertaken by the NFRA. It has mandated time-bound disposal (90 days) of the show cause notice through a summary procedure.
- **The National Financial Reporting Authority shall consist of members not exceeding fifteen part time and full-time members.**
- The chairperson and members, who are in full-time employment with National Financial Reporting Authority, shall not be associated with any audit firm (including related consultancy firms) during the course of their appointment and two years after ceasing to hold such appointment.

Benefits of establishing NFRA

- With the constitution of NFRA, **India is now eligible to become a member of the International Forum of Independent Audit Regulators (IFIAR)**, which was denied until now for want of an independent audit oversight body in the country.
- This will **enhance investor confidence** as well as standing of India in the global arena.
- Supporting the globalisation of business by meeting international practices.
- Further development of auditing profession.
- Establishment of NFRA will free resources for the ICAI to work on developing new and complex skills needed in the uncertain world of technology.

Way Forward

- The NFRA has an uphill task of creating a structure and processes for effectively delivering on the complete range of functions like standards setting, professional development, quality monitoring and disciplining of medium and large-size audit firm. Moreover, disposal of disciplinary cases in 90 days, is going to be onerous and challenging task.

- The NFRA should keep its distance from ICAI. Otherwise, it will become yet another case of regulatory capture.
- The NFRA should also look at company secretaries who are currently governed by the Institute of Company Secretaries of India (ICSI) as they have an equally important role in examining rule compliance.
- There is no contradiction or overlap between NFRA and ICAI, as each of them has their exclusive jurisdiction. Hence, both should meaningfully co-exist and harness mutual synergies and complementarities.

India's Disputes At WTO

Recently, Australia has referred India to the World Trade Organization (WTO) over subsidies paid to sugarcane farmers.

- Many countries have filed complaints in WTO against various welfare and subsidy programs run by government of India.

Complaints Against India

- On November 12, **US** filed a complaint against India alleging that India has paid out far more in **cotton subsidies** than the WTO rules permit.
- On November 7, India lost a trade dispute at the WTO after a settlement panel upheld **Japan's complaint** on the imposition of safeguard duty on imports of **hot-rolled steel flat** products during September 2015 and March 2018.
- In May 2018, the **US** submitted a communication under provisions of the WTO Agreement on Agriculture (AoA) on certain measures of India providing **Market Price Support (MPS) to wheat** and rice for the years 2010-11 to 2013-14.
- In 2016, the dispute settlement panel had ruled in favour of a US complaint against the requirement that power producers under the Jawaharlal Nehru National Solar Mission compulsorily procure a part of **solar panels and modules** for their projects from domestic producers.

Australia's Stand

- Australia has said that it will utilise the established global trading rules to defend the interests of its farmers and will continue to support the right of Australia's sugar industry to compete on equal terms with domestic Indian industry.

India's Stand

- India has maintained its stand that the country's sugar exports comply with WTO rules. India does not extend a subsidy to its farmers for exports, but instead gives a production subsidy.
- On the issue of MPS being violative of WTO norms, India has dismissed these allegations and has demanded that MPS should be calculated by using the recent reference period instead of 1986/88 prices, which was factored in at the time of the creation of the WTO.

Countervailing Duty and Anti-Dumping Duty

- **Countervailing Duty:** It is imposed on imported goods to counterbalance subsidy provided by the exporter country.
- **Anti-Dumping Duty:** An antidumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
 - Dumping is a process where a company exports a product at a price lower than the price it normally charges on its own home market.
 - To protect local businesses and markets, many countries impose stiff duties on products they believe are being dumped in their national market.

Agreement on Agriculture (AoA)

AoA is aimed to remove trade barriers and to promote transparent market access and integration of global markets. Agreement on agriculture stands on three pillars:

- **Domestic Support:** It calls for reduction in domestic subsidies that distorts free trade and fair price.
 - Under this provision, the Aggregate Measurement of Support (AMS) is to be reduced by 20% over a period of 6 years by developed countries and 13% over a period of 10 years by developing countries.
 - Under this, Subsidies are categorized into:
 - **Green Box:** subsidies that do not distort trade, or at most cause minimal distortion.
 1. They are government-funded and must not involve price support.
 2. They also include environmental protection and regional development programmes.
 3. "Green box" subsidies are therefore allowed without limits, provided they comply with the policy-specific criteria.

- **Amber Box:** All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box as all domestic supports except those in the blue and green boxes.

1. These include measures to support prices, or subsidies directly related to production quantities.

- **Blue Box:** This is the "amber box with conditions". Such conditions are designed to reduce distortion.

1. Any support that would normally be in the amber box is placed in the blue box if the support also requires farmers to limit production.
2. At present, there are no limits on spending on blue box subsidies.

- **Market Access:** Market access for goods in the WTO means the conditions, tariff and non-tariff measures, agreed by members for the entry of specific goods into their markets. The market access requires that tariffs fixed (like custom duties) by individual countries be cut progressively to allow free trade. It also required countries to remove non-tariff barriers and convert them to Tariff duties.

- **Export Subsidy:** Subsidy on inputs of agriculture, making export cheaper or other incentives for exports such as import duty remission etc are included under export subsidies. These can result in dumping of highly subsidized (and cheap) products in other country and damage domestic agriculture sector of other country.

Principle of Trade

Without Discrimination at WTO

- **Most Favored Nation (MFN):** Treating other nations equally. Under the WTO principle of trading system, countries normally are not allowed to discriminate between their trading partners.
- **National Treatment:** Treating foreigners and locals equally. Under this principle, foreign goods are given same treatment as one's own.
- **Free Trade:** Lowering trade barriers is one of the most obvious means of encouraging trade.
- **Predictability:** With stability, predictability and binding commitments, WTO principle seeks to encourage investment, create jobs and to accrue the benefits of competition to consumers in the form of choice quality and lower prices.

Note:

- **Promoting Fair Competition:** WTO agreements also aim to support fair competition in trade in agriculture, intellectual property, services etc.
- **Encouraging Development and Economic Reforms:** Developing countries that need flexibility to implement the system's agreements are given special assistance and trade concessions under WTO rules. This promotes economic reforms and development in these countries.

Dispute Settlement Body (DSB)

- The Dispute Settlement Body (DSB) of the World Trade Organization (WTO) makes decisions on trade disputes between member countries.
- DSB consists of all WTO members.
- The DSB makes all its decisions by consensus.
- The DSB has the sole authority to establish panels of experts to consider the case, and to accept or reject the panels' findings or the results of an appeal.
- It monitors the implementation of the rulings and recommendations, and has the power to authorize retaliation when a country does not comply with a ruling.

City Gas Distribution Scheme

Prime Minister laid the foundation stone to mark the commencement of work for 9th round of City Gas Distribution (CGD).

- Purpose for development of CGD networks is to increase the availability of cleaner cooking fuel (i.e. Piped Natural Gas) and transportation fuel (i.e. Compressed Natural Gas) in the country.
- This will also help the country to move towards a gas based economy.
- Presently the share of gas in the country's energy mix is just over 6% and the aim is to reach the 15% figure, while the world average is 24%.

Significance of the Scheme

- Environment Friendly: Natural gas, as domestic kitchen fuel, as fuel for transport sector as well as a fuel for industries and commercial units, can play a significant role in reducing carbon emission.
- Natural Gas is cheaper: than petrol, diesel and even market price LPG.
- Employment Generation: Gas networks in cities will create a new ecosystem which will enable gas based industries, generates employment to youth.

- Support **Government's clean energy initiatives** - Like Ethanol Blending, Compressed Biogas plants, increased LPG coverage and introduction of BS-6 fuels for automobiles.
 - Under Pradhan Mantri Ujjwala Yojana, cylinders will be vacated for delivery in rural areas, from the cities which will get piped gas deliveries.
- Industries: The expansion of CGD network will ensure uninterrupted supply of natural gas.
- Address constraints of cylindered gas supply: Delivering gas through cylinders is energy intensive exercise that has many layers including gas agency, distributors. Piped supply is more efficient and helps in maintaining continuous supply.

Challenges

- **Meeting Demands of Gas:** can suffer due to supply-side constraints.
- **Pricing Issue:** Imported gas should be available at affordable prices to all category of consumers.
- **Infrastructure:** Both funding and acquisition of land are required for LNG terminals at port, technology for re-gasification of LNG, and CNG stations to distribute gas to consumers in cities.

Way Forward

- Reasonable long term contract for LNG with natural gas exporting nations can help in addressing the issue of demand-supply constraints.
- The government should enhance the LNG terminal capacity, renegotiate Indo-Qatar Gas deal to increase the supply of Gas.
- It is also necessary to promote production of gas domestically.

Minimum Wages Act for Domestic Workers

A petition filed by NGO Common Cause along with social activist Aruna Roy and the National Platform for Domestic Workers has sought the **Supreme Court's intervention to lay down guidelines to protect domestic workers' rights.**

- The petition sought the recognition of domestic work under the **Minimum Wages Act, 1948.**

- The work hours should be **reduced to eight a day** and the workers should be given a **mandatory weekly off as a basic right under Article 21**.
- According to estimates by the **International Labour Organisation (ILO)**, there are at least **four million domestic workers in India**.

International Labour Organization (ILO)

- The International Labour Organization (ILO) is a **United Nations Agency** dealing with labour issues, particularly international labour standards, social protection, and work opportunities for all.
- The **ILO was created in 1919, as part of the Treaty of Versailles that ended World War I**, to reflect the belief that universal and lasting peace can be accomplished only if it is based on social justice.
- It is a **tripartite organization**, the **only one** of its kind bringing together representatives of **governments, employers and workers in its executive bodies**.
- Headquarters: **Geneva, Switzerland**.

Background

- Domestic worker is a person who is employed in any household on a temporary or permanent basis to do the household work. Many resort to domestic work because of decline of employment opportunities in the agriculture and manufacturing sectors.
- Domestic work as an **economic activity is too vast and employs too many to remain unregulated**.

Need for Protection of Domestic Workers

- Since domestic workers belong to the unorganized sector, there are **no laws safeguarding their rights** – no minimum wage requirements, no health or insurance benefits, and no job security whatsoever.
- Most of these are from **vulnerable communities** – Adivasis, Dalits or landless Other Backward Classes (OBCs). Nearly all of them are migrant workers. And an overwhelming number are women. This makes them **easy to replace, and easier still to exploit**.
- Minimum wage provisions are important instruments to protect the most vulnerable and lowest-paid workers – such as domestic workers – from unduly low wages.
- A minimum wage recognizes the basic contribution of domestic workers to homes and societies, and is a key **means of ensuring the principle of equal pay for work of equal value**.

Challenges

- While several legislations such as the **Unorganized Social Security Act, 2008, Sexual Harassment against Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 and Minimum Wages Schedules notified in various states** refer to domestic workers, there remains an **absence of comprehensive, uniformly applicable, national legislation** that guarantees fair terms of employment and decent working conditions.
- About half the states have included domestic workers as labourers under the Minimum Wages Act, which sets out terms of payment, hours of work and leave. Yet, this law is **grossly inadequate**.
 - The law does not, for instance, require domestic workers and employers to register with any authority, which is crucial for monitoring whether both parties are fulfilling their contractual obligations and for adjudicating conflicts.
- **Absence of proper documentation**, which also increases their reliance on employers to access social security benefits. As employment is largely through word of mouth or personal referrals, employment contracts are rarely negotiated, leaving the terms of employment to the whims of the employer.
- Unlike work in a formal setting, domestic work is **not guided by clear and agreed production or output goals**.
- Furthermore, **privacy norms do not bode well with the idea of regulations** (labour inspectors) entering private households and ensuring regulations.
- However, discussions are underway on a national policy for domestic workers, with the aim to protect the domestic workers from abuse, harassment, violence and guarantee them rights in the matter of social security and minimum wages.
- India is a **signatory to the ILO's 189th convention**, known as the **Convention on Domestic Workers**; but has **not ratified it yet**.

Convention on Domestic Workers

- The **189th ILO 'Convention on Domestic Workers'**, is a convention setting **labour standards for domestic workers** and was adopted during the 100th session of the International Labour Organization at Geneva in June 2011.
- It is a strong recognition of the economic and social value of domestic work and a call for action to address the existing exclusions of domestic workers from labour and social protection.

- The convention mandates that domestic workers be given daily and weekly rest hours, their payment must meet the minimum wage requirement.
- Ratifying states are also required to take protective measures against violence against workers and are also required to enforce a minimum age for employment.
- However, since these **provisions are not binding** on those countries that have not ratified the convention, India is not obliged to enforce these recommendations.

Conclusion

- Domestic work has enabled many women to **enter the labour market and benefit from economic autonomy**. The large supply of domestic workers in India has meant a shift of care responsibilities from women in the households to hired domestic workers who are a **predominantly female and largely invisible**.
- There is the need to **change the idea that care-giving is a private domestic responsibility unique to women**.
- Hence, the demands for decent work for domestic workers are **two pronged** - first and foremost, it calls for recognition of the **rights of domestic workers for fair terms of employment** that are no less favourable than those of other workers, and secondly, it calls for the **active participation of the state and the recognition of the existence of structural inequality that is perpetuated by not recognizing the sheer weight of 'care work'**.

Sustainable Blue Economy Conference

The first global conference on the sustainable **blue economy** was held on 26-28th November in Nairobi, Kenya.

- It was organised by Kenya with Canada and Japan as co-hosts. India made its presence in the conference highlighting India's strategic advantages in Blue Economy.
- The conference builds on the momentum of the **UN's 2030 Agenda for Sustainable Development, the 2015 Climate Change Conference in Paris and the UN Ocean Conference 2017 "Call to Action"**.

What is the Blue Economy? Blue Economy refers to sustainable use of ocean resources for growth, jobs and improved living standards while preserving the ecosystem. It encompasses areas like maritime transport, fisheries, renewable energy, waste management, and tourism.

The Significance of the Conference

- The conference identified the potential of the blue economy to create employment, combat poverty and hunger.
- It brought countries together to learn how economic development and healthy waters go hand in hand.
- The conference captured concrete commitments and practical actions that can be taken today to help the world transition to the blue economy.
- The impacts of climate change and plastic pollution in oceans and waters has increased the need to develop an inclusive and sustainable blue economy.

India and Blue Economy

- India has a **strategic location in the Indian Ocean Region**, and on this basis, it endorses the growth of the blue economy in a sustainable, inclusive and people-centred manner through the framework of the Indian Ocean Rim Association.
- Under **Sagarmala Programme**, India is developing maritime infrastructure as well as inland waterways and coastal shipping which will revolutionise maritime logistics, creating million new jobs, reduce logistics costs and bring port-led developments in the country.
- **Development of Coastal Economic Zones (CEZ)** under Sagarmala, would become a microcosm of the blue economy, wherein industries and townships that depend on the sea will contribute to global trade.
- Security and Growth for All in the Region (SAGAR) is India's vision for the Indian Ocean Region. It aims at sustained, peaceful and yet responsive presence of Indian naval ships in the critical area and choke points in the Indian ocean.

Global Wage Report 2018: ILO

- For the first time, the Global Wage Report 2018 has also focused on the **global gender pay gap**.

Key Findings

- **Lowest wage growth globally in 2017 since 2008:**
 - Globally, the rate of growth in wages in 2017 fell to its lowest level since 2008, but workers in India had the highest average real wage growth in Southern Asia of 5.5% over the period 2008-17.

- **Slow wage growth in high-income countries:**
 - Wages in developing countries are increasing more quickly than those in higher-income countries. But the gaps in wages are wide and the level of wages is still not high enough for people to meet their basic needs in developing countries.
- **Wage growth lagging behind productivity growth in high-income countries:**
 - Labour productivity has increased more rapidly than real wages due to which the share of labour compensation in GDP in many countries remain substantially below those of the early 1990s.
- **Wage inequality highest in low-income countries:**
 - Countries with the lowest levels of wage inequality are found among the high-income group, whereas countries with the highest levels of wage inequality are found in the low- and middle-income groups.
 - Among high-income countries, wage inequality is lowest in Sweden and highest in Chile. Among low-income and middle-income countries, South Africa and Namibia have the highest inequality, Armenia and Mongolia the lowest.
- **Gender pay gaps represent one of today's greatest social injustices:**
 - Women continue to be under-represented in traditionally male-occupied categories and within similar categories, women are consistently paid below men, even if women's educational attainments are just as good or better than those of men in similar occupations.
 - In high-income countries, the gender pay gap was at its biggest in top-salaried positions. In low- and middle-income countries, however, the gap was widest among lower-paid workers.
 - The lack of programmes supporting women's return to work after childbirth also contributes to the wage penalty that women face when resuming work after a prolonged period of absence from the labour market.
 - The wages of both men and women also tend to be lower in enterprises and occupations with a predominantly female workforce.

Way Forward

- **Educational policies** targeting enrolment rates among girls may contribute to reducing the gender pay gap in the future.

- **Reducing polarization and occupational segregation** may require changing perceptions and stereotypes, for example- attract more women into the areas of science, technology, engineering and mathematics (STEM), which offer better-paid employment opportunities.
- Countries should also look into possible ways to **address the undervaluing of women's work** in highly feminized occupations and industries, including by raising wages in the latter.
- More **equitable sharing of family duties** between women and men, as well as adequate childcare and eldercare services, would in many instances lead to women making different occupational choices.

Equal Pay International Coalition (EPIC)

- To support UN's SDG 8, the Equal Pay International Coalition (EPIC), was launched in September 2017 as a multi-stakeholder initiative that includes the **ILO, UN Women and the OECD**.
- It seeks to achieve equal pay for women and men.
- The UN's SDG 8 sets the target of "achieving full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value" by 2030.

United Nations Shortlists Noida, Greater Noida for 'Global Cities' Initiative

- The United Nations officially invited Uttar Pradesh's Noida and Greater Noida to become a member of its **Global Sustainable Cities 2025 initiative** which aims to create 25 model cities across the world that will be fully compliant with the Sustainable Development Goals (SDGs) by 2025.
- The twin-cities in Gautam Buddha Nagar district, have been selected in the "**University City**" category ahead of Mumbai and Bengaluru, which were also under UN consideration for the initiative, as the only invitee from India.
- Cities are selected from each of the following **six categories: University, UN city, Medium (Approx. 500K population), Large (Approx. 1 million population), Mega (5 million + population), Indigenous Communities**.
- As part of this initiative, the UN will enter into an agreement with the city administration to **provide**

multi-million dollar funding to work towards realising Sustainable Development Goals (SDGs). The UN will also sponsor the **PhDs of 51 students** in Noida who contribute to the programme via research.

- Cities selected under the “University City” category will be judged on the basis of **how educated its population is, its economy, a high rate of entrepreneurship, and art and culture that “indicate a vibrant civil society”**.
- The project is conducted by the **UN Global Sustainability Impact Institute (UNGSII)**. UNGSII was founded in May of 2014.

PAiSA Portal

- A **centralized electronic platform** named “**PAiSA – Portal for Affordable Credit and Interest Subvention Access**”, has been launched by **Ministry of Housing & Urban Affairs**.
- The web platform has been designed and developed by **Allahabad Bank** which is the Nodal bank.
- The portal will process interest subvention (subsidy offered on interest rate) on bank loans to **beneficiaries under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM)**.
- Direct Benefit Transfer (DBT) of subvention on **monthly** basis under DAY-NULM will give the necessary financial support to small entrepreneurs in a timely manner.

