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Classroom Study Material

PT 365 Updation

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To achieve your target take steps in the right direction
before time runs out.**

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1. POLITY AND CONSTITUTION

1.1. RIGHT TO RECALL (RTR)

Recall is basically a process whereby the electorate has the power to remove the elected officials before the expiry of their usual term.

Why to go for RTR?

- **Enhance accountability:** At present, there is no recourse for the electorate if they are unhappy with their elected representative.
- **International experience:** It has been in place in one of Canada's provinces. In US, some states allow for recall on specific grounds such as misconduct or malfeasance.
- **Logic and justice:** Like election, people should also have the power to remove the representatives when they engage in misdeeds or fail to fulfill their duties.
- **Decrease role of Money power** - It may limit campaign spending, as morally skewed candidates would weigh the risk of recall.

Table 1: Provisions for RTR at Municipal Level in India

Madhya Pradesh, 2000	Section 24 of the Madhya Pradesh Municipal Corporation Act, 1956 and Section 47 of the Madhya Pradesh Municipalities Act, 1961 ¹
Chhattisgarh, 2007	Section 47 (recall of President) of the Chhattisgarh Nagar Palika Act, 1961 ²
Rajasthan, 2011	Section 53 of the Rajasthan Municipalities Act, 2009 ³ was amended in 2011 as the Rajasthan Municipalities (Amendment) Bill, 2011 ⁴
Bihar, 2007	Section 17 of Bihar Municipal Act, 2007 ⁵

Source: Author's compilation based on data from state election commissions.

1.2. SC JUDGEMENT ON INSULT TO RELIGION UNDER 295A OF IPC

Why in News?

- Recently SC quashed criminal case against MS Dhoni and magazine editor, filed under section 295A of IPC.

Key features of judgement

- Section 295A requires action to be **deliberate** with **intention to outrage religious feelings** without just cause or excuse.
- The section is applicable to only **aggravated forms of insult** to religion that is meant for disrupting public order.

Section 295A

Whoever, with deliberate and malicious intention of outraging the religious feelings of any class of citizens of India (by words, either spoken or written, or by signs or by visible representations or otherwise), insults or attempts to insult the religion or the religious beliefs of that class, shall be punished with imprisonment of three years, or with fine, or with both.

1.3. PROMOTION OF HINDI LANGUAGE

A panel, set up under the Official Languages Act, had submitted its recommendations to the President in 2011. The President has given "in principle" approval to some of these recommendation recently:

- The HRD Ministry needs to make credible efforts for making Hindi a compulsory subject and Hindi should be compulsorily taught in all CBSE schools and KVs until Class X.
- Those holding top government posts should give their speeches/ statements in Hindi, especially those who can read and speak in Hindi.
- Equal honorarium for guest speakers at Hindi workshops organised by ministries at par with speakers at other workshops.
- Hindi translators and co-announcers of Akashvani be given salary at par with translators of foreign languages.
- Filling vacancies of the Hindi officers in various departments,

Basis for promoting Hindi language

Article 351: It shall be the duty of the Union to promote the spread of the Hindi language, to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India and to secure its enrichment by assimilating without interfering with its genius, the forms, style and expressions used in Hindustani and in the other languages of India specified in the Eighth Schedule.

Article 120 and 210 regarding language to be used in parliament and state legislature respectively gives the option of transacting business in Hindi as well

Article 343 gives power to parliament to decide by law, the languages to be used for official work.

Article 344 provides for constitution of a parliamentary committee every 10 years to recommend to the President regarding progressive use of the Hindi language for the official purposes of the Union and restrictions on the use of English.

- Introducing the option of writing answers and giving interviews in Hindi in higher education institutions of non-Hindi speaking states
- Railways and Air India Tickets to also have information in Hindi.

1.4. REAL ESTATE (DEVELOPMENT AND REGULATION) ACT, 2016

Why in News?

- **The Real Estate (Development and Regulation) Act, 2016** that was passed by the parliament in March 2016 comes into effect fully from May, 2017.

Provisions of the Act

- **Mandatory registration** with real estate regulatory authorities (**RERA**) of projects of at least 500 square meter area, or those comprising eight flats.
- **Project developers will now be required to deposit at least 70% of their funds**, including land cost, in a **separate escrow account** to meet the cost of construction.
- A provision for imprisonment up to 3 years in case of promoters and 1 year in case of agents and buyers for violation of orders of appellate tribunals.
- **A clear definition of carpet area** and buyers will be charged for the carpet area and not super built-up area.
- **Appellate tribunals** will adjudicate cases and regulatory authorities will dispose complaints **within 60 days**.
- It will **regulate both commercial and residential projects** and set up state-level regulatory authorities to monitor real estate activity.
- The builders would also be responsible for fixing structural defects for five years after transferring the property to a buyer.

1.5. NATIONAL LEGAL SERVICES AUTHORITY

- The **National Legal Services Authority (NALSA)** has been constituted under the Legal Services Authorities Act.
- The principal objective of NALSA is to provide free and competent legal services to the weaker sections of the society.
- Under a new facility called, '**Legal Assistance Establishments**' or **Nyaya Sanyog**, it will cater to poor litigants and the families of undertrials languishing in jails to get quick access to justice.