- PAiSA is **aimed to connect directly with the beneficiaries**, ensuring that there is greater transparency and efficiency in delivery of services.

Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM) under Ministry of Housing and Urban Affairs aims to **reduce poverty and vulnerability of the urban poor households** by enabling them to access **gainful self-employment and skilled wage employment opportunities**.

Logix India

- Logix India 2019 is scheduled to take place in New Delhi from 31st January to 2nd February 2019.
- It is being organized by **Ministry of Commerce & Industry and the Federation of Indian Export Organisations (FIEO)** as an initiative to improve logistics cost effectiveness and operational efficiencies for India’s global trade.
- FIEO will also focus on investment opportunities in infrastructure development, warehouse consolidation, technology integration and IT enablement and skilling of manpower at the three-day meet.
- **India was ranked 44 in the World Bank’s Logistics Performance Index 2018**. Logistics sector will play a key role in enhancing the competitiveness of Indian goods in the global markets.



International Relations

Highlights

- ASEAN Summit, East Asia Summit, RCEP Summit, Quad Meeting (12)
- APEC Fails to Reach Consensus (13)
- Prime Minister's Visit to Maldives (14)
- Kartarpur Corridor (15)
- India to Step-up Agri-Diplomacy with China (16)
- Konkan Exercise-2018 (16)

ASEAN Summit, East Asia Summit, RCEP Summit, Quad Meeting

PM recently concluded his visit to Singapore and attended the ASEAN-India Summit held on sidelines of 33rd ASEAN (Association of Southeast Asian Nations) Summit, 13th East Asia Summit (EAS) and Regional Comprehensive Economic Partnership (RCEP) Summit.

- **Singapore as the current Chair of ASEAN is hosting these Summits.**
- India also participated in 3rd "Quad" Meeting.

33rd Association of Southeast Asian Nations (ASEAN) Meeting

About ASEAN

- **The Association of Southeast Asian Nations, or ASEAN, was established in 1967 with the signing of the ASEAN Declaration (Bangkok Declaration).**
- **The ASEAN members are Indonesia, Thailand, Singapore, Malaysia, Philippines, Vietnam, Myanmar, Cambodia, Brunei, and Laos.**
- On sidelines of 33rd ASEAN Summit, India-ASEAN Summit was also organized.
- As strategic partners, India and ASEAN have trade and economic relations.
- Trade between India and ASEAN stood at around \$81 billion in 2017-18 and constitutes 10% of India's total trade. Exports to ASEAN countries constitute 11% of India's total exports.
- In 2017, India and ASEAN celebrated 25 years of their engagement and the India-ASEAN Commemorative Summit was held on January 25th, 2017.

- **India's relation with ASEAN is marked by 3 C's Culture, Commerce and Connectivity.**

13th East Asia Summit

- India participated in the 13th East Asia Summit.
- **The East Asia Summit (Established: 2005) is a forum of 18 countries of the Asia-Pacific region formed to further the objectives of regional peace, security, and prosperity.**
- The members of East Asia Summit consists of 10 ASEAN nations (Indonesia, Thailand, Singapore, Malaysia, The Philippines, Vietnam, Myanmar, Cambodia, Brunei, and Laos), and 8 other members-Australia, China, India, Japan, New Zealand, South Korea, Russia, and the US.

- There are **six priority areas** of regional cooperation within the framework of the EAS: Environment and Energy, Education, Finance, Global Health Issues and Pandemic Diseases, Natural Disaster Management, and ASEAN Connectivity.
- India endorses regional collaboration in all six priority areas.

2nd Regional Comprehensive Economic Partnership (RCEP) Summit

- Indian Prime Minister participated in the 2nd RCEP Summit and reviewed the progress that has been made in the negotiations of RCEP.

India and RCEP

- **Concerns**
 - The presence of China in RCEP is a matter of concern for India as India had \$63 billion trade deficit with China in 2017-18.

What is RCEP?

The RCEP is a mega-regional free trade agreement which aims to cover goods, services, investments, economic and technical cooperation, competition and intellectual property rights.

It is being negotiated amongst 16 countries, comprising 10 ASEAN countries plus six ASEAN FTA partners – India, China, Japan, South Korea, Australia, and New Zealand.

- Granting greater market access to China under RCEP can harm India's labor-intensive domestic industry, steel sector in particular, as China has been dumping iron and steel products in India.
- Since the start of the RCEP negotiations, India wanted greater liberalization in the services sector, especially for easy movement of its professionals to RCEP-member countries.
 - Most members have resisted a deal in the services sector, sensing a threat from China and India.
- India is also wary of measures that may lead to its losing the right to produce cheap generic drugs due to the enforcement of a strict IPR regime related to patent term extension and data exclusivity.
- **Opportunities**
 - RCEP is important for India as it means access to the Asia Pacific region which will be important for its future economic and strategic status in the region.
 - Joining RCEP will give a boost to India's Act East Policy which builds on the Look East Policy for a closer partnership with the Asian region.
 - RCEP will allow India to expand its trading association with countries like Australia and New Zealand, with which it has no formal trading partnership due to its absence in the APEC and Transatlantic Trade and Investment Partnership.

3rd Quad Meeting

- **It is the grouping of four democracies –India, Australia, the US, and Japan.**
- The Quad association of members who have a shared objective to ensure and support a **“free, open and prosperous” Indo-Pacific** region and rules-based global order.
- Connectivity, counter-terrorism, and cyber security was the focus of the conversation at the third meeting of the 'Quad' countries.

- **The US, Japan, and Australia emphasized “rules-based order” in their statements, which was missing from the Indian statement.**
- A serious discussion took place on Sri Lanka and Maldives, both in India's immediate neighborhood and influenced by China's expansionism.

Significance of the Meetings

- Such meetings give a platform to India to have a greater role for the economic integration of the region and to ensure an open and inclusive Indo-Pacific.
- Such meetings help India to take a closer look at pressing issues in bilateral relations and the overall security and economic situation in India's extended neighbourhood.
- Many of the ten members of the ASEAN perceive India as a much-needed counterbalance to China.
- India also realises the centrality of ASEAN in its extended neighborhood through its 'Act East Policy'.
- **India could work on the implementation of connectivity projects, such as the India-Myanmar-Thailand trilateral highway, and building new trade and transport linkages with all the ASEAN states.**

APEC Fails to Reach Consensus

30th Asia Pacific Economic Cooperation (APEC) Summit took place in Papua New Guinea.

- **For the first time since its inception APEC has failed to release a joint communique due to lack of consensus among the members over trade and security issues.** All 20 countries except China agreed to the joint statement.

US-China Targeted Each Other at APEC

- US targeted China's **Belt and Road Initiative (BRI)** and called it as **“constricting belt”** and a **“One-way Road”**.
- While urging the nations to support it, US also warned smaller countries to be cautious of **“debt-trap”** by China and said not to accept debt which compromise sovereignty.
- China defended BRI and said that there is **no geo-political agenda behind it** and it is **not an exclusive club closed to non-members**, nor is it a trap.
- China targeted US policy of **“America First”** and said that erecting barriers and cutting ties is a **short-sighted approach doomed to fail**.

Consequences

➤ On Global Economy

- The U.S.-China discord and trade war could cripple the Pacific Rim economy.
- Due to the tariff war International Monetary Fund has downgraded its global growth outlook for 2018 and 2019.
- If this continues, global supply chains will be impacted, and shrinking trade volumes may cause companies to seek out new trading routes and partners.

➤ On Global Institutions

- Multilateral rule-making bodies such as the World Trade Organisation (WTO) and APEC may lose their authority, and an interlocking system of bilateral trade treaties may substitute the consensus-based approach which came into existence after World War 2.

Asia-Pacific Economic Cooperation

➤ Established: 1989

➤ Members: 21

➤ India is not a Member.

➤ Member Nations:

- The members are:
 - Australia; Brunei Darussalam; Canada; Indonesia; Japan; Korea; Malaysia; New Zealand; the Philippines; Singapore; Thailand; United States, China; Hong Kong, China; Chinese Taipei, Mexico, Papua New Guinea, Chile, Peru, Russia and Vietnam.

➤ In 1994 during Bogor, Indonesia summit, APEC sets the **Bogor Goals of “free and open trade and investment in the Asia-Pacific by 2010 for industrialized economies and 2020 for developing economies.”**

➤ India has requested membership in APEC, and received initial support from the United States, Japan, Australia and Papua New Guinea. Officials have decided not to allow India to join as India does not border the Pacific Ocean, which all current members do.

➤ **India was invited to be an observer for the first time in November 2011.**

Prime Minister's Visit to Maldives

Recently, the Prime Minister of India visited Maldives to attend the swearing-in ceremony of newly elected President of Maldives Ibrahim Mohamed Solih.

- It was the first visit by Mr. Narendra Modi to Maldives in his four years of tenure as PM.
- The visit has given new impetus to the Indian ties with Maldives which were facing a number of challenges in last few years.
- The new government has taken few major steps to ensure India its importance in Maldives Affair.
- The Maldives' new government has decided to pull out of a free trade agreement (FTA) with China which was signed in December 2017.
- **Maldives government has said that they will follow 'India First Policy'.**
- Indian military choppers, which were gifted by India to Maldives will not be returned to India.
- **Maldives strategic return to India and its underlying democratic values could now prevent the economic crisis that Maldives will face when China will ask Maldives to pay back its debt.**
- PM also held a brief bilateral talk with the newly elected President after the ceremony. Outcome of talks:
 - Both expressed the importance of maintaining peace and security in Indian ocean.
 - Both countries decided to be mindful of each other's concerns and aspirations for stability of region.
 - Both countries have decided to show commitment and support for increased cooperation in combating terrorism within the region and elsewhere.

India-Maldives Relation

- India and the Maldives share deep historical, cultural, and economic ties.
- **India was among the first to recognize the Maldives after its independence in 1965 and to establish diplomatic relations with the country.** India established its mission at Malé in 1972.
- Importance of the Maldives for India:
 - Maldives is an important aspect of India's 'Neighbourhood First' policy.
 - **Strategically located in the Indian Ocean, Maldives archipelago, which comprises 1200 coral Islands**

Note:

lies next to key shipping lanes which ensure uninterrupted energy supplies to countries like China, Japan, and India.

- More than 97% of India's international trade by volume and 75% by value passes through the region.
- As the pre-eminent South Asian power and a 'net security provider' in the Indian Ocean region, India needs to cooperate with the Maldives in security and defense sectors.
- India is also a preferred destination for Maldivians for education, medical treatment, recreation, and business.
- Maldives is also a member of SAARC. It is important for India to have the Maldives on board to maintain its leadership in the region.
- Since China's naval expansion into the Indian Ocean - Maldives' significance has steadily grown and now it's at the heart of international geopolitics.
- There is significant Indian diaspora in Maldives. Innumerable Indians work across the hospitality, education, and health-care sectors of the Maldives economy.

Kartarpur Corridor

The Union cabinet has approved the construction of a 'corridor' linking India with the historic Kartarpur Gurdwara on the banks of the Ravi river, in Pakistan.

- **Kartarpur Gurudwara is the revered shrine across the border where Guru Nanak Dev, the founder of Sikhism spent the last 18 years of his life.**
- The corridor will connect the holy shrines of Dera Baba Nanak Sahib in Gurdaspur district of Punjab in India with Gurdwara Darbar Sahib in Kartarpur in Pakistan.
- **The length of the corridor is about 4 km (2 km on either side of the international border).**
- **The Pakistan government has also decided to open the corridor.**
- The corridor will commemorate the 550th birth anniversary of Guru Nanak Dev.
- **Pilgrimages between India and Pakistan are governed by the 1974 Protocol on Visits to Religious Shrines, which includes a list of shrines in Pakistan and India open for visitors from the other country, and for which visas are required.**

- **The Kartarpur Corridor, which will provide visa-free access to the shrine when it becomes ready on both sides, may need a separate treaty.**

Significance

- The Kartarpur Sahib corridor was first proposed in 1999 when Prime Minister Atal Bihari Vajpayee took a bus ride to Lahore.
- The Kartarpur corridor will be implemented as an integrated development project with Government of India funding. The development comes ahead of the 550th Prakash Purab or 550th birth anniversary of Guru Nanak in 2019.
- It will allow Indian devotees to visit Kartarpur shrine located 2 km inside Pakistan in Narowal district.
- **Until now, most Indian devotees have had to contend with a darshan using binoculars installed at Dera Baba Nanak Sahib.**
- India has also asked Pakistan to develop the corridor with suitable facilities in its territory from the International Border to facilitate easier access of Indian pilgrims.
- The forward movement on the Kartarpur corridor can be considered a big development since despite the India-Pakistan deadlock in talks, both New Delhi and Islamabad have been able to form a consensus on the issue.

Additional Information

- **Guru Nanak Dev Jayanti is observed on the full-moon day in the month of Katak to celebrate the birth of Guru Nanak Dev (1469-1539), who is the first of the 10 Sikh Gurus and the founder of Sikhism.** He advocated the 'Nirguna' form of Bhakti.
- He rejected sacrifices, ritual baths, image worship, austerities and the scriptures of both Hindus and Muslims.
- He organised his followers into a community. He set up rules for congregational worship (Sangat) involving collective recitation.
- He appointed one of his disciples, Angad, to succeed him as the preceptor (Guru), and this practice was followed for nearly 200 years.
- **The fifth preceptor, Guru Arjan, compiled Baba Guru Nanak's hymns along with those of his four successors and other religious poets like Baba Farid, Ravidas (also known as Raidas) and Kabir in the Adi Granth**

Sahib. These hymns, called 'Gurbani', are composed in many languages.

- **In the late seventeenth century the tenth preceptor, Guru Gobind Singh, included the compositions of the ninth guru, Guru Tegh Bahadur, and this scripture was called the Guru Granth Sahib.**
- **Guru Gobind Singh also laid the foundation of the Khalsa Panth (army of the pure) and defined its five symbols: uncut hair, a dagger, a pair of shorts, a comb and a steel bangle. Under him, the community got consolidated as a socio-religious and military force.**

India to Step-up Agri-Diplomacy with China

India is looking forward to increase agricultural exports to China, as China looks to diversify its agricultural imports.

Reasons For India's "Agri-Diplomacy"

- **Trade Deficit**
 - **India is looking for ways to bridge the huge trade deficit of more than \$60 billion with China.**
 - China accounted for about 39% of India's trade deficit in 2017-18.
 - India's total trade with China reached over \$89 billion in 2017-18, of which Chinese exports to India were around \$76 billion.
- **US-China Trade War**
 - **Both the US and China are imposing tariffs on each other. Hence, China is now opening up to non-US imports in order to diversify its import basket.**
 - Beijing recently imposed new tariffs on many American farm produce, including soybeans, corn, wheat, cotton, rice, sorghum, beef, pork, poultry, fish, dairy products, nuts and vegetables.

- India is hoping to take advantage of the Sino-US trade war by exporting more soybean produce to China.

Steps taken to Cover Trade Deficit

- During Shanghai Cooperation Organisation (SCO) Summit in Qingdao in 2018, India and China signed an agreement to include the export of non-Basmati varieties of rice from India. China is a \$1.5-\$2 billion market for Indian rice
- India has also signed an agreement with China to increase the export of sugar from India.

Way Forward

- **If India has to cover the huge trade deficit with China, it has to look beyond agri-diplomacy.**
- **There are many areas in which trade with China can be increased to cover trade deficit like pharmaceuticals, information technology services and tourism, in which India has a significant global footprint, but a minuscule presence in China.**
- At domestic front, India has to take significant efforts like modernization of agriculture to make it competitive at global level, the high price of India's farming products is a major obstacle.

Konkan Exercise-2018

- **The Bilateral KONKAN exercise is a naval exercise conducted between India and the United Kingdom.**
- The Exercise provides a platform for the two navies to build interoperability and share best practices.
- The KONKAN series of exercises was started in 2004. Since then, the exercise is hosted in rotation by both the Navies and has grown in complexity, scale, and intensity.



Science and Technology

Highlights

- India to Study Marijuana-Derived Drugs (17)
- GROWTH-India's First Robotic Telescope (19)
- New Super-Earth Discovered (20)
- Guidelines for Reduction of Trans Fatty Acids (20)
- Government Allows Ethanol Extraction for Blending from Foodgrains (21)
- KG Gets a New Definition (22)
- Arecibo Message (23)
- Solar Bubble Dryer (24)
- Matibabu Device (24)
- Plane Flying With No Moving Parts (24)
- Satellite HysIS (24)
- InSight on Mars (25)
- World's First Gene Edited Babies (26)
- Innovation Cell for Higher Education Institutions (26)

India to Study Marijuana-Derived Drugs

Three major science administrators in India — **The Council of Scientific and Industrial Research (CSIR)**, the **Indian Council of Medical Research (ICMR)** and the **Department of Biotechnology** — are getting together to promote research in **herbal drugs**, some of which involve deriving new drugs from marijuana.

- Scientists are preparing for India's first human clinical trials to test cannabis-based compounds on select diseases.
- Researchers will test whether strains of marijuana could be effective in the treatment of breast cancer, sickle-cell anaemia as well as for "bioequivalent" (similar in makeup and effect) to marijuana-derived drugs already approved by the United States Food and Drug Administration (U.S. FDA).
- The studies into the therapeutic potential of marijuana is part of a governmental thrust to produce new drugs derived from herbs and plants that find mention in Ayurvedic and other traditional medicine knowledge systems.
- India's move towards clinical trials of cannabis derivatives comes amid growing evidence of the safety and efficacy of medicinal cannabis in the treatment of cancer, multiple sclerosis and a rare but severe form of epilepsy.

Marijuana or Hemp

- Marijuana (or hemp), part of the cannabis super-family,

is illegal for commercial cultivation though it grows as weed in several parts of the country. Uttarakhand, Jammu and — recently Uttar Pradesh — have allowed restricted cultivation of the plant for medical research.

- The Marijuana has two components **CBD (cannabidiol)** and **THC (tetrahydrocannabinol)**.
- **CBD does not cause intoxication or euphoria** and has been successfully proven to provide relief to chronic pain without causing psychoactive side effects.
- It is **THC** which is the **primary psychoactive components** of Marijuana.

The 1985 Narcotic Drugs and Psychoactive Substances Act

- The NDPS Act 1985 **bans commercial cultivation of cannabis**.
- The **bar does not apply to an edible preparation called bhang**, which is allowed in some States.

1961 UN Single Convention on Narcotics Drugs

- The Single Convention on Narcotic Drugs of 1961 is an international treaty to prohibit production and supply of specific (nominally narcotic) drugs and of drugs with similar effects except under licence for specific purposes, such as medical treatment and research.
- The Single Convention refers to drug addiction as "**a serious evil for the individual [that] is fraught with social and economic danger to mankind**".

Note:

Marijuana Legalisation Debate

- Cannabis has been recognised for its medical use in 29 out of 51 US States, Canada, Australia and a significant number of another 20-odd countries across the world. In India, however, cannabis-derived drugs are unavailable, illegal and cannot be prescribed by doctors.
- Apart from medical purposes, the cultural and economic significance have been used as an argument in the favour of cannabis legalization.
- Marijuana Should Be Legalized
 - Legalisation will curb crime
 - Evidence suggests that strict enforcement of the narcotics law based on **prohibition tends to target the most defenceless members** along the drug smuggling chain.
 - Prohibition strengthens the cartels they should be targeting. The big cartels and traffickers remain out of reach of the regular law enforcement machinery.
 - Filling jails with drug users and street-level suppliers only **stresses the criminal justice system**.
 - **Legalization** will also enhances security for all of society, as **it helps undermine criminal markets**.
 - Due to the drug's illegality, cannabis are sold underground and is a source of revenue for criminal gangs and terrorist organizations.
 - Cultural and Historical Significance
 - The **documented use of cannabis in India dates back to the Vedic period**. In the Atharva-veda, the 'bhang' plant finds a notable mention as one of nature's five sacred, distress-relieving plants. During the festival of Holi, the consumption of bhang is an integral part of the celebrations even today.
 - **Indian Hemp Drugs Commission in 1894** found consumption of cannabis in colonial India extensive and determined that its use was very ancient, had some religious sanction, and was harmless in moderation.
 - **The commission recommended against complete ban** on its consumption as it can push consumer towards other hard drugs.
 - Until 1985, when NDPS Act was enacted, cannabis derivatives — bhang, charas and ganja — were regulated by the various state excise departments and legally sold by licensed shops.
- Less Health Risk when compared to Alcohol
 - WHO study concluded that the public health risks from cannabis use are likely to be less severe than those posed by alcohol and tobacco, which are legal.
- Business and Economic Possibilities
 - The legal **marijuana market** is currently worth **more than \$7 billion globally**, and is expected to hit \$31 billion by 2021.
 - The **fabric produced from hemp is of very high quality**. Hemp is also highly suitable as a technical fibre. India also has many startups working in this field like The mumbai-based The Bombay Hemp Co. (BOHECO).
- Marijuana Should Remain Illegal
 - Marijuana Causes Psychosis
 - Marijuana can trigger mental health related issues in its users. THC in marijuana has been proved to cause psychosis.
 - Those who use it as adolescents or at younger age may be more likely to **develop mental health problems later in life**. In some cases, it can also make people feel **nauseous, lethargic, forgetful, anxious, or confused**.
 - Marijuana is a gateway drug
 - **Cannabis has been engineered to become much more potent and addictive**. Growers have decreased level of CBD and increased level of THC.
 - A vulnerable person who will abuse it as a gateway drug before moving to more dangerous substances. **In a study it was found that 45% who used marijuana also used other 'Hard' drugs.**
 - Marijuana damages organs
 - The World Health Organization has listed a number of diseases associated with the consumption of marijuana, including **impairment in cognitive functioning, airway injury, bronchitis and lung inflammation**.
 - Regulations difficult to enforce
 - If marijuana is easily available at a pharmacy on prescription (like in the US). It will be difficult for government to assess if it's bought for recreational purpose. Considering, cough syrups

Note:

and inhalants are freely accessible and brought incessantly by addicts.

Way Forward

- Prohibiting and making it illegal has not prevented the availability of marijuana in the market nor its use by people.
- The **potential risks that cannabis poses illustrate why it is necessary to legally regulate this drug**. Rather than leaving the trade of cannabis in the hands of an unregulated criminal market, the drug should be safely produced by competent farmers, packaged and tested in suitable facilities, and sold by reputable and licensed vendors.
- Regulation allows cannabis buyers to know what they are consuming and moderate their intake in accordance with the THC level in the marketed marijuana.
- Imposing tax on cannabis sales can create revenue for the state. **Tax collected could be spent on educating people about the risks of cannabis use, like public service information on alcohol and tobacco.**

GROWTH-India's First Robotic Telescope

India's first robotic telescope and the first one designed to observe dynamic or transient events in the universe has started observing the skies.

- The telescope is located at the Indian Astronomical Observatory (IAO) at Hanle in Ladakh.
- The telescope is a joint project of the Bangalore-based Indian Institute of Astrophysics (IIA) and the Indian Institute of Technology Bombay (IITB).
- It is fully funded by the Science and Engineering Research Board (SERB) of the Department of Science and Technology (DST) under the Partnerships for International Research and Education (PIRE) project, administered by Indo US Science and Technology Forum.
 - The primary goal of PIRE is to support high quality projects in which advances in research and education could not occur without international collaboration.
- Called GROWTH-India, the facility at Hanle is part of a multi-country collaborative initiative known as Global Relay of Observatories Watching Transients Happen (GROWTH) to observe transient events in the universe.

- The telescope also has the badge of being housed in the one of the world's highest astronomical observatories at 4,500 meters.
- The 70 cm robotic telescope joins other larger facilities at IAO in Hanle - the Himalayan Chandra Telescope, the gamma-ray array telescope (HAGAR), and the imaging Cherenkov telescope (MACE).

Global Relay of Observatories Watching Transients Happen (GROWTH)

- The GROWTH program is a 5 year project, funded by the National Science Foundation (NSF). NSF is a United States government agency whose mission includes support for all fields of fundamental science and engineering, except for medical sciences.
- It is an international collaborative network of astronomers and telescopes dedicated to the study of short-lived cosmic transients and near-earth asteroids.
- Cosmic transients are energetic flashes of light that are millions to billions of times the brightness of the sun, e.g. explosive deaths of massive stars, white dwarf detonations, etc.



- Key follow-up observations of fast-fading or fast-moving events must occur at night promptly after discovery but before the sun rises.
- Therefore, a relay or network of telescopes spanning multiple longitudes (time-zones) on earth is required to pass the baton amongst each other to effectively extend the night-time darkness.
- GROWTH enables detailed monitoring of events that would otherwise vanish before the next night.
- **Its goals are threefold:**
 - Search for explosions in the optical regime whenever Laser Interferometer Gravitational-wave Observatory (LIGO) group detects a Binary Neutron Star merger.

Note:

- Study nearby young supernova explosions.
- Study nearby asteroids.
- Universities and research institutes from the US, the UK, Japan, India, Germany, Taiwan and Israel are part of the initiative.

New Super-Earth Discovered

A newly published research paper has reported the discovery of a planet through radial velocity method in orbit around one of the closest stars to the Sun, Barnard's star.

- The potentially rocky planet is known as Barnard's star b.

Barnard's star

- At nearly 6 light years away, Barnard's star is the next closest star to the Sun after the Alpha Centauri triple system (Alpha Centauri A, Alpha Centauri B, Alpha Centauri C or Proxima Centauri).
- It is a type of faint, low-mass star called a red dwarf. Red dwarfs are considered to be the best places to look for exoplanets (planets outside our Solar System).

Barnard's star b

- Barnard's star b is a 'Super-Earth' with a mass of at least 3.2 times that of the Earth, and it orbits around Barnard's star once every 233 days.
- Super Earth is just a planet with more mass than Earth, but less than a larger planet like Uranus or Neptune.
- Barnard's star b is the second-closest known exoplanet to the Sun after Proxima b (discovered in 2016) orbiting around the red dwarf star Proxima Centauri.

Significance

- The planet lies at a distance from the star in a region that is known as the 'snow line', that is, beyond the habitable zone in which liquid water, and possibly life, could exist.
- The planet's surface temperature is estimated to be around -170°C , meaning it is likely to be a frozen world. Such conditions would make it uninviting to Earth-like life.
- However, if the planet has a substantial atmosphere, the temperature could be higher and thus conditions could be potentially more hospitable.

Radial Velocity Method

- The researchers used the radial velocity method also known as Doppler spectroscopy during observations that led to the discovery of Barnard's star b.
- This technique detects wobbles (fluctuations) in a star which are likely to be caused by the gravitational pull of an orbiting planet.
- These wobbles affect the light coming from the star. As the star moves towards the Earth its spectrum appears slightly shifted towards the blue and, as it moves away, it is shifted towards the red.
- This is the first time that this technique has been used to detect a planet this small so far away from its host star.

Guidelines for Reduction of Trans Fatty Acids

The Health Department and the Food Safety wing have launched an initiative to enforce dietary guidelines, involving the reduction of trans fatty acids (TFAs), salt and sugar in commercially available foods in Kerala.

- The initiative is being launched with technical support from the World Bank, WHO and the Food Safety and Standards Authority of India (FSSAI). Unhealthy diet is pushing up Metabolic Syndrome (MS) and premature deaths due to non-communicable diseases (NCDs) among Keralites.
- Metabolic syndrome (MS) is a cluster of metabolic abnormalities — high blood pressure, high blood sugar, abdominal obesity, abnormal cholesterol or triglyceride levels — that occur together, raising risk of heart disease, stroke and diabetes.
- Earlier, Kerala also announced a 14.5% "fat tax" on pizzas, burgers, sandwiches and tacos sold through branded outlets, in sync with the World Health Organization's advocacy of using fiscal tools to promote healthy eating.
- WHO recommends that trans fat intake be limited to less than 1% of total energy intake and has called for the total elimination of TFAs in global food supply by 2023.

Trans-fats

- There are two types of trans-fats found in foods—naturally occurring and artificial trans-fats.

- Naturally occurring trans-fats are produced in the gut of some animals and foods made from these animals may contain small quantities of these fats.
- Artificial trans-fats on the other hand are created by the process hydrogenation, which is an industrial process that adds hydrogen to liquid vegetable oils to make them more solid at room temperature.
- The primary dietary source of trans-fats in processed foods is partially hydrogenated oils. Trans-fats are easy to use, inexpensive to produce and last a long time. They help give foods a desirable taste and texture.
- Some of the most basic and most consumed foods that we generally eat almost on a daily basis may include- cakes, pies, cookies, biscuits, margarine, cream-filled candies, fried fast foods, doughnuts, etc.
- REPLACE, which is an acronym for Review, Promote, Legislate, Assess, Create and Enforce, is the first global initiative to eliminate a risk factor for cardiovascular disease. It is a World Health Organisation (WHO) six step Action Package and guide to global elimination of trans fat.
- Denmark was the first country to ban trans fat in 2003 and in three years, their Cardiovascular Disease (CVD) mortality rates plummeted.
- As part of the U.N.'s Sustainable Development Goals, the global community has committed to reducing premature death from non-communicable diseases by one-third by 2030 (Goal 3). Global elimination of industrially-produced trans fats will help achieve this goal.
- Given India's disease burden of non-communicable diseases and also the urban movement towards healthier foods, this movement is vital for the country to prevent diseases, and the compromised quality of life and deaths caused due to trans fats.
- Fortunately, the Food Safety and Standards Authority of India (FSSAI) has indicated its commitment to

Trans fat facts

- Trans fatty acids (TFAs) are naturally found in small amounts in beef, Lamb and full-fat dairy products

- Re-use of cooking oil (heating above 180 degree can also produce TFA

- Partial hydrogenation produces TFAs which is proven to elevate "bad" cholesterol (LDL) and reduce "good" cholesterol (HDL)

- Food industry uses partially hydrogenated oil as it is inexpensive, improves flavour stability, taste and texture of the food and gives it long shelf life. However, this is leading to Cardiovascular Diseases (CVD) among population



- Typical foods containing high levels of TFA include fried foods like chips, cakes, biscuits, cookies, frozen pizza etc.



ALTERNATIVES

- Interesterification is an alternative to hydrogenation; interesterified oils/fats has no trans fats and can be used by bakeries and food industry

- Using fractionated oil

- Using oil blends

- Fat replacers are an option

LIMITS

- FSSAI has set the limit of trans fat in food at 5% and has proposed limiting it to 2%

- WHO has proposed elimination of trans fat from global food supply by 2023

eliminating industrially produced trans fat by 2022 in advance of the WHO target date of 2023.

- In 2017, India implemented a mandatory limit of 5% trans fat content in fats/oils only.

Food Safety and Standards Authority of India (FSSAI)

- The Food Safety and Standards Authority of India (FSSAI) has been established under Food Safety and Standards Act, 2006 which consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments.
- Ministry of Health & Family Welfare, Government of India is the Administrative Ministry for the implementation of FSSAI. The Chairperson is in the rank of Secretary to Government of India.
- FSSAI has been created for laying down science-based standards for articles of food and to regulate their manufacture, storage, distribution, sale, and import to ensure availability of safe and wholesome food for human consumption.

Government Allows Ethanol Extraction for Blending from Foodgrains

The Central Government has extended the ambit of the Ethanol Blended Petrol (EBP) programme to extract

the fuel from surplus quantities of food grains such as maize, jawar, bajra fruit and vegetable waste.

- Till now, only excess sugarcane production was allowed to be converted into ethanol for procurement under the fuel blending programme.

Importance

- It will enable farmers **to make additional money from surplus production and broaden the sources for producing ethanol** for the EBP programme.
- Will help in reducing vehicle exhaust emissions and also to reduce the import burden on account of crude petroleum from which petrol is produced.
- It is estimated that a 5% blending (105 crore litres) can result in replacement of around 1.8 million Barrels of crude oil.
- The renewable ethanol content is expected to result **in a net reduction in the emission of carbon dioxide, carbon monoxide (CO) and hydrocarbons (HC)**.
- Ethanol itself burns cleaner and burns more completely than petrol it is blended into.

Ethanol Blending Programme (EBP)

- It aims at blending ethanol with petrol, thereby bringing it under the category of biofuels and saving millions of dollars by cutting fuel imports.
- The Government has also reduced GST on ethanol for blending in fuel from 18% to 5%.

National Policy on Bio-fuels

- The National Policy on Bio-fuels 2018 has empowered the **National Bio-fuel Coordination Committee (NBCC)** to allow conversion of surplus quantities of food-grains for production of ethanol during an agriculture crop year when there is projected oversupply of food-grains.
- The objective of the Bio- fuel policy is to achieve **20% ethanol-blending and 5% biodiesel-blending** by the year 2030.
- The policy also expands the scope of feedstock for ethanol production and has provided for incentives for production of advanced bio-fuels.

National Biofuel Coordination Committee is headed by – **Prime-Minister** to provide policy guidance and coordination.

Concerns

- Under the EBP programme, the Centre has asked the oil marketing companies (OMCs) to target 10% blending of ethanol with petrol by 2022. However, there is a major shortfall in the availability of ethanol as sugar mills currently tap only 'C-heavy' molasses for ethanol production.
- The fuel requirements can compete with food requirements and that only surplus food crops should be used for fuel production, if at all.
- The annual capacity of biorefinery is still not enough to meet the 5% petrol-ethanol blending requirement.

Way Forward

- There should be Increase in the ethanol production capacity of bio-refineries.
- Alternatives like 3rd generation (derived from algae) and 4th generation biofuels (derived from specially engineered plants or biomass) should be encouraged.

KG Gets a New Definition

At the General Conference on Weights and Measures (CGPM) in Versailles (France), delegates of International Bureau of Weights and Measures (BIPM) voted to redefine the kilogram in terms of a tiny but unchanging value called the "Planck constant".

- The new definition involves an apparatus called the Kibble balance, which makes use of the constant to measure the mass of an object using a precisely measured electromagnetic force.
- They also voted to update definitions for the ampere (the unit of electrical current), the Kelvin (the unit of temperature) and the mole (amount of a substance).
- The new definitions agreed by the BIPM will come into force from May 20, 2019.

Background

- Since the 19th century, scientists have based their definition of the fundamental unit of mass on a physical object — a shining platinum-iridium cylinder or Le Grand K (weighed exactly a kilogram) known as the International Prototype of the Kilogram.
- It is housed at the headquarters of BIPM in Sevres, France.

- All modern mass measurements are derived from the kilogram, whether micrograms of pharmaceutical medicine or gold dust, kilos of fruit or fish or tonnes of steel.
- The problem is the prototype doesn't always weigh the same. Even inside its three glass bell jars it picks up microparticles of dirt and is affected by the atmosphere. Sometimes it needs cleaning, which can affect its mass.

THE SEVEN FUNDAMENTAL UNITS

UNIT	QUANTITY	HOW IT IS/WILL BE DEFINED
Meter*	Distance	Based on speed of light
Kilogram**	Mass	To be based on Planck constant
Second*	Time	Based on radiation of caesium-133 atom
Ampere**	Current	To be based on an electron's charge
Kelvin**	Temperature	To be based on Boltzmann constant
Mole**	Amount of substance	To be based on Avogadro constant
Candela*	Luminous intensity	From efficacy of light of specific frequency

*Current definition stands **Being redefined

New Concepts

- Since 1967, the second has been defined as the time it takes for a certain amount of energy to be released as radiation from atoms of Caesium-133. This became the basis of all measures of time and is used in atomic clocks.
- Once the second was defined, the metre fell into place. This was based on another universal constant: the speed of light. Today, the metre is defined as the distance travelled by light in vacuum in $1/299,792,458$ of a second (which is already defined).
- The kilogram comes next. The Planck constant, which Kilogram is based on, is usually measured in joule seconds, but this can also be expressed as kilogram square metres per second.
- By adding measurements of a second and a metre, along with an exact knowledge of Planck's constant, precise definition of the kilogram can be obtained.

Conclusion

- The new definition of the second helped ease communication across the world via technologies like GPS and the Internet. In the same way, experts say the change in the kilogram will be better for technology, retail and health.
- In daily life, however, the new SI units will have little immediate practical consequence
- Defining the units based on physical constants means that scientists will be able to measure them at any place or time, and on any scale.
- This will pave the way for far more accurate measurements and lays a more stable foundation for science.

BIPM and CGPM

- The Metre Convention is the treaty that created the International Bureau of Weights and Measures (BIPM), an intergovernmental organization under the authority of the General Conference on Weights and Measures (CGPM) and the supervision of the International Committee for Weights and Measures (CIPM).
- The Convention was signed in Paris on 20 May 1875 by representatives of seventeen nations. The Metre Convention established a permanent organizational structure for member governments to act in common accord on all matters relating to units of measurement.
- In 1889 the 1st CGPM sanctioned the international prototypes for the metre and the kilogram. Together with the astronomical second as the unit of time, these units constituted a three-dimensional mechanical unit system similar to the CGS system (centimetre–gram–second system).
- The 10th CGPM, in 1954, approved the introduction of the ampere, the Kelvin and the candela as base units, respectively, for electric current, thermodynamic temperature and luminous intensity.
- The name International System of Units, with the abbreviation SI, was given to the system by the 11th CGPM in 1960.
- At the 14th CGPM in 1971, the current version of the SI was completed by adding the mole as the base unit for amount of substance, bringing the total number of base units to seven.
- India became a signatory to the General Conference on Weights and Measures (CGPM) in 1957.
- As of 7 August 2018, there are 60 Member States of BIPM including India.

Note:

Arecibo Message

- The Arecibo message is a 1974 interstellar radio message carrying basic information about humanity and Earth from Puerto Rico. November 16, 2018, marks 44 years since researchers sent humankind's first interstellar radio message.
- The transmission consisted of a simple, pictorial message and was aimed at a cluster of roughly 300,000 stars known as M13 located 25,000 light years away.
- The broadcast marked the first time a human being had intentionally transmitted a message targeting another solar system.