1.6. ELECTORAL REFORMS

1.6.1. ICT VISION DOCUMENT 2025

Election commission has come up with ICT vision document 2025 which spells out the strategy of adopting recent technologies and consolidating existing technologies in the Election ecosystem. There are four major components of the ICT 2025:

- Integrated Software application.
- GIS, Analytic and Integrated Contact Centre.
- IT infrastructure including data center, IT security, disaster recovery.
- Knowledge Management, Capacity building and social media engagement.

1.6.2. ELECTION COMMISSION ON ASTROLOGY

- **Election Commission (EC)** said that Predictions by astrologers, Tarot readers and Political analysts on election results cannot be published or broadcast by the media.
- EC observed such kind of analysis is equivalent Exit polls.
- At present, **Exit polls** are banned under **Representation of People Act, 1951**. Such restrictions are in place since 2010 with Introduction of **Section 126(A) of RPA, 1951**.

Representation of People Act 1951

- **Section 126** – It forbids display of election matter through print or television, 48 hours before the polling starts.
- This is valid only for the constituency in which the polling would begin and not in other constituencies in multi-phase polls.

About Election Commission of India (ECI)

- EC is **Independent, Constitutional** body established as per the provisions of **Article 324** of Constitution.
- At present ECI consists of **one** Chief Election Commissioner (**CEC**) and **two** Election Commissioner. They have equal powers; receive equal salary, allowances and other perks.
- **CEC** can only be removed by President on the basis of resolution passed to that effect by both the houses of parliament with special majority either on ground of **proved misbehaviour** or **incapacity only**. Other EC cannot be removed from the office except on recommendation of CEC.
- Some of the major functions of ECI include Conducting free and fair elections of President, Vice President, Parliament, State legislatures; Preparing and periodically revising Electoral rolls; Granting recognition to Political Parties and allotting them symbols; Formulating Code of Conduct; Cancelling polls in case of rigging; Conduct by-polls; to advice President and Governor regarding disqualifications of members of Parliament or state legislatures; act as court to settle disputes between political parties.

1.7. PUBLIC AFFAIRS INDEX

- It was started in 2016 by Public Affairs Centre (PAC), India. PAC is a not-for-profit think tank which aims to improve the governance in India.
- It covered a wide range of themes such as essential infrastructure, support to human development, social protection, women and children, crime, law and order, delivery of justice, environment, transparency and accountability, fiscal management and economic freedom.
- Kerala and Tamil Nadu have maintained their first and second position as in 2016 in 2017 with Bihar being the last.

1.8. NATIONAL DEVELOPMENT AGENDA

Why in News?

- NITI Aayog recently prepared a draft three year action agenda which is a part of the overall National Development Agenda.

Background

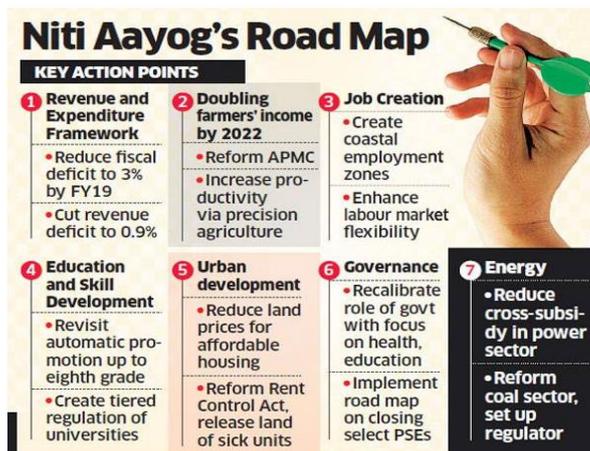
- Planning Commission was abolished in 2014 and thereby the relevance of five year plans ended.
- Thereafter the Prime Minister Office advised NITI Aayog to prepare a National Development Agenda comprising of Fifteen Year Vision, Seven Year Strategy and Three Year Action Agenda.



Source: NITI Aayog

Provisions

- NITI Aayog has selected some key items for its draft 3 year action agenda. These are:
 - **Three year revenue and expenditure framework**
 - **Energy**
 - **Governance, Taxation and Regulation**
 - **Doubling Farmers' income by 2022**
 - **Job creation in industry and services**
 - **Urban Development**
 - **Regional Strategies** for regions like North East, Desert Areas, Coastal regions, Drought regions and Himalayan region.



- **Transport and Digital Connectivity:** Facilitate PPPs by reorienting the role of the India Infrastructure Finance Company Ltd. (IIFCL), introduce low cost debt instruments and operationalize the National Investment Infrastructure Fund (NIIF).
- **Science and Technology:** Create national database of schemes, create National Science, Technology & Innovation Foundation etc.

1.9. CIRDAP CENTRE

- Cabinet has approved the establishment of **Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP)** at National Institute of Rural Development and Panchayati Raj (NIRD&PR), Hyderabad.
- **About CIRDAP:**
 - It is a **regional Inter - Governmental and autonomous institution** which came into existence in 1979 at the initiative of the countries of Asia Pacific region and the Food and Agriculture Organisation (FAO) of the United Nations (UN) with support from several other UN bodies and donors.
 - India is a founder member of this Organization.
 - Its Headquarters is **located at Dhaka, Bangladesh.**
 - The objective of CIRDAP is to **promote regional cooperation** for promotion of integrated rural development through research action, training, information dissemination etc.
 - The member-countries are Afghanistan, Bangladesh (Host State), Fiji, India, Indonesia, Iran, Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam.

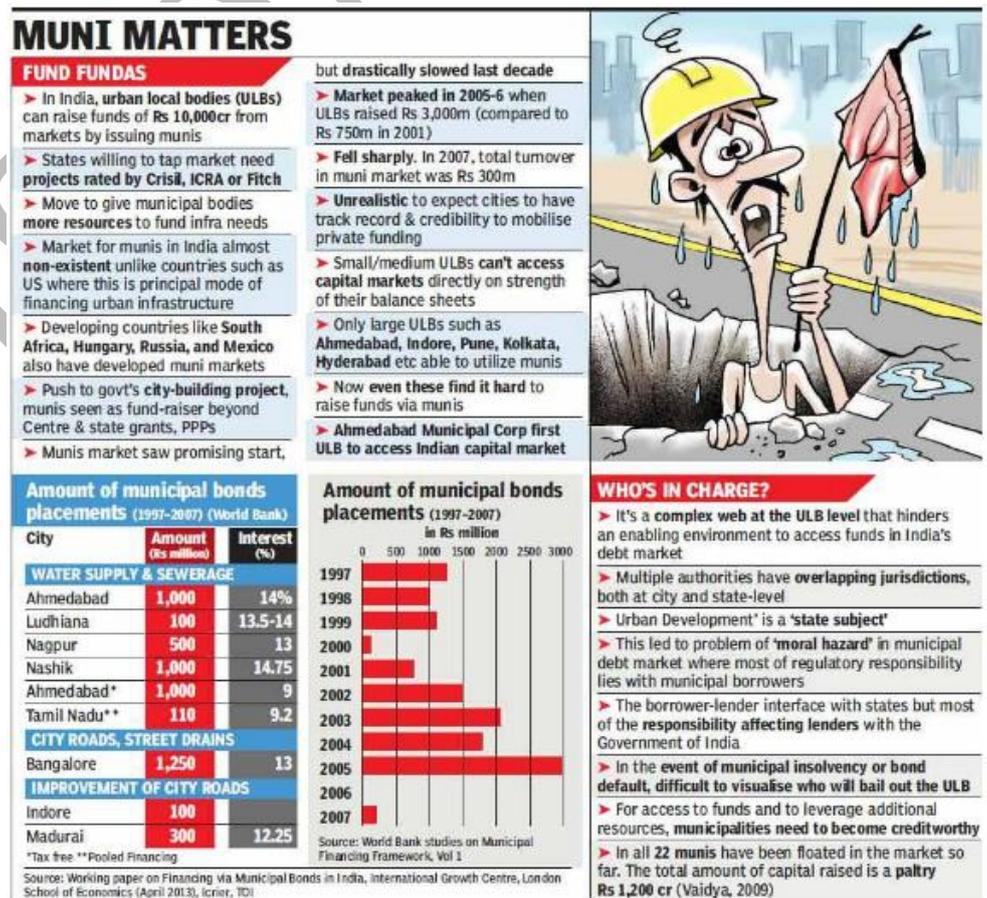
1.10. MUNICIPAL BONDS

Why in News?

- Recently, 94 cities across 14 states received credit ratings from agencies such as Crisil as part of their preparations for issuing municipal bonds.
- It rated the cities covered under Smart city Mission and AMRUT mission.

Background

- **Municipal bond regulations were released by the SEBI in 2016.**
 - Municipal bonds in India shall enjoy tax-free status if they conform to certain rules and their interest rates will be market-linked.
 - Municipal Corporation needs to have **investment grade credit rating and must contribute at least 20 per cent of the project cost.**
 - The corporation must **not have defaulted on any loans in the last one year.**
 - The corporation is required to **maintain full asset cover** to repay the principal amount. Revenues from the project for



which bonds were raised are to be **kept in a separate escrow account** and banks or financial institutions would monitor the account regularly.

- In 2017, NITI Aayog in its Three-year Action Agenda document also talks of utilizing Municipal Bond market.

Challenges

- Bond investors are unlikely to put money into cities unless they are convinced about their fiscal strength.
- Till now **most of the municipal bonds have been privately placed and not tradable**. This has disincentivized the adoption of municipal bonds. There is a **need of State guarantees** for the bonds.
- It **can also be a source of inequalities** because the better rated municipal corporations would corner most of the investment, crowding out the investment for the already infrastructurally backward cities.