Solar Bubble Dryer

- An innovative drying technology, Solar Bubble Dryer (SBD), developed jointly by International Rice Research Institute (IRRI), Philippines; Grainpro, a leading post-harvest solution providing company; and University of Hohenheim, Germany, was introduced to farmers in Odisha.
- The SBD is a low-cost drying technology that aims to provide a simple and flexible alternative to sun-drying while protecting from spillage, animals, weather and vehicles running over the grains.
- The new technology has been developed in such a way that farmers can dismantle the machinery and reassemble it on their own. Power can be drawn both from solar energy and traditional electricity.

Matibabu Device

- It is a **non-invasive test kit used to detect malaria**.
- It is a low cost and reusable device that could be used to test for malaria instantly. It was developed in Uganda.
- **This device is called 'Matibabu', a word in Swahili which means "treatment"**.
- Unlike current testing methods that require blood to be drawn for testing, 'Matibabu' is "bloodless".
- The device is clipped onto a finger and 'using light and magnetism, a red beam of light scans the finger to detect changes in the colour, shape and concentration of red blood cells — all of which are often affected when the malaria parasite is present in the body'.

- The result is available within a minute and sent to a mobile phone which is linked to the device.
- Another key feature is that one does not require specialized training to use the device.
- 'Matibabu' can provide an easy diagnosis of malaria in low-income areas such as Uganda.
- The device and application won the first prize at 'Africa Prize for Engineering Innovation' 2018 — an award dedicated to engineering innovation on the continent.
- 'Matibabu' has also been mentioned in Time magazine as one of 50 best inventions of 2018.

Plane Flying With No Moving Parts

- In a revolutionary change, Massachusetts Institute of Technology (MIT) engineers have built and flown a prototype plane with no moving parts.
- Instead of propellers or turbines, the aircraft is powered by electrohydrodynamic thrust or the so-called **"ionic wind"**, a phenomenon first identified in the 1960s.
- When a current passes between two electrodes, it creates a wind in the air between. If enough voltage is applied, the resulting "ionic wind" can produce a thrust without the help of motors or fuel and power a small plane.
- Earlier, BAE Systems and the University of Manchester had successfully completed the first phase of flight trials with MAGMA, a small-scale unmanned aerial vehicle (UAV), which does away with the need for mechanical moving parts used to move flaps to control the aircraft during flight.

Satellite HysIS

ISRO launched rocket PSLV-C43 carrying India's earth observation satellite **Hyperspectral Imaging Satellite (HysIS)** and 30 co-passenger satellites from Sriharikota on November 29.

- The **co-passengers of HysIS include one micro and 29 nano satellites from eight different countries**.
- The satellite has been projected into a **polar synchronous orbit**.
- HysIS is ISRO's **first full-scale working satellite with Hyper-spectral imaging capability**.

Gearing up for big launch

One Indian and 30 micro- and nano-satellites from eight countries will be put in space by PSLV C43

Country	Number of Satellites	Satellite	Purpose
Australia	1	Centauri	Remote Internet of things Communication services
Canada	1	Kepler	Internet of Things (IoT)
Colombia	1	FACSAT	Earth Observation
Finland	1	Reaktor Hello World	Earth Observation
Malaysia	1	InnoSAT-2	Earth Observation
Netherlands	1	HIBER-1	Internet of Things
Spain	1	3Cat-1	Scientific/Experimental
USA	16	Flock 3R	Earth Observation
USA	1	HSAT-1	Remote Internet of Things Communication service
USA	1	Global-1	Earth Observation
USA	4	LEMURs	Vessel Automatic Identification System (AIS)
USA	1	CICERO-8	Earth Observation

- The space agency tested hyperspectral imaging technology in April 2008, a small 83-kg demonstration microsatellite called IMS-1 (Indian Mini Satellite-1) was launched as a secondary passenger with Cartosat-2A.
- In October, 2008, it put a HySI or Hyperspectral Imager on the Chandrayaan-1 and used it to scan Moon's surface for minerals.

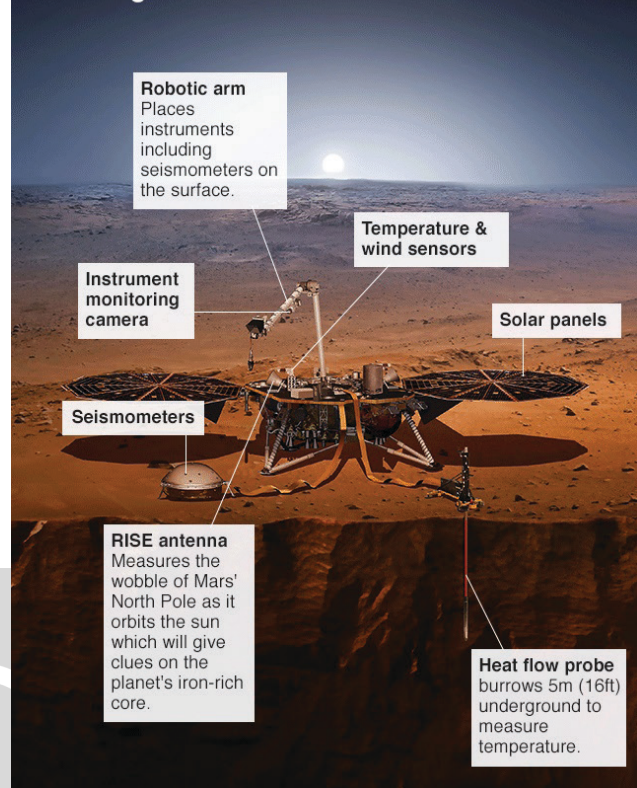
Significance of HysIS

- The primary goal of HysIS is to study the **Earth's surface in visible, near-infrared and shortwave infrared regions** of the electromagnetic spectrum.
- Hyperspectral imaging satellite can see in 55 spectral or colour bands from 630 km above ground.
- 'Hypex' imaging allows **distinct identification of objects, materials or processes on Earth** by reading the spectrum for each pixel of a scene from space.
- The satellite's data will be useful in many fields including agriculture, forestry, soil survey, **studies of Earth's magnetic field, coastal zone studies, inland water studies, environmental monitoring and pollution detection from industries.**

InSight on Mars

After a seven-month journey, NASA's Mars InSight probe has reached its destination and touched down near the red planet's equator.

The InSight lander



- InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) is on a 24-month mission.
- InSight will **study the interior of Mars.**
- The landing site is **Elysium Planitia** (a flat-smooth plain just north of the equator considered to be the perfect location from which to study the deep Martian interior), where InSight can stay still and quiet all through.
- It is NASA's first attempt to touchdown on Mars since the **Curiosity rover** arrived in 2012.
- From Earth, NASA team will be monitoring radio signals using a variety of spacecraft — and even radio telescopes on Earth.

Significance

- The mission seeks to answer critical questions about **rocky planet formation in the early days of the solar system.**
- The InSight mission will bring several martian "firsts" to interplanetary science, including the first **seismometer** situated on the surface, **to detect and analyze waves** created by "marsquakes".

Note:

- Measuring Marsquakes will give **information on Mars' internal structure** and reveal more information like the smaller size and lesser density of Mars as compared to Earth and Venus.
- With InSight, **scientists hope to compare Earth to Mars**, and better understand how a planet's starting materials make it more or less likely to support life.
- Mission scientists will use antennas on the lander to track its position to **deduce how much Mars wobbles on its axis**. The amount of wobble reflects the size of the planet's core and whether it is molten or solid.
- Earth's rotating iron core generates the magnetic field which prevents the atmosphere from being stripped away by high-energy particles in the solar wind, thereby shielding life from harmful radiation,
- However, Mars lost its magnetic field and much of its atmosphere, causing temperatures to drop and exposing the surface to intense radiation. InSight may help explain this anomaly.

World's First Gene Edited Babies

A Chinese researcher, He Jiankui, has claimed that he used **CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats)** to produce the world's first gene-edited babies.

- He said that he altered the genes of a pair of twins while they were embryos to make them resistant to HIV, the virus that causes AIDS.
- Many scientists have called this experiment as unethical. As there are serious unanswered questions about the safety of embryo editing.

What is a Gene?

- Genes are made up of DNA (Deoxyribonucleic acid).
- Genes contain the **bio-information that defines any individual**. Physical attributes like height, skin or hair colour, more subtle features like intelligence or eyesight, susceptibility to certain diseases, and even behavioural traits can be attributed to information encoded in the genetic material.

What is Gene Editing?

- Gene editing is also called as genetic modification, genetic manipulation or genetic engineering.
- Genome editing is a group of technologies that give scientists the **ability to change an organism's DNA**.

These technologies allow genetic material to be added, removed, or altered at particular locations in the genome.

- Gene Editing is widely practised in agriculture, to increase productivity or resistance to diseases, etc.

What is CRISPR?

- Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is a gene editing technology, which **replicates natural defence mechanism** in bacteria to fight virus attacks, using a special protein called Cas9.
- CRISPR-Cas9 technology behaves like **a cut-and-paste mechanism on DNA strands that contain genetic information**. The specific location of the genetic codes that need to be changed, or edited, is identified on the DNA strand, and then, using the Cas9 protein, which acts like a pair of scissors, that location is cut off from the strand.
- A DNA strand, when broken, has a natural tendency to repair itself. Scientists intervene during this auto-repair process, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.

Applications and Potential Impact

- The CRISPR technology can be used in **treatment of wide variety of diseases**, including single-gene disorders such as cystic fibrosis, hemophilia, and sickle cell disease.
- It can be used for the treatment and **prevention of more complex diseases**, such as cancer, heart disease, mental illness, and human immunodeficiency virus (HIV) infection.
- Leading scientists in the field have for long been calling for a **"global pause"** on clinical applications of the technology in human beings, till the formulation and adoption of internationally accepted protocols on the issue.
- The current international consensus is that editing 'germ line' (or reproductive) cells of healthy humans is unethical and should only be used as a last resort as it could mean introducing unknown and potentially harmful changes in subsequent generations and even entire populations.
- This technology also raises serious **ethical questions like designer babies and changing genes without the informed consent of future generation**.

Innovation Cell for Higher Education Institutions

- The Ministry of Human Resource Development (MHRD) has established an **innovation cell** at the All India Council for Technical Education (AICTE) with an aim to brainstorm new ideas about promoting innovation in all higher education institutions across India.
- Already, more than 1000 Higher Education Institutions (HEIs) have formed Institution's Innovation Councils (IICs) in their campuses to promote innovation through multitudinous modes leading to an innovation promotion eco-system in their campuses.

Rashtriya Uchchatar Shiksha Abhiyan (RUSA)

- RUSA is a Centrally Sponsored Scheme (CSS), launched in 2013 aims at providing strategic funding to eligible state higher educational institutions.

- The central funding (in the ratio of 60:40 for general category States, 90:10 for special category states and 100% for union territories) would be norm based and outcome dependent.

Atal Innovation Mission (AIM)

- AIM is NITI Aayog's flagship initiative to promote a culture of innovation and entrepreneurship in India.
- AIM has been established to create and promote an ecosystem of innovation and entrepreneurship in a holistic manner through various initiatives at school, university and industry levels.
- AIM also serves as a platform for promotion of world-class Innovation Hubs, Grand Challenges, Start-up businesses and other self-employment activities in India, leveraging state of the art, advanced and affordable emerging technologies.



Environment and Ecology

Highlights

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Greenhouse Gas Levels Reach Record Highs: UN Report

Levels of heat-trapping greenhouse gases in the atmosphere have reached another new record high, according to the **United Nations weather agency, World Meteorological Organization (WMO)**.

Key Findings

- In its annual greenhouse gas bulletin, WMO reveals that there is **no sign of a reversal of the upward trend**, responsible for climate change, sea level rise, ocean acidification and extreme weather.
- It can be noted that report **talks about concentrations and not emissions**. The concentrations differ from emissions in that they represent what **remains in the atmosphere after some of the gases are absorbed by the seas, land and trees**. Since 1990 the warming impact of these long lived gases on the climate has increased by 41%.
- **Atmospheric CO₂** reached 146% of the pre-industrial level in 2017, primarily because of emissions from combustion of fossil fuels and cement production, deforestation and other land-use change.
- Levels of other key greenhouse gases methane and nitrous oxide in the atmosphere also rose.

- The increase in **CO₂ concentration** from 2016 to 2017 was **smaller than the rise** from 2015 to 2016 **because of the impact of El Niño**, which peaked in 2015 and 2016. This triggered droughts in some parts of the world, which in turn **reduced the ability of forests and vegetation in these areas to soak up CO₂**, hence more of it stayed in the atmosphere.

El Nino and La Nina

- El Niño means **The Little Boy, or Christ Child in Spanish**. It is a **periodic climate event** that causes waters to **warm up in east-central Pacific Ocean**, which in turn causes huge changes in wind directions bringing less rain to Southeast Asia and the Indian subcontinent, while increasing rain in other parts of the world.
- There is also an **opposite of an El Niño**, called **La Niña means The Little Girl in Spanish**. This refers to times when waters of the tropical eastern Pacific are **colder than normal** and trade winds blow more strongly than usual.
- Collectively, El Niño and La Niña are parts of an oscillation in the ocean-atmosphere system called the **El Niño-Southern Oscillation, or ENSO cycle**.

World Meteorological Organization (WMO)

- It is a **specialized agency of the United Nations**, which is dedicated to international cooperation and coordination on:

Note:

- The state and behaviour of the **Earth's atmosphere**,
- The atmosphere's **interaction with the land and oceans**,
- **The weather and climate it produces**, and
- The resulting **distribution of water resources**.
- **Methane is the second most** important greenhouse gas, and about 60% of it in the atmosphere comes from human activities like cattle farming, rice cultivation and fossil fuel extraction. Levels in the atmosphere are now about 257% of what they were before the industrial revolution, and the rate of increase is very much constant over the last decade.
- **Nitrous oxide comes** from natural and human sources including fertiliser use and industry. It's now about 122% of pre-industrial levels. N_2O is emitted into the atmosphere from **both natural (about 60%) and anthropogenic sources (approximately 40%)**, including oceans, soils, biomass burning, fertilizer use and various industrial processes.
 - The likely causes of N_2O increase in the atmosphere are an **increased use of fertilizers in agriculture and increased release of N_2O from soils due to an excess of atmospheric nitrogen deposition related to air pollution**.
- **Sulphur hexafluoride (SF₆)** is a potent **long lived Greenhouse Gas (GHG)**. It is produced by the **chemical industry**, mainly as an electrical insulator in power distribution equipment.
- While Chlorofluorocarbons (CFCs) and most halons are decreasing, some hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs), which are also potent GHGs, are increasing at relatively rapid rates, although they are still low in abundance.
- The WMO also highlighted the **discovery of illicit production of CFC-11**, a banned chemical that both warms the planet and destroys ozone. Investigations indicate that at least some of the production is in China.
 - Under the **Montreal Protocol, CFC-11 was supposed to be phased out** of production.

Montreal Protocol

- Adopted on **16 September 1987**, the Montreal Protocol on **substances that deplete the ozone layer** regulates the production and consumption of nearly 100 man made chemicals referred to as Ozone Depleting Substances (ODS).

- The protocol provides for **phasing out halogenated hydrocarbons like tetrachloride, CFCs used in aerosols, halons** used in fire extinguishers, **HydroChloroFluoroCarbons (HCFCs)** used in refrigeration and foams, and **methyl** used in fumigation activity of agriculture.
- In 2016, **Kigali amendment** was made to the protocol to **phase out HydroFluoroCarbon (HFC)**, a set of 19 gases in the hydrofluorocarbon family used extensively in the air-conditioning and refrigeration industry. Though **HFCs are not ozone-depleting** but are thousand times more dangerous than carbon dioxide in **causing global warming**.
- Under the amendment, developed nations will begin phasing down HFC gases by 2019, while developing countries will follow suit by 2024.

Conclusion

- This report by WMO needs to be seen alongside the recent **IPCC 1.5C** report which warned that the world needed to be essentially carbon neutral by 2050.
- The WMO bulletin comes out **before climate negotiators begin at the Conference of Parties (COP24) meeting in Katowice, Poland**, where countries will discuss putting the Paris climate agreement into practice and increasing their ambitions when it comes to cutting warming gases.

Invasive Plant Species Introduced by Kerala Floods

Floods and landslides in Kerala have brought several alien invasive species of plants into the State's water bodies, posing a threat to native biodiversity and the aquatic environment.

- The physical routes and paths formed due to landslides and the overflow of rivers had paved the way for the establishment of primary colonies of invasive species like Nila grass (*Mimosa diplotricha*), Mikania (*Mikania micrantha*), Lantana (*Lantana camara*) and Siam weed (*Chromolaena odorata*).

Invasive Species

- An invasive species can be any kind of living organism—an amphibian (like the cane toad), plant, insect, fish, fungus, bacteria, or even an organism's seeds or eggs—that is not native to an ecosystem and causes harm.

- They can harm the environment, the economy, or even human health.
- Invasive species alter the environment they invade and are difficult and expensive to control after they colonise a landscape, having phenotypic plasticity (the ability to adapt to environmental stress).
- Invasive plant species transform the soil structure and micro environment to their advantage by producing allelochemicals which cause the destruction of native species and local biodiversity.

Allelochemical is produced by a living organism that exerts a detrimental physiological effect on individuals of another species when released into the environment. For example:

- An invasive species *Anthemis cotula* can excrete allelochemicals to inhibit seed germination and retarding seedling growth of its native competitors.
- Black Walnut produce allelochemical called Juglone which adversely affects plants like tomatoes, pepper, potato etc.

Threats to Native Ecosystem of Kerala

- **Threaten cultivable land and wildlife habitats** alike. For instance: Invasive species like the water hyacinth (*Eichhornia crassipes*) and giant salvinia (*Salvinia molesta*), present in the backwaters of the Kuttanad region, had started colonising paddy fields, cultivated lands and other isolated water bodies in nearby areas.
- **Threat to Wetlands:** Kole wetland (part of Vembanad-Kole wetlands, a Ramsar site) in Thrissur, has been colonised by invasive plants, such as matamat (*Rhynchospora corymbosa*), desho grass (*Pennisetum pedicellatum*), giant salvinia and water hyacinth which may lead to the **conversion of marshy wetlands into dry land**.
- **Invasion of new spaces:** In many areas of Thrissur, Palakkad, Wayanad and Idukki districts, seeds of invasive species from mountainous areas have spread to new spaces formed by landslides which can grow very fast in landslide-affected areas by using available nutrients, while native species cannot adapt to such conditions.
- In rubber plantations, cover crops (species grown mainly to prevent soil erosion) like mucuna (*Mucuna bracteata*), a nitrogen-regulating plant, are more

likely to establish themselves in the new areas and subsequently spread into the forests through the corridors created by landslides. This could affect the soil and destroy the microhabitat of that area.

Way Forward

- The threat of invasive species should be addressed in the process of post-flood reconstruction in the State.
- Community participation should be given importance in identifying and reporting the invasive species to Forest Departments.
- A comprehensive survey should be conducted by the Forest Department to identify the area and density of the spread of invasive species in wildlife sanctuaries, National Parks and Protected Areas.
- Adequate time and budget should be allocated to handle this herculean task.