1.11. EIGHT TRIBUNALS FACE AXE

Why in news

- The Lok Sabha approved amendments in the Finance Bill of 2017 to wind up eight tribunals. These Tribunals are proposed to be replaced, and their functions are proposed to be taken over by existing Tribunals under other Acts.

Changes with respect to tribunals in Finance Bill

- Amendments to the Finance Bill, 2017 propose that the central government may make rules to provide for the (i) qualifications, (ii) appointments, (iii) term of office, (iv) salaries and allowances, (v) resignation, (vi) removal, and (vii) other conditions of service for the Chairpersons and other members of the Tribunals that will continue to operate.
- The amendments also state that the central government will have the power to amend this list of Tribunals, through a notification. That is, prior Parliamentary approval is not needed to bring other Tribunals into this scheme.

TRIBUNALS IN FOCUS

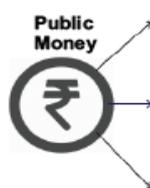
Act	Tribunal being replaced	Tribunal taking over
Competition Act, 2002	Competition Appellate Tribunal	NCLAT (under Companies Act, 2003)
AERAI Act, 2008	AERA Appellate Tribunal	TDSAT (under TRAI Act, 1997)
Information Technology Act, 2000	Cyber Appellate Tribunal	
Control of National Highways (Land & Traffic) Act, 2002	National Highways Tribunal	Airport Appellate Tribunal (under AAI Act, 1994)
EPF & Miscellaneous Provisions Act, 1952	EPF Appellate Tribunal	Industrial Tribunal (under the Industrial Disputes Act, 1947)
Copyright Act, 1957	Copyright Board	Intellectual Property Appellate Board (under the Trade Marks Act, 1999)
Railways Act, 1989	Railways Rates Tribunal	Railway Claims Tribunal (under the Railways Claims Tribunal Act, 1987)
FEMA, 1999	Appellate Tribunal for Foreign Exchange	Appellate Tribunal (under the Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976)

NCLAT: National Company Law Appellate Tribunal; AERAI: Airports Economic Regulatory Authority of India; TDSAT: Telecom Disputes Settlement and Appellate Tribunal; TRAI: Telecom Regulatory Authority of India; AAI: Airports Authority of India; EPF: Employees Provident Fund; FEMA: Foreign Exchange Management Act.

1.12. OUTCOME BUDGET

- Outcome refers to the end result of government initiative and interventions.
- Therefore, **outcome budget** measures how well a policy has been implemented.
- A unique feature of outcome budgeting is that it not only **measures the end results in terms of rupees or fund utilisation but also in physical units**. For example: how many kilowatts of energy have been produced.
- It was first introduced in India in **2005-06**. From 2007-08, it has been merged with the **Performance Budget**.
- The outcome budget showcases the physical dimensions of the financial budget indicating the actual physical performance in the previous year, current year and targeted performance during the projected (next) year.

Link between Public Spending, Outputs, Outcomes & Long-Term Goals



PROGRAMME/ PROJECT	OUTPUTS	OUTCOMES	LONG TERM GOALS
Building Toilets	Toilets Built	People are using Toilets; find it clean	Open-defecation free city
Providing Skill Training/ Education	Skill training courses conducted	Youth attend the training; receive certification	Improved employment
Building Mohalla Clinics	Mohalla Clinics are built	People are using Mohalla clinics; feel satisfied with its service	Improved health care

1.13. 'SAMADHAN' DOCTRINE FOR NAXAL VIOLENCE

Operation 'SAMADHAN' is the Ministry of Home Affairs (MHA)'s answer to the Naxal problem.

The acronym SAMADHAN stands for:

- S-Smart leadership – states to “take ownership” of anti-Naxal operations and frame an “integrated strategy to deal with guerrillas”
- A-Aggressive strategy, -- More helicopter support for operations, 400 fortified police stations to be set up in Naxal belt.
- M-Motivation and training – Indian Army or specialized forces - such as Greyhounds - to train forces to take on Naxals.
- A-Actionable intelligence – Joint Task Forces for operations along inter-State boundaries to be set up. Better inter-state coordination and intelligence sharing.
- D-Dashboard Based KPIs (key performance indicators) and KRAs (key result areas),
- H-Harnessing technology –UAVs and drones for maoist hotbed areas; GPS tracking, HHTI (hand-held thermal image) devices, radar, satellite imagery, trackers in weapons.
- A-Action plan for each theatre
- N-No access to financing -- Prevention of Money Laundering Act (PMLA) to be reviewed to ensure effective choking of fund flow to LWE groups.

1.14. HIGHWAY LIQUOR BAN

Why in news?

- Supreme Court banning sale of liquor within 500 metres of National and State Highways came into effect from April 1, 2017.