Additional Information

- **Kuttanad Wetland Agriculture System is the only system in India that favours rice cultivation below sea level** in the land created by draining delta swamps in brackish waters.
- In order to safeguard and support the world's agricultural heritage systems, Food and Agriculture Organization (specialized agency of the United Nations) started an initiative for the identification and the dynamic conservation of **Globally Important Agricultural Heritage systems (GIAHS)** in 2002. These traditional agricultural systems represent models of sustainable agricultural production.
- Three recognised GIAHS sites in India:
 - Kuttanad Below Sea Level Farming System of Kerala
 - Koraput Traditional Agriculture of Odisha
 - Pampore Saffron Heritage of Kashmir

Atmospheric Geoengineering Experiment to Curb Global Warming

The research by scientists at Harvard and Yale universities, published in the journal *Environmental Research Letters*, proposed using a technique known as stratospheric aerosol injection, which could cut the rate of global warming in half.

- The technique would involve **spraying large amounts of sulfate particles** into the Earth's lower stratosphere at altitudes as high as 12 mile (around 20 kilometre). The sulfates will be delivered with specially designed high-altitude aircraft, balloons or large naval-style guns.
- The idea is to **help shield the Earth from just enough sunlight** to help keep temperatures low, i.e. **increasing the planet's albedo**, or reflective power. This method would **mimic what large volcanoes do**. E.g.:
 - In 1991, **Mount Pinatubo erupted in the Philippines**. It was the second largest eruption of the 20th century. In total, the eruption injected 20 million tons of sulfur dioxide aerosols into the stratosphere which **lowered atmospheric temperature by approximately 1°F**. However, its effect only lasted a couple of years because the sulfates eventually fell to Earth. Moreover, it **affected precipitation** in many parts of the world.
- The report does, however, acknowledge that the technique is **purely hypothetical** and would involve developing a new, purpose built tanker with substantial payload capabilities that may take around 15 years' of time.

Geoengineering

- Geoengineering is the technique designed to **tackle the effects of climate change directly**, usually by **removing carbon dioxide (CO₂) from the air** or **limiting the amount of sunlight reaching the planet's surface**.
- It involves deliberate planet-scale interventions to counteract global warming.
- **Methods to remove CO₂ from the air**: Increasing the **capacity of trees and plants to absorb CO₂** from the air, burning large quantities of wood in power plants with **carbon-capture technology**, making and burying **large amounts of charcoal to lock carbon** into the soils, grazing cattle in a way designed to **turn grasslands into giant carbon sinks**, fertilising the **oceans with iron** to encourage the growth of **algae that can soak up atmospheric carbon dioxide**, etc.
- **Methods to limit amount of sunlight**: Placing **mirrors in space that reflect sunlight** away from the Earth, firing **sulphate aerosols into the stratosphere**, using unmanned ships to increase above-ocean cloud cover by **spraying sea water into the air**, etc.

Concerns

- The technique could result in **reduced precipitation, soil moisture and river flow in many regions**.
- It is likely to **increase acid deposition** on the ground and also contribute to **ozone layer depletion**.
- Once the aerosol has been injected into the atmosphere, it **cannot be removed**.
- Stratospheric aerosol injection techniques could jeopardize **crop yields, lead to droughts or cause extreme weather**.
- The proposals also don't address the issue of rising greenhouse gas emissions, which are a leading cause of global warming. It is said to be a **temporary Band-Aid covering a problem**.
- Solar radiation management is still a much worse solution than greenhouse gas emissions: it is **more costly and much more risky over the long run**.
- There are the **ethical and governance issues** that surround geoengineering as well, questions about who should be allowed to do what and when.

Conclusion

- The buildup of greenhouse gases is **already altering the atmosphere and climate in an unprecedented and uncontrolled manner**. Climate researchers should **explore solar geoengineering** to determine whether it would actually work and how safe it would be.
- Along with this political scientists also need to start thinking about how to implement such an unprecedented planetary project.

Andaman & Nicobar Islands' Rich Faunal Diversity

A recent publication by the Zoological Survey of India (ZSI) titled **Faunal Diversity of Biogeographic Zones: Islands of India**, has for the first time come up with a database of all faunal species found on the Andaman and Nicobar (A&N) islands.

- According to the publication, A&N islands which comprise only **0.25% of India's geographical area**, are home to more than **10% of the country's fauna species**.
- The presence of a large number of species in such a

small area makes the A&N islands one of the richest ecosystems and biodiversity hotspots in India.

- A long period of isolation from the mainland made the islands hotspots for speciation (the formation of new and distinct species) resulting in hundreds of endemic species and subspecies.

Faunal Diversity

- Major **endemic faunal species** found only on the A&N Islands are **Narcondam hornbill**, **Nicobar megapode** (a bird that builds nests on the ground); **Nicobar treeshrew** (a small mole-like mammal), **Long-tailed Nicobar macaque**, and the **Andaman day gecko**.
- Among **marine fauna** found on the islands, the **Dugong (sea cow)**, and the **Indo-Pacific humpback dolphin** are classified as **Vulnerable** under the IUCN (International Union for Conservation of Nature) Red List of Threatened Species.
- Among the **terrestrial mammalian species** found, three species have been categorised as **Critically Endangered** under IUCN Red List — **Andaman shrew** (*Crocidura andamanensis*), **Jenkin's shrew** (*C. jenkinsi*) and **Nicobar shrew** (*C. nicobarica*).
- Another unique feature of the islands' ecosystem is its **marine faunal diversity**, which includes **coral reefs** and its associated fauna.
- **More than 500 species of scleractinian corals** (hard or stony corals) are found in the island ecosystem which have been protected under **Schedule I of the Wildlife Protection Act, 1972**.

Key Findings: Causes & Consequences

- Anthropogenic threats—**tourism, illegal construction and mining** are posing a threat to the islands' biodiversity, which is already vulnerable to **volatile climatic factors**.
- The development paradigm that is being pushed such as tourism, construction and development of military, is not taking in account three factors — **ecological fragility** of the area (the endemism), **geological volatility** (earthquakes and tsunamis), and the **impact they will have on local communities**.
- Any stress can have a long-lasting impact on the A&N islands' biodiversity, devastating the population size of any endemic fauna, followed by extinction within a limited span of time.

Andaman and Nicobar Islands

- The Andaman and Nicobar islands (A&N islands), popularly known as '**Bay Islands**', are situated in the Bay of Bengal, midway between peninsular India and Myanmar, spreading like a broken necklace in the North-south direction.
- A&N islands represent a **typical tropical ecosystem** that includes an endless stretch of **tropical rainforests** bordered by **mangrove swamps** and unspoilt fragile marine biota exhibiting an extreme degree of endemism.
- The **maximum altitude** of these islands is 730 m at **Saddle Peak in North Andaman**, formed mainly of **limestone, sandstone and clay**.
- Two islands of **volcanic origin** are found, namely the **Narcondam** and the **Barren islands**. The former is now apparently extinct while the **latter is still active**.
- The Andaman and Nicobars are separated by the **Ten Degree Channel** which is 150 Kms. wide.
- The population of the islands is about 4 lakh, which includes **six particularly vulnerable tribal groups (PVTGs)**.
 - The indigenous people of **Andamans** are the **Great Andamanese**, the **Jarawa**; the **Onges**; and the **Sentinelese (the most isolated of all the groups)**.
 - The indigenous peoples of the **Nicobars** (unrelated to the Andamanese) are the **Nicobarese**; and the **Shompen**.
- The **Andaman Wood Pigeon**, **Andaman Padauk** and **Dugong** are declared as **State Bird**, **State Tree** and **State Animal** respectively.

Biodiversity Hotspots of India

There are four biodiversity hotspots in India:

- **Himalaya**: Includes the **entire Indian Himalayan region** (and that falling in Pakistan, Tibet, Nepal, Bhutan, China and Myanmar)
- **Indo-Burma**: Includes **entire North-eastern India, except Assam and Andaman group of Islands** (and Myanmar, Thailand, Vietnam, Laos, Cambodia and southern China)
- **Sundaland**: Includes **Nicobar group of Islands** (and Indonesia, Malaysia, Singapore, Brunei, Philippines)
- **Western Ghats and Sri Lanka**: Includes **entire Western Ghats** (and Sri Lanka)

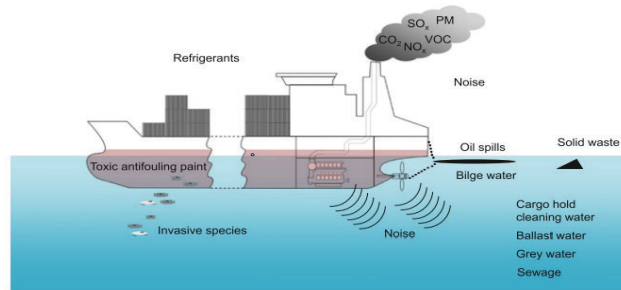
IMO Guidelines on Shipping Fuel

The International Maritime Organization (IMO) adopted an amendment that supports a reduced limit on sulphur in ships' fuel oil.

- The IMO adopted the new 0.50% limit from the current 3.50% on sulphur in ships' fuel oil.
- The new guidelines will be implemented from **January 1, 2020, under IMO's MARPOL treaty.**
- The limit is likely to have benefits for the environment as well as human health.

Pollution by Shipping

- **Discharge into air:** Ships contribute between 2 and 3 percent of the world's total greenhouse gas emissions, through emission of sulphur dioxide, nitrogen oxides, and carbon dioxide.
- **Ballast Water Discharge (BWD):** BWD by ships is responsible for the introduction of invasive species in the oceans.
- **Sound Pollution:** It impacts marine life like drive fish away from their habitat, impact organism who rely on sound for communication, mating calls and catching prey.
- **Oil Spills and Chemical Discharges:**
 - Oil spills have huge and immediate economic, social, and environmental impacts.
 - Local people lose their livelihoods as fisheries and tourism areas are temporarily closed; the cleanup costs are enormous, and tens of thousands of marine animals and plants are killed or harmed.
 - Many ships illegally discharge bilge oil (a mixture of water, oil, lubricants, and other pollutants that collect in a ship's hold), before entering a port, as this is cheaper than disposing of it legally at the port which accounts for nearly 10% of all oil entering the oceans each year.



Environmental impacts of marine transportation during the use of a vessel

- Some of these chemicals are toxic, persistent, and bioaccumulative.
- **Collision with Wildlife:** Ships cause physical and other damages through dropping of anchors, wave disturbances, and striking of whales and other marine mammals.

Ways to cut maritime pollution



In a bid to clean up the world's shipping industry, the International Maritime Organisation (IMO) has ruled that the amount of sulphur allowed in bunker fuel must be reduced from 3.5% to 0.5% by 2020. Shipping accounts for 90 percent of world trade

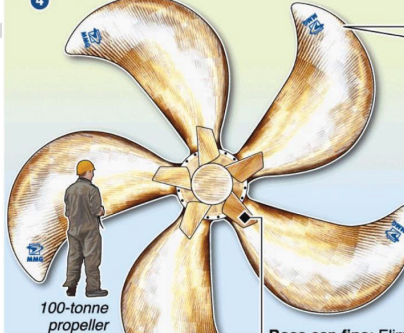
Low-sulphur fuel: IMO-compliant fuel will increase costs from \$450 to \$600 per tonne

1. Slow-Steaming: Owners can sail their fleets more slowly. **Slowing by just 1.5 knots can save as much as 35% of fuel**



2. Scrubber system: Exhaust gas is sprayed with seawater. Sulphur dioxide reacts with water and forms sulphuric acid. **Natural alkalinity of seawater neutralizes acid**

3. Smoothing hulls: Stop barnacles with antifouling copper- and silicone-based paints. **Reducing friction can save up to 8% of fuel**



100-tonne propeller

4. Energy-saving propellers: Props designed to match vessel and engine can reduce torque-loss. **Increase in efficiency can cut fuel consumption by up to 14%**
Polishing existing propellers can trim consumption by 3% or more



5. Hull cleaning: Robots blast water and suck up marine growth from hull at port during loading and unloading. Fouling is removed without creating micro scratches on hull coating. **Robots can remove over 95% of marine growth and save up to 15% in fuel costs**

Boss cap fins: Eliminate hard vortex in wake of vessel. **Vortex opposes forward motion of ship**

6. Air Lubrication System (ALS): Traps layer of air bubbles beneath ship's hull. Air is blown at constant rate to form layer which reduces drag and resistance between ship and seawater

ALS can only be used for ships with flat bottoms – not vessels with V-shaped hulls such as warships

7. "Nose job": Replacing bow bulb for better performance. **Can gain fuel savings of 5%**



Sources: Bloomberg, GAC HullWiper system, ICS, Marine Insight, MMG Propeller, The Explorer, Wilhelmsen

International Convention for the Prevention of Pollution from Ships (MARPOL Treaty)

Adoption: 1973 (Convention); 1978 (1978 Protocol); 1997 (Protocol-Annex VI).

- MARPOL is one of the most significant international marine environmental conventions covering prevention of pollution of the marine environment by ships from operational or accidental causes.
- It was adopted on 2nd November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977.
- It includes regulations aimed at preventing and minimizing pollution from ships. It currently includes six technical Annexes:
 - **Annex I:** Regulations for the Prevention of Pollution by Oil
 - **Annex II:** Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
 - **Annex III:** Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form
 - **Annex IV:** Prevention of Pollution by Sewage from Ships
 - **Annex V:** Prevention of Pollution by Garbage from Ships
 - **Annex VI:** Prevention of Air Pollution from Ships

International Maritime Organization

- The International Maritime Organization is a specialized agency of the United Nations responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships.
- It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic.
- It was established by means of a Convention adopted under the auspices of the United Nations in Geneva on 17 March 1948 and met for the first time in January 1959.
- In 2011, IMO became the first international regulator for a transport sector to adopt globally binding energy efficiency requirements, which apply to all ships globally, regardless of trading pattern or flag State, aimed at reducing greenhouse gas emissions from international shipping.
- It currently has 174 Member States.

BASIC Nations Push for 'Climate Finance'

Ahead of the United Nations **Conference of Parties (COP24)** in Katowice, Poland, the **BASIC (Brazil, South Africa, China and India)** countries said that they would continue to push developed countries on their commitment to provide \$100 billion annually from 2020.

- Earlier at COP21 of UNFCCC held at Paris in 2015, in accordance with the principle of **"common but differentiated responsibility and respective capabilities"**, developed countries had committed to contribute \$100 billion each year to help poorer and developing economies fight climate change through mitigation as well as adaptation.
- However, not much progress has been made on the commitment. Countries still need to agree on what constitutes climate finance.
 - E.g.: Whether investments made by private companies in developed countries in new green technology will be considered as climate finance or not.
- The four nations also took note of the findings of the Intergovernmental Panel on Climate Change (IPCC) special report on global warming of 1.5C, which highlights the high vulnerability of developing countries to climate change effects and high resultant costs of adaptation.
- BASIC is a group of four large countries – Brazil, South Africa, India and China. It was formed in 2009.
- Recently, India also hosted meetings with a group of countries called the LMDC (Like Minded Developing Countries-India, China, Venezuela, Iran, etc.) to discuss issues related to climate change.

Climate Finance

- It refers to local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change.
- To facilitate the provision of climate finance, the United Nations Framework Convention on Climate Change (UNFCCC) states that the operation of the financial mechanism can be entrusted to one or more existing international entities.

Global Environment Facility (GEF)

- It has served as an **operating entity of the financial mechanism** since the UNFCCC's entry into force in 1994.
- GEF is an international partnership of 183 countries, international institutions, civil society organizations and the private sector that addresses global environmental issues, based in Washington DC, United States.
- The GEF also manages two special funds, viz. the **Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF)**.

Green Climate Fund (GCF)

- Green Climate Fund is the **financial mechanism of the UNFCCC**, established at Conference of Parties (COP-16) in **Cancun, Mexico 2010**.
- It was set up by the 194 countries who are parties to the UNFCCC in 2010, as part of the Convention's financial mechanism.
- National Bank for Agriculture and Rural Development (**NABARD**) and Small Industries Development Bank of India (**SIDBI**) act as National Implementing Entity (**NIE**) of India for Green Climate Fund (GCF).
- The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change, in particular Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States.
- The Fund's investments can be in the form of grants, loans, equity or guarantees.

Adaptation Fund (AF)

- This separate fund was established under the **Kyoto Protocol in 2001**.
- The Adaptation Fund is financed with a share of proceeds from the **Clean Development Mechanism (CDM)** project activities and other sources of funding.
 - The CDM allows emission-reduction projects in developing countries to earn Certified Emission Reduction (CER) credits, each equivalent to one tonne of CO₂.
 - These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.
- The Adaptation Fund is financed by a 2% levy on CERs issued by the CDM.

World's First Online Climate Summit

World leaders are set to participate in an innovative climate change summit that will take place entirely online which makes it a **carbon neutral summit**.

- By contrast, the UN's COP21 climate talks in Paris in 2015 generated about 43,000 tons of carbon dioxide, although much of this was later offset through carbon-credit schemes.
- The Virtual Climate Summit is the **brainchild of Marshall Islands President**, whose nation is facing the worst impacts of climate change.
- It will consist of a rolling, 24-hour live stream that will begin in the Marshalls' capital Majuro, then include addresses from leaders and panel discussions before delivering a declaration.

Objectives

- The virtual summit's main aim is to encourage the international community to restrict **global warming to 1.5°C** above pre-industrial levels.
- Immediate objective is to cut carbon emissions since flying is among the most harmful activities for the climate, accounting for about 2.5% of the world's carbon emissions. Also, the online platform will not put additional pressure on already resource constraint nation.
- A virtual summit also flattens the playing field, removes barriers like plane tickets and conference passes that inevitably leave out those most impacted by climate change. It is more participative.
- It is the first time that leaders from the Climate Vulnerable Forum (CVF) have come together and therefore it is also a chance for those on the front line of climate change to make their voices heard.

Climate Vulnerable Forum

- It is an international partnership of countries highly vulnerable to a warming planet. The forum serves as a South-South cooperation platform for participating governments to act together to deal with global climate change.
- The Forum first met in Maldives in November 2009.
- Other initiatives taken by CVF to deal with climate change:

- Vulnerable Twenty (V20) Group of Ministers of Finance of the Climate Vulnerable Forum is a dedicated cooperation initiative of economies systemically vulnerable to climate change.
 - It was established on 08 October 2015 at Lima, Peru.
 - It's primary objective is to promote the mobilisation of climate finance.
- Survive Thrive #1.5°C aims to promote actions to keep warming below 1.5°C and urges people to get involved and keep updated on limiting global warming to 1.5°C.
- Earlier, a UN report warned that threshold could be reached as early as 2030 unless there was unprecedented global action to rein in emissions.

UN Environment Award for India

Nine institutions and individuals from across Asia have been recognized by the United Nations, USAID, Interpol, and the Freeland Foundation for outstanding work in preventing transboundary environmental crime in an annual award ceremony in Bangkok.

- United Nation Environment has awarded Wildlife Crime Control Bureau (WCCB), Ministry of Environment, Forest and Climate Change with *Asia Environment Enforcement Awards, 2018* for excellent work done by the Bureau in combating transboundary environmental crime.
- The Asia Environment Enforcement Awards publicly recognize and celebrate excellence in enforcement by government officials and institutions/teams combating transboundary environmental crime in Asia.
- The awards are given to outstanding individuals and/or government organizations/teams that demonstrate excellence and leadership in enforcement of national laws to combat transboundary environmental crime in one of the following eligibility criteria areas: collaboration; impact; innovation; integrity and gender leadership.
- WCCB has been conferred this award in Innovation category.
- WCCB has adopted innovative enforcement techniques like an online Wildlife Crime Database Management System to get real time data in order to help analyze

trends in crime and devise effective measures to prevent and detect wildlife crimes across India.

- This system has been successfully used to analyse trends and for successfully carrying out operations such as:
 - **Operation SAVE KURMA:** species specific operation on turtles
 - **THUNDERBIRD:** it is code-name for INTERPOL's multi-national and multi-species enforcement operation
 - **WILDNET:** to curb illegal trade of wild animals and parts through online platforms
 - **LESKNOW:** to check illegal trade of lesser-known species of animals

Environmental crimes

- Environmental crimes, which include illegal trade in wildlife, illicit trade in forests and forestry products, illegal dumping of waste including chemicals, smuggling of ozone depleting substances and illegal mining, estimated at up to \$258 billion per year.
- It is now the fourth largest illegal crime after drug smuggling, counterfeiting and human trafficking.

Ortolan Bunting in India

- In a rare sighting, 'Ortolan Bunting' bird has been photographed in Mangalore. It is said to be the first photographic record of an Ortolan bunting in India.
- The Ortolan or Ortolan Buntings (*Emberiza hortulana*) are tiny finch-like songbirds that are part of the bunting family.
- The bird breeds from Mongolia to Europe and migrates to Africa via the Middle East.
- The Ortolan Bunting migrates mostly through Middle East and while migrating, if an Ortolan loses its way, it may land anywhere.
- The International Union for Conservation of Nature's (IUCN's) red list of threatened species has placed Ortolan bunting in the "Least Concern" category.
- However, it is considered a vulnerable species, especially in France, because the bird is trapped to



be the centrepiece of a very popular gourmet dish in French cuisine.

- It is said to be the "most sadistic dish" ever as Ortolans used to be netted in great numbers, blinded using a pair of pincers, and kept in small dark boxes.
- This inhumane trapping and slaughter was outlawed in 1999 but is still believed to be practised. In fact, until 2007 up to 50,000 of these birds were said to have been killed due to lack of enforcement.

Devastation at Point Calimere

- After the devastation caused by **Cyclone Gaja**, Point Calimere resembles a forest in Vietnam that has been laid waste by Agent Orange.
- **Agent Orange** was a powerful herbicide (Operation Ranch Hand) used by U.S. military forces during the Vietnam War in the 1960s to eliminate forest cover and crops in Vietnam.
- In the devastation caused by Cyclone Gaja, thousands of birds that once made the Point Calimere sanctuary their home have died, trees have been uprooted or their branches broken or defoliated.
- **The Point Calimere, the renowned wildlife and bird sanctuary on the seashore in Nagapattinam district (Tamil Nadu), is a wetland of international importance as it is one of the 26 designated Ramsar sites in India.**
- The Point Calimere sanctuary consists of shallow waters, shores, long sand bars, intertidal flats and intertidal forests, mangroves, dry evergreen forests, saline lagoons, as well as human-made salt exploitation sites.
- **Great flamingo, Painted Stork, Little Stint, Seagull and Brown-headed gull are normally found in the sanctuary.**

Parambikulam Tiger Reserve

- A recent survey held in the reserve spotted 221 varieties of butterflies, 11 of which were endemic to the area.
- Buddha Peacock or Buddha Mayoore, is the State butterfly of Kerala.
- Parambikulam Tiger Reserve is located in the Palakkad District of Kerala and lies in between the Anamalai hills and Nelliampathy hills of the Southern Western Ghats.

Rare Bird Sighted in Chinnar Sanctuary

- Sri Lankan Frogmouth has been noticed on the eastern side of the Western Ghats for the first time in Kerala's Chinnar Wildlife Sanctuary.
- Sri Lankan Frogmouth is usually found on the western side of the Western Ghats in Karnataka, Goa, and Maharashtra.
- The main feature is that it lays only one egg a year after the mating season in April-May.
- It was believed that the species had gone extinct in Kerala. The Chinnar Wildlife Sanctuary is on a project to study its habitat and make a favourable environment for it.
- Chinnar Wildlife Sanctuary is a protected area located in the rain shadow region in the eastern slope of Western Ghats, adjoining Tamil Nadu.
- Chinnar Wildlife Sanctuary was declared as a wildlife sanctuary in August 1984.
- The Park provides ecological connectivity between the Anamalai Tiger Reserve and Eravikulam National Park.

Horned Frogs Discovered by DU team

- A team of biologists from Delhi University (DU), University College Dublin (Ireland) and the National Museum (UK) have discovered four new species of horned frogs from the Himalayan regions of Northeast India.
- The team also comprised S D Biju from DU's Department of Environmental Studies, known as the 'Frogman of India'.
- Horned frogs get their name from the fleshy horn-like projection on the upper eyelids of some species, and were discovered in the forests of Meghalaya and Arunachal Pradesh.
- The scientists named the four new Indian species as Himalayan horned frog (*Megophrys himalayana*); the Garo white-lipped horned frog (*Megophrys oreocrypta*); the Yellow spotted white-lipped horned frog (*Megophrys flavipunctata*); and the Giant Himalayan horned frog (*Megophrys periosa*).

India's First Elephant Hospital in Mathura

- India's first specialized hospital for elephants was opened in Mathura (Uttar Pradesh).
- The hospital armed with facilities such as wireless digital X-Ray, thermal imaging, ultrasonography, tranquilization devices and quarantine facilities, has not only come as a respite to the elephants but is also attracting local and foreign tourists.
- Located close to the elephant conservation and care centre, the hospital is designed to treat injured, sick or geriatric elephants and is equipped with a medical hoist for lifting elephants.

Elephant Corridors as ESZ

- The National Green Tribunal (NGT) has asked the Ministry of Environment, Forests and Climate Change (MoEF&CC) to consider declaring all elephant corridors in the country as Eco-Sensitive Zones (ESZ).
- Eco-Sensitive Zones or Ecologically Fragile Areas are areas notified by MoEF&CC around Protected Areas, National Parks and Wildlife Sanctuaries.
- Activities conducted in eco-sensitive zones are regulated under The Environment (Protection) Act, 1986 and no polluting industry or mine is allowed to come up in such areas.
- As a general principle width of the eco-sensitive zone could go up to 10 km around a protected area. In case of places with sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, even area beyond 10 km width can also be included in the eco-sensitive zone.
- The guidelines prohibit activities such as commercial mining, commercial use of firewood and major hydropower projects.
- The basic aim is to regulate certain activities around National Parks and Wildlife Sanctuaries so as to minimise the negative impacts of such activities on the fragile ecosystem encompassing the protected areas.

Saltwater Crocodile Sighted in AP

- At least two saltwater crocodiles (*Crocodylus porosus*) were sighted along Andhra Pradesh Coast.

- Salt-water crocodiles are usually found around Odisha Coast. Their presence in Andhra indicates migration of the species from the Odisha coast.
- The two crocodiles will be shifted to the Bhitarkanika National Park (BNP), Odisha.
- **In India, the BNP, the Sundarbans and the Andaman & Nicobar Islands are the prime habitats of the saltwater crocodile.**

Indian Crocodile Conservation Project

- Crocodilians were threatened in India due to indiscriminate killing for commercial purpose and severe habitat loss until enactment of the **Wildlife (Protection) Act, 1972**.
- **Crocodile Conservation Project was launched in 1975 in different States.**
- The Gharial and Saltwater crocodile conservation programme was first implemented in Odisha in early 1975 and subsequently the **Mugger conservation programme was initiated**.
- The estimated number of the saltwater crocodiles increased from 96 in 1976 to 1,640 in 2012 in India due to rear and release programme established under the Indian Crocodile Conservation Project.

Crocodiles in India

- India has three species of crocodilians namely
 - Gharial (*Gavialis gangeticus*) (IUCN: Critically Endangered)
 - Mugger crocodile (*Crocodylus palustris*) (IUCN: Vulnerable)
 - Saltwater crocodile (*Crocodylus porosus*) (IUCN: Least Concern)

Bhitarkanika National Park

- **Bhitarkanika National Park is one of Odisha's finest biodiversity hotspots and is famous for its green mangroves, migratory birds, turtles, estuarine crocodiles and countless creeks.**
- The wetland is represented by 3 protected Areas, the Bhitarkanika National Park, the Bhitarkanika Wildlife Sanctuary and the Gahirmatha Marine Sanctuary.
- **Bhitarkanika is located in the estuary of Brahmani, Baitarani, Dhamra and Mahanadi river systems.**
- It is said to **house 70% of the country's estuarine or saltwater crocodiles.**

Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)

- The Government has approved continuation of the nine sub-schemes of the umbrella scheme "**Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)**" during 2017-2020.
- The scheme will provide **improved weather, climate and ocean forecast and services**. This would include warnings for cyclones, storm surges, heat waves and thunderstorms.
- It will be implemented by the Ministry of Earth Sciences through its institutes namely India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), National Centre for Medium Range Weather Forecasting (NCMRWF), and Indian National Centre for Ocean Information Service (INCOIS).
- It has also approved establishment of **National Facility for Airborne Research (NFAR)** which will serve the purpose of airborne measurements in respect of Aerosol sampling, measurement of cloud properties, cloud physics, Convective Tropical Convergence Zone (CTCZ), atmospheric chemistry, etc. to address all relevant scientific issues.

SSB to Patrol Dudhwa Tiger Reserve

- **Dudhwa Tiger Reserve and Sashastra Seema Bal (SSB)** have joined hands to provide security to Dudhwa forests and its rich wildlife.
- Apart from joint patrolling, intelligence and information sharing among various security agencies about activities of wildlife and forest criminals will also be undertaken.

Dudhwa Tiger Reserve

- The Dudhwa Tiger Reserve is a protected area in **Uttar Pradesh** that stretches mainly across the **Lakhimpur Kheri and Bahraich districts**.
- It comprises of the **Dudhwa National Park, Kishanpur Wildlife Sanctuary and Katarniaghat Wildlife Sanctuary**.

- The **Sharda River** flows by the **Kishanpur WL Sanctuary**, the **Geruwa River** flows through the **Katarniaghat WL Sanctuary** and the **Suheli and Mohana streams** flow in the **Dudhwa National Park**, all of which are tributaries of the **Ghagra River**.
- The **northern boundary** of the park is being constituted by the **Mohana River** flowing along the Indo-Nepal border whilst the **southern boundary** is formed by the **river Suheli**.
- It includes three large forest fragments - marshes, grasslands and dense forests, amidst the matrix dominated by agriculture.

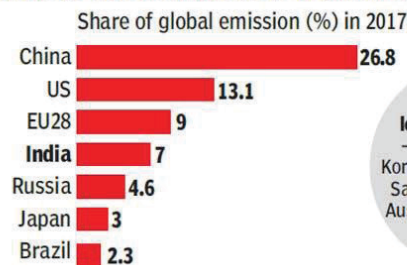
Emissions Gap Report 2018

- United Nations Environment Program has released its annual Emissions Gap Report.
- The Emissions Gap Report assesses the "emissions gap," which is the gap between anticipated emission levels in 2030, compared to emissions levels consistent with meeting a 2°C/1.5°C target.
- India with its currently-implemented policies is likely to achieve its Cancun pledge of 2020 and NDC targets.
- The report finds that
 - global emissions of greenhouse gases have risen for the first time in four years.
 - keeping global warming below 2°C above pre-industrial levels is still technically possible, the potential to bridge the 1.5°C gap is decreasing.

EMISSION GAP IN CLIMATE DISASTER

- Global GHG emissions reached historic levels at 53.5 GtCO₂e (gigatonnes of carbon dioxide equivalent)
- It's an increase of 0.7 GtCO₂e compared with 2016
- Global emissions recorded increase in 2017 after three years of stabilisation
- Global emissions need to peak and decline rapidly thereafter to limit average warming to below 2 degrees C and 1.5 degree C by 2100

Where do G20 countries (78% of global emissions) stand?



Countries having less than 2% share — Indonesia, South Korea, Canada, Mexico, Saudi Arabia, Turkey, Australia, South Africa and Argentina

- the current pace of national action is insufficient to meet the targets of the Paris Agreement, and the gap in 2018 is larger than ever
- countries must triple their ambition levels to meet the 2°C goal, and increase ambition five-fold to meet the 1.5°C target
- continuing with the current trends will likely lead to global warming of around 3°C by the end of the century.
- nations must raise their ambition by three times to meet the two degrees Celsius and five times to meet 1.5 degrees

- implementing fiscal policy measures such as carbon pricing and taxes are effective ways in reducing emissions and costs of mitigating it.

COP-16 Cancun, Mexico

- COP-16 took place at Cancun, 2010. At the conference, all parties including both the developed and the developing countries agreed to report their voluntary mitigation goals for implementation.
- Green Climate Fund under the COP, with a board equally representing developed and developing countries was established.



Security

Highlights

- Mission Raksha Gyan Shakti (41)

- Emergency Response Support System (ERSS) (41)

Mission Raksha Gyan Shakti

The Department of Defence Production has instituted a framework titled '**Mission Raksha Gyan Shakti**' which aims to provide a boost to the **Intellectual Property Rights** culture in **indigenous defense industry**.

- The **Directorate General of Quality Assurance (DGQA)** has been entrusted with the responsibility of coordinating and implementing the programme.
- Under the mission, the target for the **year 2017-18 is to train 10,000 personnel of Defence Public Sector Undertakings (DPSU) and Ordnance factory Board (OFB) on IPR and facilitate filing of at least 1,000 new IPR applications.**
- The first level of IPs will be filed with the **Controller of Indian Patents** which would then take them up at the global level.
- India has accumulated several technologies gained through **Transfer of Technology (ToT)** agreements but for any design adjustments in the platforms, the original manufacturer has to be consulted.

Importance

- It aims to achieve the goal of **self-reliance in defense sector** to generate Intellectual Property in India and marks a departure from the culture of seeking Transfer of Technology (ToT) from foreign sources.
- **Design or IP accounts for over 50% of the cost, in some cases it is 70-80%. Indigenisation can result in cost savings of about 50-70%.**

Emergency Response Support System (ERSS)

- Emergency Response Support System (ERSS) has been launched for Himachal Pradesh and Nagaland. **Himachal Pradesh became the first state** to launch the pan-India single emergency number '112' under ERSS.
- ERSS was earlier known as Nationwide Emergency Response System. Central Government has allocated funds under the Nirbhaya Fund for implementation of ERSS project across the country.
- Under this project, one Emergency Response Centre (ERC) is established along with District Command Centers (DCCs) covering entire State.
- Emergency Response Centre is **integrated with Police (100), Fire (101), Health (108) and Women helpline (1090)** Services to provide emergency services via single emergency number - 112.
- This service will remove the need for citizens to remember multiple helpline numbers.
- The service also includes a '**112 India**' mobile app integrated with Panic Button of smartphones and ERSS State website for ease of citizen in availing immediate assistance.
- To increase the effectiveness of Emergency Response, the ERC has also been integrated with Location Based Services provided by Telecom Service Providers.
- To ensure safety of women, a **SHOUT feature has been introduced in '112 India'** mobile app to seek immediate assistance from registered volunteers in the vicinity apart from the immediate assistance from Emergency Response Centre.
- **ERSS was formed on the recommendation of Justice Verma Committee (2012-13).**

Art & Culture

Highlights

- Climate Change and the Decline of Indus Valley Civilisation (42)
- World Heritage Week (43)
- Tawang Monastery (43)
- Aadi Mahotsav (43)
- Reggae got UNESCO Heritage Status (43)

Climate Change and the Decline of Indus Valley Civilisation

A new study titled '**Neoglacial climate anomalies and the Harappan metamorphosis**', conducted by an international team of scientists suggests that climate change may have led to the decline of the Indus Valley Civilisation.

- The study looked at:
 - **sediments from the Arabian Sea** from the continental margin of Pakistan,
 - **reconstructed the Indian winter monsoon for the last 6,000 years, and examined undersea fossils and marine DNA.**
- The seafloor near the mouth of the Indus is a very low-oxygen environment, so whatever grows and dies in the water is very well preserved in the sediment. Hence, it was used as a sample.

A Brief History

- More than 4,000 years ago, the Harappan culture thrived in the Indus River Valley of what is now modern Pakistan and northwestern India.
- They built sophisticated cities, invented sewage systems that predated ancient Rome's, and engaged in long-distance trade with settlements in Mesopotamia.
- However, by 1800 BCE, this advanced culture had abandoned their cities, moving instead to smaller villages in the Himalayan foothills.

Findings of the Study

- First, **a wetter winter monsoon may have led to urban Harappan society turning into a rural one,** as

inhabitants migrated from a summer flood-deficient river valley to the Himalayan plains.

- Later, a decline in the winter monsoon could have played a role in the demise of the rural late Harappans.
- A shift in temperatures and weather patterns over the Indus Valley caused summer monsoon rains to gradually dry up, making agriculture difficult or impossible near Harappan cities.
- Records for the last 4,500 years generally indicate that temperatures were lower than the Holocene thermal maximum. A general cooling, known as the occurred between 2,500 and 4,500 years ago.
- **Floods in the Indus and tributary rivers became less severe** and probably less predictable which affected the Indus people who depended a lot on inundation agriculture.
- **Ghaggar-Hakra, which is the probable course of the Saraswati river, dried at the same time.**
- Between 4,500 and 3,000 years ago, strong winter monsoons were characterised by "**early neoglacial anomalies (ENA)**" that is characterised by changes in wind and precipitation patterns that are evident across the eastern Northern Hemisphere and tropics.
- **It was this coordinated climate reorganisation that may have helped trigger the transformation of the urban Harappan civilisation into a rural society.** During that time the Indo-Aryan culture was arriving in the region with Iron Age tools, horses and carts.

Significance of the Study

- It provides us with a vivid example of what climate change could do to people.
- The study provides a powerful lesson for today as the migration out of Syria and African countries has some roots in climate change.

- Also, sea level rise in recent times due to climate change can lead to huge migrations from low lying regions like Bangladesh, or from hurricane-prone regions in the southern U.S.
- The Harappans could cope with the change by migrating but owing to the existing rigid political boundaries with the increasing tendency of protectionism, this option is nearly closed in today's global scenario which ultimately can cause political and social convulsion.