Road Classification in India

- The **Indian Road Congress** classifies Indian Roads into 5 categories:
 - ✓ **National Highways**
 - ✓ **State Highways**
 - ✓ **Major District Roads**
 - ✓ **Other District Roads**
 - ✓ **Village Roads**
- Indian Road Congress is a **semi- official body** that was setup by the government in 1934 on the recommendations of the **Jaykar Committee**. It is the apex body in the country for road engineers and regularly updates the requirements such a width, sight distance and other related parameters.
- The **Nagpur Plan, 1943** defined and classified the Indian roads into four.
- Up until 2010, National Highways were numbered according to the **National Highways Act of 1956**.
- Post 2010, **east-west highways have odd numbers while north-south highways have even numbers**.
- Only the **central government has the authority to classify any stretch of road as National Highway**.
- The **National Highways Authority of India**, created in accordance with the national Highways Authority Act, 1988 is responsible for the upkeep of the National Highways.
- The PWD departments of respective states are responsible to look after state highways.

1.15. IMPORTANT BILLS

1.15.1. INTER-STATE RIVER WATER DISPUTES (AMENDMENT) BILL, 2017

Important Provisions

- **Dispute Resolution Committee**
 - Resolve the dispute by negotiations, through a Dispute Resolution Committee (DRC) to be established by the Central Government before such dispute is referred to the tribunal.
 - The Committee would strive to settle the dispute within a period of one year, which may be extended by 6 months.

- **Single Tribunal**
 - Bill proposes a Single Standing Tribunal (with multiple benches) instead of existing multiple tribunals.
 - The tribunal shall consist of one Chairperson, one Vice-Chairperson and not more than six other Members
 - The term of office of the Chairperson is five year or till he attains the age of 70 years, whichever is earlier, the term of office of Vice Chairperson and other member of tribunal shall be co-terminus with the adjudication of the water dispute.
- **Timeline:** The tribunal should settle a dispute in four-and-a-half years.
- The decision of the Tribunal shall be final and binding.
- **Data Collection** - It proposes an agency appointed or authorized by Central Government to maintain data-bank and information system.
- **Technical Support:** Provides for the appointment of Assessors to provide technical support to the tribunal. They shall be appointed from amongst experts serving in the Central Water engineering Service.

1.15.2. ADMIRALTY BILL

Why in news?

- Lok Sabha passed The Admiralty (Jurisdiction and Settlement of Maritime Claims) Bill, 2016.

Background

- **Admiralty laws** deal with cases of accidents in navigable waters or involve contracts related to commerce on such waters.
- Admiralty laws in force presently in India were enacted in colonial **era when India had only three major ports: Bombay, Calcutta and Madras.**
- Now there are 13 major ports and 205 minor ports in India but under the existing legislation, matters related to admiralty could be **decided only by the High Courts of Bombay, Calcutta and Madras.**

Major Provisions of the Bill

- It **confers admiralty jurisdiction on high courts** located in coastal states up to territorial waters which can be further extended to exclusive economic zone or any other maritime zone of India.
- **Applicability:** The law would be applicable **on every vessel irrespective of place of residence or domicile of owner** and will not apply to **Warships and naval auxiliary** and **vessels used for non-commercial purposes.**
- **Adjudicating Maritime Claims:** The jurisdiction is for adjudicating on a set of **maritime claims listed in the Bill.**

1.15.3. NATIONAL COMMISSION FOR BACKWARD CLASSES

Why in news?

- The Lok Sabha passed a **constitutional amendment** which renames NCBC as **National Commission for Socially and Educationally Backward Classes** in the Constitution.
- An accompanying bill, The National Commission for Backward Classes Bill 2017, was also passed to repeal the 1993 law.

Features of the bill

- **Constitutional status:** Constitution of a Commission **under Article 338B** for socially and educationally backward classes.
- **One list instead of two:** It stipulates only one central list for OBC, same as that for SC and ST. There would be no parallel existence of central and state OBC lists.
- **Parliament to decide on inclusion/exclusion-** Under **Article 342A** the President may specify the socially and educationally backward classes in the various states and union territories. He may do this in consultation with the Governor of the concerned state. However, a law of Parliament will be required if the list of backward classes is to be amended.
- **Development:** The bill has recognised the developmental needs in addition to reservations. It will hear the grievances of socially and educationally backward classes, a function which has been discharged so far by

the National Commission for Scheduled Castes under the article 338.

- **Definition of socially and educationally backward classes:** Insertion of Clause (26C) under Article 366 to define “socially and educationally backward classes” as such backward classes deemed so under Article 342A.

1.15.4. MOTOR VEHICLES (AMENDMENT) BILL, 2017

Why in news?

- Motor Vehicle (Amendment) Bill was passed by Lok Sabha in April 2017.

Key provisions of 2017 bill

- **Third party insurance** - The 2017 Bill removes the cap on liability for third party insurance as provided for in the 2016 amendment bill
- **Funds for hit and run accidents** – A motor vehicle accident fund has been constituted for the treatment of injured person, compensation to the person hurt or to the representatives of person died in hit and run case.
- **Guidelines for aggregators** - State governments were to issue licenses to aggregators in conformity with guidelines issued by the central government which was made optional in 2017 bill.
- **Agency for road safety** – It provides for a **National Road Safety Board** (as recommended by Sundar committee) to be notified by central government.
- **Road design and engineering** – It provides that any contractor or consultant responsible for the design, construction, or maintenance of the safety standards of roads would be held responsible for road accidents.
- **Stricter penalties:** for offences such as drunken driving, dangerous driving etc
- **Adhaar:** The number is required to apply for driving license.

The 2016 Bill defines aggregators as digital intermediaries or market places which can be used by passengers to connect with a driver for transportation purposes (taxi services).

1.16. MIDDLE INCOME GROUP SCHEME

- The Supreme Court introduced ‘Middle Income Group Scheme’ to provide affordable legal services where fees would be charged as per the schedule attached to the scheme.
- The scheme will be administered through a society named ‘Supreme Court Middle Income Group (MIG) Legal Aid Society’ registered for this purpose. The Patron-in-Chief of the society is Chief Justice of India and the Attorney General is its ex-officio Vice President.
- Its beneficiaries will be litigants in the SC whose gross income is less than Rs. 60,000 per month or Rs. 7.5 lakh per annum.

Relevant Constitutional Provisions

- Right to free legal aid or free legal service is an essential fundamental right guaranteed by the Constitution and forms the basis of reasonable, fair and just liberty under Article 21 of the Constitution of India.
- Article 39-A says that the State shall “ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities.”

1.17. MISCELLANEOUS TITBITS

- Supreme Court recently asked government to consider passing a comprehensive law which defines and punishes for “torture”. India has not ratified the **UN convention against torture** which it had signed in 1997. It defines torture as a criminal offence.
- The Supreme Court in a judgment has said that the **Right to access Internet** comes under fundamental right of expression and cannot be curtailed at any cost. UN has declared Internet Access as a Human Right. Kerala is the first state to declare Internet as a basic right for every citizen.
- ‘**Samavesh**’ is a programme launched by the NITI Aayog to link together various lead Knowledge and Research Institutions to catalyse development processes, enhance institutional capacity development and enable a field level interface with the community for mutual enrichment.

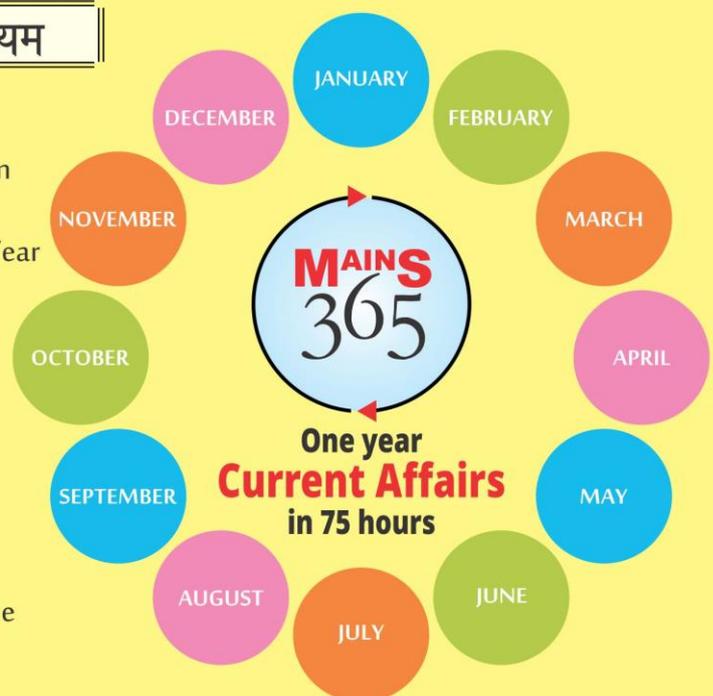
- The '**Integrated Case Management Information System**' (ICMIS) has been introduced in the apex court for digital filing. It includes the option of e-filing cases, checking listing dates, case status, online service of notice/summons, office reports and overall tracking of progress of a case filed with the apex court registry.
- **World Happiness Report** is an annual report published by **Sustainable Development Solutions Network (SDSN)**, a global initiative of United Nations. India has been ranked at 122nd/155 countries in 2017 report.
- **Bharat ke Veer Web Portal** is an IT based platform, with an objective to enable willing donors to contribute towards the family of a martyred soldier. "Bharat Ke Veer" corpus would be managed by a committee of eminent persons and Government officials.
- To ensure the news that internet users get is not fake, Facebook is leading a consortium to create "**The News Integrity Initiative**". Apart from academics and non-profits, Mozilla and Wikipedia founders are also part of the consortium.

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2. INTERNATIONAL/INDIA AND WORLD

2.1. INDIA-CHINA

Why in news?

China opposed the Dalai Lama's visit to Arunachal Pradesh, particularly Tawang, which it considers as Southern Tibet.

- China also recently announced that it had standardised in **Chinese characters, Tibetan and Roman alphabet** the names of six places in 'South Tibet', as it calls 'Arunachal Pradesh'
- The official names of the six places using the Roman alphabet are Wo'gyainling, Mila Ri, Qoidêngarbo Ri, Mainquka, Būmo La and Namkapub Ri.

India's response

- India rejected this move. It asserted that assigning invented names to the towns of your neighbour does not make illegal territorial claims legal.