Important sites of the Indus Valley civilization and their archaeological findings:

- Harappa in present Pakistan – granaries with big platform, stone symbol of lingam and yoni, mother goddess figure, wheat and barley in wooden mortar, dice, copper scale and mirror.
- Mohenjodaro in present Pakistan - bronze dancing girl, the sculpture of bearded priest, the great bath, the great granary.
- Dholavira in Gujarat – giant water reservoir, unique water harnessing system, stadium, dams and embankments, inscription comprising 10 large sized signs like an advertisement board.
- Lothal (Manchester of Indus Valley Civilisation) in Gujarat – dockyard, double burial, rice, fire altars, painted jar, modern day chess, terracotta figure of ship, instruments for measuring 45, 90 and 180-degree angles.
- Ropar in Punjab – dog buried with human oval pit burials.
- Balathal and Kalibangan in Rajasthan – bangle factory, toy carts, bones of camel, decorated bricks, citadel and lower town.
- Banawali in Haryana – toy plough, barley grains, oval-shaped settlement, the only city with radial streets.
- Alamgirpur in Uttar Pradesh – impression of a cloth on a trough.

World Heritage Week

- World Heritage Week was marked around the world from November 19-25, after UNESCO declared the designated period a few decades ago.
- Its objective is to increase awareness about the preservation of invaluable heritage and celebrate the architectural and cultural legacy.

- India currently has 37 UNESCO World Heritage Sites.

Tawang Monastery

- Tawang Monastery is located in **Tawang district of Arunachal Pradesh**.
- Known in Tibetan as **Gaden Namgyal Lhatse**, it was built according to the wishes of the **5th Dalai Lama, Ngawang Lobsang Gyatso**.
- However, it was **founded in 1680-81 by a monk named Merag Lodre Gyatso of the Gelugpa sect (Tibetan Buddhism)** after the 4th Dalai Lama gave him a painting of goddess Palden Lhamo to be kept in the monastery.
 - Tibetan Buddhism is the major religion of Tibetans around the world. It covers the teachings of **Mahayana Buddhism along with Tantric and Shamanic rituals**, and is in some part **influenced by Bon, the ancient, indigenous religion of Tibet**.
- An eight-metre high gilded statue of Lord Buddha dominates the sanctum of the monastery.
- It is the **largest monastery in India and second largest in the world after the Potala Palace in Lhasa, Tibet**.

Aadi Mahotsav

- The **4th edition** of annual “Aadi Mahotsav”, a National Tribal Festival organized by **Ministry of Tribal Affairs in association with TRIFED and Ministry of Culture** was held from 16-30 November, 2018 at Dilli Haat.
- The theme of the festival: **Celebration of the spirit of tribal culture, craft, cuisine and commerce**.
- **Article 46** of the Constitution of India lays down that the state shall promote with special care the educational and economic interests of the weaker sections of the people and in particular of the scheduled tribes and shall protect them from social injustice and all forms of exploitation.

Tribal Cooperative Marketing Development Federation of India Limited (TRIFED)

- It was founded in **1987**. It is a national-level apex organization functioning under the administrative control of Ministry of Tribal Affairs.

Reggae got UNESCO Heritage Status

- Reggae music, which got international fame because of artists like Bob Marley, secured its place in United Nations' list of intangible cultural heritage.
- Reggae music genre originated in Jamaica (a Caribbean island nation).
- UNESCO noted that while reggae started out as the voice of the marginalized, it is now played and embraced by a wide cross-section of society, including various ethnic and religious groups.

- Intangible Cultural Heritage of India:
 - **Kumbh Mela, Yoga**, Traditional brass and copper craft of utensils among **thatheras of Punjab, Sankirtana** (ritual singing, dancing and drumming of Manipur), **Buddhist chanting of Ladakh, Chhau Dance, Kalbelia** (folk song and dance of Rajasthan), **Kutiyattam** (a Sanskrit theatre of Kerala), **Tradition of Vedic Chanting, Ramlila, Novruz** (Persian New Year), **Ramman** (religious festival and ritual theatre of the Garhwal Himalayas), **Mudiyettu** (ritual theatre and dance drama of Kerala).



Social Issues

Highlights

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- World Malaria Report 2018 (46)
- Global Education Monitoring Report-2019 : UNESCO (47)
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- Intensified Mission Indradhanush (49)
- US Citizen killed by Tribals in Andaman (50)
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- Qaumi Ekta Week (52)

World Toilet Day

World Toilet Day is celebrated every year on **19 November**.

- In 2013, the **United Nations General Assembly** officially designated November 19 as World Toilet Day to engage and educate people and their communities worldwide to encourage support for sanitation-related issues.
- It also aims to break the stigma around sanitation.
- It is coordinated by UN-Water in collaboration with governments and partners.
- The theme of World Toilet Day-2018 is **“When Nature Calls”** which emphasizes that when nature calls, toilet is needed but billions of people don't have toilets.

The Sanitation Crisis

- Toilets save lives, because human waste spreads killer diseases. World Toilet Day is about inspiring action to tackle the global sanitation crisis.
- **Today, globally 4.5 billion people live without a safe toilet and 892 million people still practise open defecation.**
- **SDG 6** aims to ensure that everyone has a safe toilet and that no-one practices open defecation by 2030.
- Universal access to sanitation in households and schools is essential in:
 - Reducing diseases
 - Improving nutritional status of children
 - Enhancing safety, and well-being of children
 - Increasing educational prospects, especially for women and girls

Significance for India

- Sanitation is a serious issue in India, **with more than 60% of Indians still defecating in the open**. More than 80 million people in urban areas still do not have access to safe toilets.
- **Over one lakh children die in India due to diarrhoea-related diseases**, 90% of these deaths can be directly attributed to improper sanitation facilities.
- The inadequate urban sanitation has led to a financial loss to the economy equivalent to 6.4% of India's Gross Domestic Product (GDP).
- Further, hundreds of manual scavengers who scrape the waste with their bare hands without any protective gear or masks, die each year cleaning out sewers in cities across India.
- Many women in India also prefer liquid meals for dinner, eat less and restrict water intake, women and girls hold their bladders for more than 13 hours a day, leading to many reproductive and urinary tract infections.

Way Forward

- **Nature-based sanitation solutions (NBS)** should be encouraged which harness the power of ecosystems to help treat human waste before it returns to the environment.
- Most NBS essentially involve the protection and management of vegetation, soils and/or wetlands, including rivers and lakes. For instance:
 - **Composting latrines** that capture and treat human waste on site, producing a free supply of fertiliser to help grow crops etc.
 - **Human-made wetlands and reed-beds** filter wastewater before it is released back into water courses.

Note:

- **Technological solutions** should be leveraged for sustainable solution of sanitation and hygiene. For instance:
 - Recently a machine launched by Sulabh International (a social service organization) can be adopted for eliminating manual scavenging. The machine **injects high-pressure water** into the tunnels and tanks and then collects the waste with a mechanical bucket operated from ground level. A **remote control inspection camera** generates high-resolution images of the sewer system.
 - **Reinvented toilets** promoted by the Bill and Melinda Gates Foundation can be adopted which turn liquid waste into clear water for flushing, and solids into pellets or ash that is fertilizer.
 - While the reinvented toilet gets optimized, India should, in parallel, look at **Omni processors for faecal sludge treatment plants (FSTP)**.

World Malaria Report 2018

Recently, World Health Organisation (WHO) has released World Malaria Report, 2018.

- The report has mentioned that the number of cases of malaria has increased to 219 million in 2017 from 217 million cases in 2016.
- Malaria occurs in 91 countries but about 90% of the cases and deaths are in sub-Saharan Africa.

Major Findings of the Report

- Fifteen countries in sub-Saharan Africa and India carried almost 80% of the global malaria burden.
- Five countries accounted for nearly half of all malaria cases worldwide: Nigeria (25%), Democratic Republic of the Congo (11%), Mozambique (5%), India (4%) and Uganda (4%).
- Among these countries, only India reported progress in reducing its malaria cases in 2017 compared to 2016.
- WHO also released a new country-driven approach – **“High burden to high impact”** to enhance response to malaria in countries where Malaria cases increased in 2017 as compared to 2016.
- Catalyzed by WHO and the RBM Partnership to End Malaria, the approach is founded upon four pillars:
 - galvanize national and global political attention to reduce malaria deaths;

- drive impact in country through the strategic use of information;
- establish best global guidance, policies and strategies suitable for all malaria endemic countries;
- implement a coordinated country response
- **“High burden to high impact”** calls for increased funding, with an emphasis on domestic funding for malaria, and better targeting of resources.
- **Decline in Funding:** In 24 out of 41 high-burden countries, which rely on external funding for malaria programmes, the average level of funding available per person at risk declined in 2015–2017 compared to 2012–2014.
- **Artemisinin-based Combination Therapy (ACTs)** have been integral to the recent success of global malaria control, and protecting their efficacy for the treatment of malaria is a global health priority.
- **Insecticide Resistance**
 - Of the 80 malaria endemic countries that provided data for 2010–2017, resistance to at least one of the four insecticide classes in one malaria vector from collection site was detected in 68 countries.
 - In view of the current situation, resistance monitoring and management plans are essential, in line with the WHO Global plan for insecticide resistance management in malaria vectors.

National Strategic Plan for Malaria Elimination (NSPME) (2017-22)

- Government of India has launched NSPME (2017-22) providing wise elimination targets in various parts of the country depending upon the endemicity of malaria in the next 5 years.
- The NSPME is based on **National Framework for Malaria Elimination 2016** which is in line with **WHO’s Global Technical Strategy for Malaria, 2016-2030**.
- **Strategy to Eradicate Malaria**
 - The NSP divides the country into four categories, from 0 to 3. The plan is to eliminate malaria (zero indigenous cases) by 2022 in all Category 1 and 2 districts.
 - The remaining districts are to be brought under a pre-elimination and elimination programme.
 - The NSP also aims to maintain a malaria-free status for areas where transmission has been interrupted.

- It seeks to achieve universal case detection and treatment services in endemic districts to ensure 100% diagnosis of all suspected cases, and full treatment of all confirmed cases.
- The plan has four components, based on WHO recommendations:
 - diagnosis and case management; surveillance and epidemic response;
 - prevention — integrated vector management;
 - 'cross-cutting' interventions, which include advocacy, communication, research and development and other initiatives

Global Education Monitoring Report-2019 : UNESCO

Recently, **United Nations Educational, Scientific and Cultural Organization (UNESCO)** released its **Global Education Monitoring Report 2019** titled – “**Migration, Displacement and Education: Building Bridges, not Walls**”.

Highlights

- The report highlights countries' achievements and shortcomings in ensuring the right of migrant and refugee children to benefit from quality education.
- The number of migrant and refugee school-age children around the world in 2018 has grown by 26% since 2000 and could fill half a million classrooms.
- The right of these children to quality education, even if increasingly recognized on paper, is challenged in practical. The two years since the landmark **New York Declaration for Refugees and Migrants in 2016**, refugees have missed 1.5 billion days of school.

New York Declaration for Refugees and Migrants in 2016

- On September 19, 2016, the United Nations General Assembly unanimously adopted the New York Declaration for Refugees and Migrants.
- The New York Declaration reaffirms the importance

of the international refugee regime and contains a wide range of commitments by Member States to strengthen and enhance mechanisms to protect people on the move.

- It has paved the way for the adoption of two new global compacts in 2018:
 - a global compact on refugees and
 - a global compact for safe, orderly and regular migration.
- It also warns of the negative impact on education for children who are left behind as their parents migrate. Test scores were lower among left-behind children aged 5-8.
- Nevertheless, there has been progress in the inclusion of refugees in national education systems, as seen in eight of the top ten refugee hosting countries. Canada and Ireland are among the global leaders in implementing inclusive education policies for immigrants.

The United Nations Educational, Scientific and Cultural Organization (UNESCO)

- UNESCO, formed in 1945, is a specialized agency of the United Nations (UN) based in Paris.
- It aims to contribute to peace and security by promoting international collaboration through educational, scientific, and cultural reforms.
- UNESCO has 195 member states and ten associate members.
- India was a founder member of the Organisation.

India Specific Findings

- Literacy levels in rural households of India dip with **seasonal migration**. About 80% of seasonal migrant children in major cities lacked access to education near

Some relief

Some States in India have begun initiatives for the welfare of children of migrant parents

- **T.N.:** The govt. provides text-books in other languages to migrant children
- **Gujarat:** It has introduced seasonal boarding schools to provide education to migrant children



- **Maharashtra:** Authorities have enrolled volunteers to provide after-school psycho-social support to children left behind by migrating parents
- **Odisha:** It has taken up the responsibility of seasonal hostels run by NGOs
- **Odisha:** It also works with Andhra Pradesh to improve migrant well-being

work sites, and 40% are likely to end up in work rather than education, experiencing abuse and exploitation.

- The **construction sector absorbs the majority of short-term migrants**. About 77% of kiln workers reported lack of access to early childhood or primary education for their children.
- It **lauds Right to Education Act in 2009** which made it mandatory for local authorities to admit migrant children. National-level guidelines were issued, allowing for flexible admission of children, providing transport and volunteers to support with mobile education, create seasonal hostels and improve coordination between sending and receiving districts and states.
- The report says some State governments have also taken steps for migrant children's education. However, most interventions are focused on keeping children in home communities instead of actively addressing the challenges faced by those who are already on the move.
- It also talks about challenges wherein the progress of out-of-school children did not improve learning in any substantial way. Teachers on the sites cited **culture, language, lifestyle, cleanliness and clothing as major barriers** between them and the kiln labour community. Teacher and student absenteeism were rampant.
- The report sees the **growth of slums and informal settlements** due to migration as a challenge.

Recommendations

- Protect the right to education of migrants and displaced people.
- Include migrants and displaced people in the national education system.
- Understand and plan to meet the education needs of migrants and displaced people.
- Represent migration and displacement histories in education accurately to challenge prejudices.
- Prepare teachers of migrants and refugees to address diversity and hardship.
- Harness the potential of migrants and displaced people.
- Support education needs of migrants and displaced people in humanitarian and development aid.

Conclusion

- India, along with China, is home to some of the world's largest internal population movements and

the report shows that the scale of seasonal migration has a significant impact on education.

- Therefore, the UNESCO report urges policy makers to strengthen public education for rural migrant children living in slums.
- Migration and displacement are two global challenges that needs to be addressed in achieving the 17 Sustainable Development Goals (SDGs) in general and **SDG 4**, i.e. 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all', in particular.

Maternity Leave Incentive Scheme

- The Ministry of Labour & Employment has come up with clarification with respect to Maternity Leave Incentive Scheme.
 - There were some media reports that this Scheme has been approved/notified. However, it is clarified that Ministry of Labour & Employment is in the process of obtaining necessary budgetary grant and approvals of Competent Authorities.
 - The report, that it will be funded from Labour Welfare Cess, is also incorrect, as no such cess exists under this Ministry.
- The **Building and Other Construction Workers' Welfare Cess (BOCW) Act, 1996** provides for collection of cess for construction workers by states/union territories.
- The State and the Local governments collect the Cess and then transfer to the State Welfare Boards.
- Diversion of cess fund for welfare of other category of workers is not permissible under the BOCW Act.

Maternity Benefit legislations in India

- The Maternity Benefit Act, 1961 applies to **establishments employing 10 or more persons** in Factories, Mines, Plantation, Shops & Establishments and other entities.
- The main purpose of this Act is to **regulate the employment of women** in certain establishments for certain period **before and after childbirth** and to provide maternity benefit and certain other benefits.
- The Act was amended through the **Maternity Benefit (Amendment) Act, 2017** which, inter alia, has increased the paid maternity leave to women employees from **12 weeks to 26 weeks**.

- While the implementation of the provision is good in Public Sector, there are reports that it is poor in Private Sector and in contract jobs.
- There is also a wide perception that private entities are not encouraging the hiring of women employees because if they are employed, they may have to provide maternity benefit to them, particularly 26 weeks of paid holiday.
- Therefore, the extended maternity leave has become a deterrent for female employees who are asked to quit or retrenched on flimsy grounds before they go on maternity leave.

Need for Incentive Scheme

- The Ministry of Labour & Employment is working on an incentive scheme wherein **7 weeks' wages would be reimbursed to employers** who employ women workers with wage ceiling upto Rs. 15000/- and provide the maternity benefit of 26 weeks paid leave, subject to certain conditions.
- The proposed Scheme, if approved and implemented can ensure the women in this country an equal access to employment and other approved benefits along with adequate safety and secure environment.
- The workplaces will be more and more responsive to the family needs of the working women.

Intensified Mission Indradhanush

Intensified Mission Indradhanush (IMI) is listed as one of 12 best practices from around the world and will be featured in a special issue of the British Medical Journal (BMJ).

- The special issue will be brought out on the occasion of the **fourth Partners Forum conference** organised by the Government of India in New Delhi.

Universal Immunization Programme (UIP)

- **Launched by the government in 1985**, UIP prevents mortality and morbidity in children and pregnant women through free of cost vaccination provided against twelve vaccine preventable diseases i.e. **Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Hepatitis B, Pneumonia and Meningitis due to Haemophilus Influenzae type b (Hib), Measles, Rubella, Japanese Encephalitis (JE) and Rotavirus diarrhoea.**

Partners' Forum is short for the meeting of **The Partnership for Maternal, Newborn & Child Health (The Partnership, PMNCH).**

- The Partnership, PMNCH is an alliance of more than 1,000 organisations in 192 countries. The organisations work in the sexual, reproductive, maternal, newborn, child and adolescent health communities, as well as health influencing sectors.
- The Partnership is governed by a Board, and administered by a Secretariat hosted at the **World Health Organization** in Geneva, Switzerland.

IMR and MMR data

- India's **infant mortality rate (IMR 2016)** is 34 deaths per 1,000 live births.
- India's maternal mortality rate (**MMR 2016**) is 130 per 100,000 live births.

- The programme was the one of largest health programmes in the world. Despite being operational for many years, UIP has been able to fully immunize only 65% children under 1 year of age.

Mission Indradhanush

- To give maximum protection to children against **Vaccine Preventable Diseases (VPDs)**, the government launched 'Mission Indradhanush' in December 2014 to fully immunize more than 89 lakh children who are either unvaccinated or partially vaccinated under UIP.
- The mission targets children under 2 years of age and pregnant women for immunization.
- Mission Indradhanush provides vaccination against 7 diseases **diphtheria, whooping cough, tetanus, polio, tuberculosis, measles and hepatitis B.**
- No separate funds are allocated for Mission Indradhanush. Funds allocated for Routine Immunization are being utilized by the states to carry out activities under Mission Indradhanush.
- Mission Indradhanush does not target to reduce postnatal death rate. It aims to reduce diseases and death due to vaccine preventable diseases.
- Earlier the increase in full immunization coverage was 1% per year which has increased to 6.7% per year through the first two phases of 'Mission Indradhanush'.

Intensified Mission Indradhanush

- The Intensified Mission Indradhanush (IMI) has been launched by government of India in 2017 to reach each and every **child under two years of age and all those pregnant women who have been left uncovered under the routine immunisation programme.**
- The target under IMI is to increase the full immunization coverage to 90% by December 2018.
- Under Intensified Mission Indradhanush, greater focus was given on urban areas which was one of the gaps of Mission Indradhanush.

US Citizen killed by Tribals in Andaman

An American national who tried to contact protected Sentinelese tribes in Andaman's North Sentinel Island was allegedly killed by them.