Sino-Indian border is generally divided into three sectors namely: (i) The Western sector, (ii) The Middle sector, and (iii) The Eastern sector.

The Western Sector

The Indian boundary with china in the western sector is between Jammu and Kashmir and Xinjiang (Sinkiang) province of china.

The Middle sector

The middle sector boundary is about 625 km long which runs along the watershed from Ladakh to Nepal. The states of Himanchal Pradesh and Utrakhhand touch this border with Tibet (china).

The Eastern Sector

The boundary in the eastern sector is 1,140 km long and runs from the eastern limit of Bhutan to a point near the **Talu Pass at the trijunction of India, Tibet and Myanmar**. This line is called the **McMahon Line** after Henry Mc Mahon, a British representative who signed the 1913-14 Shimla Convention.

Special Representative Talks on the border issue

- China and India appointed **Special Representatives to discuss the boundary question in 2003**.
- In 2005, the two sides agreed on political parameters and guiding principles for a boundary settlement, which would form the basis of the final settlement.

Aksai Chin

The territorial dispute over Aksai Chin can be traced back to the failure of the British Empire to clearly demarcate a legal border between its Indian colony and China.

- As two borders between India and China were proposed during the time of the British Raj – the **Johnson's Line and the McDonald Line**.
- The **Johnson's line shows Aksai Chin to be under Indian control** whereas the **McDonald Line places it under Chinese control**.
- India considers the Johnson Line as the correct, rightful national border with China, while on the other hand, China considers the McDonald Line as the correct border with India.
- The line that separates Indian-administered areas of Jammu and Kashmir from Aksai Chin is known as the **Line of Actual Control (LAC)** and is concurrent with the Chinese Aksai Chin claim line.

Tawang

Tawang district is the smallest of the 16 administrative districts of Arunachal Pradesh. The **second largest monastery in Asia and the largest in India is the Tawang Monastery**.

It is a **prominent center for Gelug or Gelugpa, the pre-eminent Buddhist school in Tibet**. Tawang shares boundaries with **Tibet in the north, Bhutan in the south west and Sela range of West Kameng in the east**.

2.2. INDIA-BANGLADESH

Why in news?

Prime minister of Bangladesh Sheikh Hasina paid official visit to India. India and Bangladesh signed 22 agreements on various domains like Defence, Nuclear energy, Cyber Security etc.

Following are the list of agreements:

Defence related agreements

India and Bangladesh signed an umbrella agreement on defence cooperation. It would enhance military cooperation with Bangladesh, where China wields considerable influence.

Agreement on civil nuclear energy

The framework agreement on civil nuclear energy will provide for setting up nuclear reactors in Bangladesh by India.

Teesta River water sharing issue

The long pending Teesta river agreement was not signed. On the issue, Indian PM reiterated government's strong resolve to conclude the water sharing treaty. The central government is not willing to go ahead with the agreement without taking West Bengal CM on board.

About Teesta

Teesta River originates from the Pahunri (or Teesta Kangse) glacier in Sikkim, flows through the northern parts of West Bengal before entering Bangladesh. It merges with the Brahmaputra River (or Jamuna in Bangladesh). The river is a major source of irrigation to the paddy growing greater Rangpur region of Bangladesh.

Bangladesh and India share 54 rivers but none evokes as much passion in Bangladesh as Teesta.

- Teesta is the fourth largest transboundary river shared between India and Bangladesh, after the Ganges, Brahmaputra and the Meghna (GBM) river system.
- In 1983, an ad hoc arrangement on sharing water was made, according to which Bangladesh got 36% and India 39% of the waters, while the remaining 25% remained unallocated. The transient agreement could not be implemented.
- Bangladesh has sought an equitable distribution of Teesta waters, on the lines of Ganga Water Treaty of 1996.
- In 2011 India and Bangladesh finalized an arrangement, by which India would get 42.5% and Bangladesh 37.5% while remaining 20% would flow unhindered in order to maintain a minimum water flow of the river. This agreement was not signed due to opposition from chief minister of West Bengal.

Other MoUs

- Cooperation in the peaceful uses of outer space.
- Extending the 3rd Line of Credit (LoC)
 - ✓ India announced a new line of concessional credit of \$4.5 billion for implementation of development projects in Bangladesh.
- Information Technology and Electronics.
- Cooperation in the area of Cyber Security.
- Establishing Border Haats across border.
- Bilateral Judicial Sector Cooperation.
- cooperation in the Field of Mass Media.
- Agreement for the regulation of Motor Vehicle Passenger Traffic along the Khulna-Kolkata route.
- Development of Fairway from Sirajganj to Daikhowa and Ashuganj to Zakiganj on Indo-Bangladesh Protocol Route.
- Financing Agreement for the Construction of 36 Community Clinics in Bangladesh.

2.3. INDIA-PAKISTAN

2.3.1. KULBHUSHAN JADHAV CASE

Why in news?

The International Court of Justice (ICJ) stayed the execution of Kulbhushan Jadhav, who was sentenced to death by a Pakistan military court on the charge of spying, till its final decision.