- In August 2018, in order to promote tourism in the remote **Andaman and Nicobar islands**, the government excluded 29 inhabited islands which also included North Sentinelese island from the restricted area permit (RAP) regime till December 31, 2022.
- The lifting of RAP means that foreigners are allowed to visit these islands without prior permission from the government subject to certain conditions.



- Separate approvals of a competent authority would continue to be required for visiting reserved forests, wildlife sanctuaries, and tribal reserves.

Sentinelese

- The Sentinelese is a pre-neolithic, negrito tribe which lives in North Sentinel Island of the Andamans.
- They are completely isolated with no contact to the outside world. The first time they were contacted by a team of Indian anthropologists was in 1991.
- **Due to no contact, the census of Sentinelese is taken through photographing the island individuals from distance. Census 2001 counted them at 39.**
- Surveys of North Sentinel Island have not found any evidence of agriculture. Instead, the community seems to be hunter-gatherers, getting food through fishing, hunting, and collecting wild plants living on the island.
- Sentinelese are also listed under **Particularly Vulnerable Tribal Groups (PVTGs)** by the government of India.
- They are protected under the **Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Regulation, 1956.**
 - It declares traditional areas occupied by the tribes as reserves, and prohibits entry of all except those with authorization.
 - Photographing or filming tribe members is also an offense.

India's Tribal Policy

- **Indian Constitution:**
 - **Fifth and Sixth Schedules** – provide for alternate or special governance mechanism for certain schedule area.
 - Most of the tribes in India are collectively identified as Scheduled Tribes under **Article 342 (1&2).**
 - **Article 244 under Part X** provides special provision for the administration in Scheduled Areas and Tribal Areas notified under Fifth Schedule.
- The **Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996 or PESA** ensures self governance through traditional Gram Sabhas for people living in the Scheduled Areas of India.
- **The Tribal Panchsheel policy:**
 - People should develop along the lines of their own genius, and the imposition of alien values should be avoided.

Note:

- Tribal rights in land and forest should be respected.
- Teams of tribals should be trained in the work of administration and development.
- Tribal areas over-administered or overwhelmed with a multiplicity of schemes.
- Results should be judged not by statistics or the amount of money spent, but by the human character that is evolved.

Should Tribes be contacted?

The situation of tribal or the Adivasi communities in India has always been a challenge. To assimilate or to let "them" be, are ongoing debates.

➤ **Humans by Nature Social**

- Anthropologists who studied "uncontacted tribes" have said that the tribes were interested in making contact with the outside world, but they were too afraid to do so. Hence, outside contact should be made but only when they have initiated it.

➤ **Destruction of Tribal Culture**

- Contact with the outside world also risks the destruction of tribal culture, knowledge, and languages which can get overwhelmed by outside influence and eventually these can become extinct.

➤ **Health Risk**

- The "uncontacted people" are not vaccinated to various diseases, which outsiders may carry unknowingly. There is a health risk to these communities from outside contact.
- In America, the contact with outside diseases killed up to 100 million indigenous people following the arrival of Europeans in the continent.

Way Forward

- The best path forward is a policy of "controlled contact" with these communities instead of a policy of no contact. Carefully managed contact to avoid the spread of disease also enable the building of trust and providing aid and medical help if needed is the best way.
- Establishing contact with the outside world can also help governments to document the tribe's way of life, preserve their culture and their holistic development.

The approach to development has to be participatory and inclusive in nature. As recommended by the **Bhuria Commission (2002-04)** any government policy with

regards to these communities should enable them to move in the direction that they decide, on the terms which are their own and at the pace they wish to advance.

Uncontacted people: These are indigenous communities that have managed to exist almost entirely outside the purview of the nation-states in which they technically live.

Particularly Vulnerable Tribal Groups (PVTGs)

- PVTGs are centrally recognized special category from among the Scheduled Tribes and were constituted during the 4th five-year plan on the basis of the report of the Dhebar commission (1960-61).
- They are the most vulnerable section among tribals and generally inhabit the isolated, remote and difficult areas as small and scattered hamlets/ habitats.

Tribes of Andaman and Nicobar

The Andaman and Nicobar are home to six tribes, Great Andamanese, Onge, Jarawa, Sentinelese, Nicobarese and Shompen.

Global Nutrition Report 2018

- In its fifth edition, the Global Nutrition Report highlights the worrying prevalence and universality of malnutrition in all its forms.
- According to the report there has been some progress in reducing malnutrition, but it has been too slow and not spread across all forms of malnutrition.
- About a third of the world's children suffer some form of malnutrition.

Global Nutrition Report

- This report has been produced by the **Independent Expert Group of the Global Nutrition Report, supported by the Global Nutrition Report Stakeholder Group.**
- The Global Nutrition Report was conceived following the **first Nutrition for Growth Initiative Summit (N4G) in 2013**. The first report was published in 2014.
- The Global Nutrition Report acts as a report card on the world's nutrition – globally, regionally, and country by country – and on efforts to improve it.
- It assesses progress in meeting Global Nutrition Targets established by the **World Health Assembly** (World Health Assembly is the decision-making body of WHO; it is attended by delegations from all WHO Member States and focuses on specific health agendas).

- **The World Health Organization (WHO) is a Global Nutrition Report Partner.**

Key Findings

- **Stunting in children under five years of age is declining at a global level but numbers in Africa are increasing.**
 - Although, some progress is visible only against stunting, **India still holds almost a third of the world's burden for stunting.** Of the three countries that are home to almost half (47.2%) of all stunted children, two are in Asia, with India having 46.6 million (31%) and Pakistan having 10.7 million.
- **India also accounted for 25.5 million children who are wasted,** followed by Nigeria (3.4 million) and Indonesia (3.3 million). More than half of the world's children impacted by wasting (26.9 million) live in South Asia.
- **Progress in addressing underweight and anaemia among women has been extremely slow while overweight ((body mass index (BMI \geq 25) and obesity (BMI \geq 30) among adults is getting worse, with higher rates of obesity among women than men. Conversely, diabetes is more common among men than women.**
- **India also figures among the set of countries that has more than a million overweight children.** The other nations are China, Indonesia, India, Egypt, US, Brazil and Pakistan.
- Different forms of malnutrition continue to coexist with each other. Of the 141 countries analysed, 88% experience more than one form of malnutrition.
- In situations of crises arising from conflict, fragility, violence and environmental change there is an urgent need to treat and prevent multiple burdens of malnutrition while also building nutrition resilience.

Recommendations

- **Break down the walls between all forms of malnutrition** – Different forms of malnutrition coexist which are being tackled at different rates, vary between populations, and overlap with each other in various ways. Therefore they require integrated approaches and cohesive work to address them.
- **Prioritise and invest in the data and capacity to use them** – The efforts made to improve the collection and analysis of diet data must continue, and the gap in micronutrient data must be addressed as a matter of urgency. However, data collection and analysis is

not enough, all stakeholders also need the capacity to use it to make evidence-based decisions.

- **Increase financing for nutrition** – Although nutrition financing have increased over the years, especially in developing countries, they are not adequate. Building on this progress, domestic investments must continue to grow and international aid donors must keep investing.
- **Galvanise action on healthy diets** – Governments and business need to implement a holistic package of actions to ensure food systems and food environments are delivering healthy diets that are affordable, accessible and desirable for all.

Malnutrition

- Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. It is often split into two broad groups of conditions:
 - **Under nutrition**, including stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).
 - **Overweight**, obesity and diet-related non-communicable diseases (heart disease, stroke, diabetes, cancer, etc.).
- In April 2016, the United Nations General Assembly adopted a resolution proclaiming the UN Decade of Action on Nutrition from 2016 to 2025.
- The Sustainable Development Goal (**SD Goal 2: Zero hunger**) aims to end all forms of hunger and malnutrition by 2030.

Way Forward

- The Global Nutrition Report 2018 finds again that the problem of malnutrition remains severe across all regions and none of the countries are on course to meet all nine global nutrition targets.
- The commitments should be designed for impact which can be continuously monitored. If done, it would result in a delivery on commitments that will be fit for purpose to end malnutrition in all its forms.

Qaumi Ekta Week

- With a view to foster and **reinforce the spirit of Communal Harmony, National Integration and pride**

in vibrant, composite culture and nationhood, the “Qaumi Ekta Week” (National Integration Week) was observed all over the country, from 19th to 25th November, 2018.

- The week long programmes observed during Qaumi Ekta Week were:
 - **National Integration Day** (November 19, 2018) to emphasize the themes of secularism, anti-communalism and non-violence.
 - **Welfare of Minorities Day** (November 20, 2018) to emphasize 15 Point Programme launched in 2005 by the government. It seeks to ensure the welfare of religious minorities through increasing educational and employment opportunities, improving living condition, preventing and controlling communal riots etc.
 - **Linguistic Harmony Day** (November 21, 2018) to enable people of each region to appreciate the linguistic heritage of other parts of India.
 - **Weaker Sections Day** (November 22, 2018) to

highlight programmes under various Governments which help SCs/STs and weaker sections with particular emphasis on the distribution of surplus land to landless labourers.

- **Cultural Unity Day** (November 23, 2018) to present the Indian tradition of unity in diversity and for promoting cultural conservation and integration.
- **Women’s Day** (November 24, 2018) to emphasize the importance of Women in Indian Society and their role in development of nation-building are highlighted.
- **Conservation Day** (November 25, 2018) to emphasise the growing need for awareness and action to conserve the environment.
- The National Foundation for Communal Harmony (NFCH), an autonomous organisation with the Ministry of Home Affairs, organises **Communal Harmony Campaign** coinciding with the Qaumi Ekta Week and observes the **Communal Harmony Flag Day** on 25th November.



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Disaster Management

Highlights

- Impact Based Forecasting Approach (54)

- Titli: Rarest Cyclone (54)

Impact Based Forecasting Approach

- Against the backdrop of Kerala floods, a new technology has been developed by **India Meteorological Department (IMD)** to assess the **rise in water level in rivers and reservoirs due to rain** which can help State governments to minutely monitor the impact of rainfall.
- The technology, called the '**Impact Based Forecasting Approach**', shows "pre-event scenarios" that can help authorities in taking proactive and real-time decisions.
- Impact-based forecasting and warning services aim to improve the synergy between stakeholders and citizens that play a role in a crisis (e.g. flood), by bridging the gaps between the four components needed for an effective early warning system:
 - risk knowledge
 - monitoring and warning service
 - dissemination and communication
 - response capability

India Meteorological Department (IMD)

- IMD was established in 1875.
- It is an agency of the **Ministry of Earth Sciences** of the Government of India.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.

Titli: Rarest Cyclone

The Regional Integrated Multi-Hazard Early Warning System (**RIMES**) for Africa and Asia, has termed '**Titli**', the severe cyclonic storm that hit Odisha as '**rarest cyclone**'.

- **Titli cyclone** was the rarest of rare in terms of its following characteristics:
 - **Recurvature** after landfall.
 - When the **eye of the storm passes over land**, it is classified as making landfall.
 - The eye of a hurricane has **comparatively light winds and mild weather**, while the eyewall is a ring of thunderstorms surrounding the eye.
 - The eyewall can actually **hit land without the cyclone "making landfall"**. E.g.: Hurricane Sandy made landfall in Cuba and Jamaica, but it was Haiti that was hit hardest.
 - Retaining its **destructive potential after landfall**,
 - **Recurvature away from the coastal areas** for more than two days,
 - **No synthetic track projection** available to capture the Titli type of cyclones,
 - Damage to both life and property caused in **interior districts**.
- Earlier, India Meteorological Department had also called the formation of Titli as a 'rarest of rare' occurrence.
- Usually, cyclone-risk management are **heavily focused on the coastal areas** where cyclones cross at their peak intensities. Therefore, coastal areas now have been largely well managed through evacuations and other protocols, leading to zero casualties. However, this is not true for the interior regions since a Cyclone's intensity weakens as it moves away from coastal areas.
- RIMES has recommended that a **detailed risk assessment** be carried out for Odisha to understand the risks in the light of the Titli devastation.

Cyclone Titli

Cyclone Titli became the third major cyclone to hit the Odisha-Andhra coastal zone in the last five years, all in October. The other two were Phailin and Hudhud. It was named by Pakistan.

Movement of Cyclone

- The cyclones that typically strike the Indian neighbourhood in the northern hemisphere **rotate anticlockwise**.
- Their normal behaviour is to **derive strength from the moisture in waters** such as the Bay of Bengal, move west, incline in a northerly direction and peter out into the sea or land, depending on their origin.
- In a re-curving cyclone, the cyclone gets a sort of second wind when it is on the wane.
- It is **deflected right or eastwards**. This is due to **air currents in the local atmosphere that push cold air from the poles** towards the equator and interfere with cyclone formation. That is what makes them 're-curving.'
- In the southern hemisphere, the **cyclones spin clockwise and therefore also re-curve in the opposite direction**.
- A challenge with re-curving cyclones is that **it is hard for weather models to pick them early on** — as

was the case with Ockhi — and so they pose unique challenges in terms of hazard preparedness and disaster management.

Regional Integrated Multi-Hazard Early Warning System (RIMES)

- RIMES is an **international and intergovernmental institution**, owned and managed by its Member States, for the generation and application of early warning information.
- It was established after the aftermath of the 2004 Indian Ocean tsunami on **30 April 2009**, and was **registered with the United Nations on 1 July 2009**.
- RIMES operates from its regional early warning center located at the campus of the Asian Institute of Technology in Pathumthani, **Thailand**.
- It is owned and managed by a **Council** comprising of 48 Members and Collaborating States. Currently, the **Government of India** serves as **RIMES Council Chair**.



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Miscellaneous

Highlights

- Mekedatu Project (56)
- Indian Organ Donation Day (56)
- Vaccine for Goat Plague (56)
- Vetiver Grass (56)
- Korean Wrestling in UNESCO's Intangible Cultural Heritage List (57)
- Constitution Day (57)
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Mekedatu Project

- Mekedatu, meaning goat's leap, is a deep gorge situated at the confluence of the rivers Cauvery and Arkavathi, about 100 km from Bangalore, at the Kanakapura taluk in Karnataka's Ramanagara district.
- The aim of Mekedatu Project is to use the water for a hydro power station and supply drinking water to Bengaluru city.



- In India organs are mainly donated by living donors and only about 23% of organ transplant is being done with organs obtained from cadavers.
- There is a need to promote cadaver or deceased organ donation rather than relying on living donors in order to avoid the risk of commercial trading of organs and also to avoid the inherent risk to the health of a living donor.

Vaccine for Goat Plague

- Researchers from the UK and India have jointly developed a 'smart' vaccine called the **DIVA vaccine** which has the potential to help eradicate goat plague (a highly contagious **viral disease** that occurs in India, many African countries, West Asia, China and Mongolia).

Indian Organ Donation Day

- The 9th Indian Organ Donation Day was organized on **November 27** by the **National Organ and Tissue Transplant Organization (NOTTO)** under the aegis of the Ministry of Health and Family Welfare.

National Organ and Tissue Transplant Organization (NOTTO)

- NOTTO is set up under **Directorate General of Health Services, Ministry of Health and Family Welfare**, located in New Delhi.
- The National Human Organ and Tissue Removal & Storage Network and the National Biomaterial Centre, are two divisions under it.
- National Network division of NOTTO would function as apex centre for all India activities for procurement, distribution and registry of organs and tissues donation and transplantation in the country.

Vetiver Grass

- Vetiver Grass commonly known as Khus grass is a perennial grass of Indian origin.
- Vetiver can be grown on almost every kind of soil. But, **well drained sandy loam and red lateritic soils rich in organic matter are considered to be ideal for its cultivation.**
- The Vetiver System (VS), used in more than 100 countries, is a system of soil and water conservation, and uses the vetiver plant for this purpose. It was first **introduced by the World Bank for soil and water conservation in India in the mid-1980s.**

Uses and Application of Vetiver Grass

- It **absorbs carbon dioxide**, it can be used to **purify polluted water bodies** through **phytoremediation**, it

Note:

has moisture retention property which makes vetiver ideal for soil conservation and replenishment of ground-water (especially in **combating soil erosion** on hilly slopes), it is also used in **ethanol extraction**, as **cattle feed**, and for making **handicrafts**. It is also an **antidepressant**.

Korean Wrestling in UNESCO's Intangible Cultural Heritage List

- UNESCO has accepted a joint bid by North and South Korea and granted Intangible Cultural Heritage status to Korean wrestling '**Ssirum**' which is an ancient sport. The joint bid marks a highly symbolic step on the road to inter-Korean reconciliation.

Constitution Day

- Constitution Day also known as Samvidhan Divas, is celebrated on November 26, every year

to commemorate the adoption of Constitution of India.

- On November 26 1949, the Constituent Assembly of India adopted the Constitution of India, and it came into force on 26 January 1950.
- Constitution is the country's supreme law and not only defines the framework of the basic political principles, but also establishes what the different government institutions should do in terms of procedure, powers and duties.

Constitution in Braille

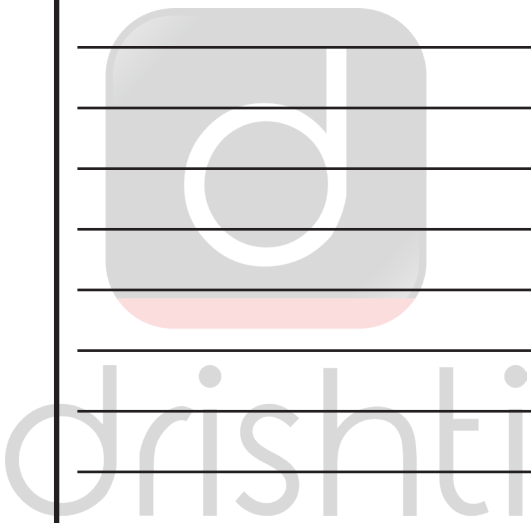
- The **Constitution of India was also made available in Braille for the first time** ahead of the **Constitution Day on November 26**.
- It was a joint project undertaken by the Buddhist Association for the Blind along with Saavi Foundation and Swagat Thorat.
- **Swagat Thorat has been running India's first Braille newspaper 'Sparshdnyan' since 2008.**



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Key Points

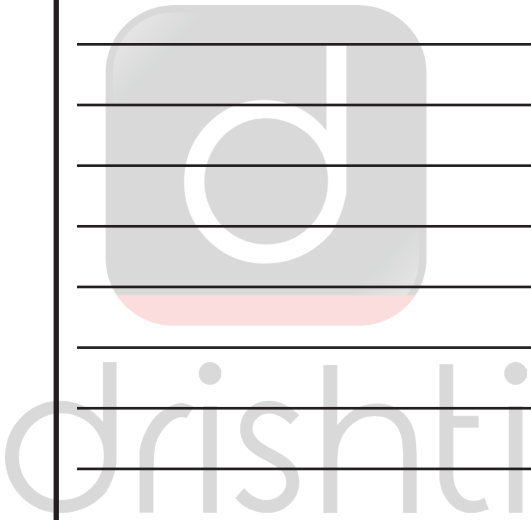
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Summary

Key Points

Details



Summary