- The Court said that India should have been granted consular access to Kulbhushan Jadhav as per the Vienna Convention.
- Pakistan should now inform the court about the steps it takes to implement the order.
- The ICJ judges are clear that these provisional measures are binding and create international legal obligations for the country to which they are addressed.

Background of Kulbushan Jadhav's case

Kulbushan Jadhav was allegedly arrested in the Chaman area of Balochistan on the Pakistan-Afghanistan border on March 3, 2016.

- India denied that he had any links to its government but said that he was running a business in the Iranian port city of Chabahar after a "premature retirement" from the Navy.

The Vienna Convention on Consular Relations of 1963

It is an international treaty that defines a framework for consular relations between independent states.

- A consul normally operates out of an embassy in another country, and performs two functions: (1) protecting in the host country the interests of their countrymen, and (2) furthering the commercial and economic relations between the two states.
- Pakistan and India have accepted the Vienna Convention of 1963. However, Pakistani authorities repeatedly refused Indian consular access to Kulbhushan Jadhav.

- India believed that Kulbhushan Jadhav was kidnapped from Iran and his subsequent presence in Pakistan has never been explained credibly.
- Kulbhushan Jadhav was **sentenced to death** in a **Field General Court Martial on April 10, 2017** after three-and-a-half months of trial after he was found guilty on charges of espionage.

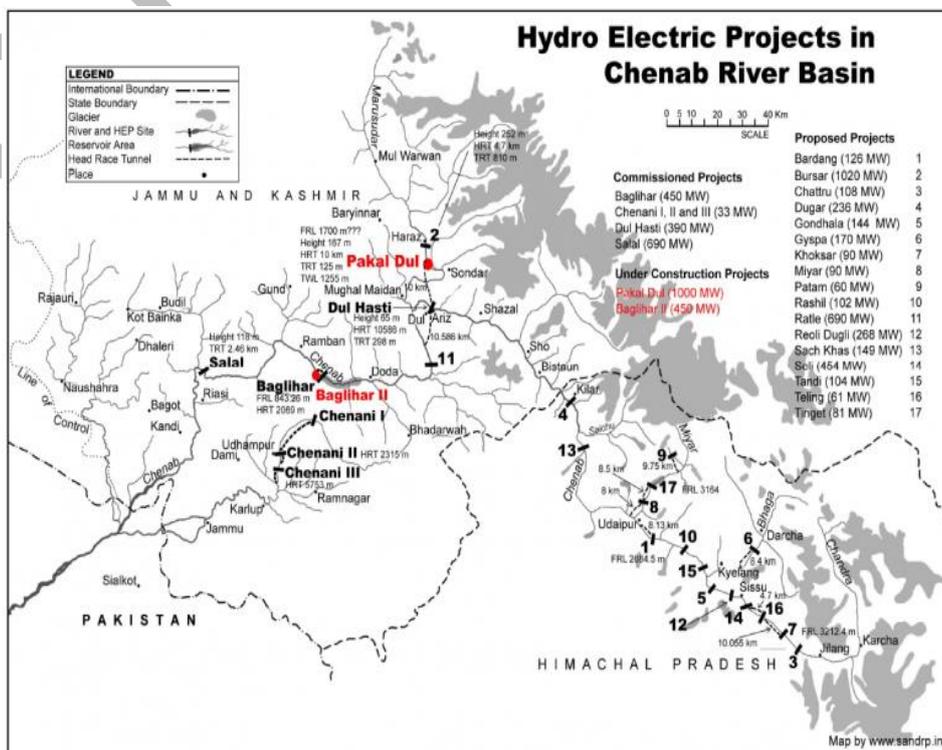
India Approach to the International Court of Justice (ICJ)

- India had dragged Pakistan to **the International Court of Justice (ICJ)** on May 8, 2017 for refusing consular access to Jadhav and for **violating the Vienna Convention on consular relations**.
- India accused Pakistan of violating the Vienna Convention and conducting a "farical trial" for convicting Jadhav without a "shred of evidence".

Feature	International Court of Justice (ICJ)	International Criminal Court (ICC)
Year Court Established	1946	2002
UN-Relationship	Official court of the U.N., commonly referred to as the "World Court."	Independent. May receive case referrals from the UN Security Council. Can initiate prosecutions without UN action or referral.
Location	Peace Palace , The Hague, The Netherlands	The Hague, The Netherlands
Jurisdiction	U.N. member-states (i.e. national governments)	Individuals
Types of Cases	(1) Contentious between parties, (2) Advisory opinions	Criminal prosecution of individuals
Subject Matter	Sovereignty, boundary disputes, maritime disputes, trade, natural resources, human rights, treaty violations, treaty interpretation, and more.	Genocide, crimes against humanity, war crimes, crimes of aggression
Authorizing Legal Mechanism	States that ratify the U.N. Charter become parties to the ICJ Statute under Article 93. Non-UN member states can also become parties to the ICJ by ratifying the ICJ Statute. Each state must provide consent to any contentious case by explicit agreement, declaration, or treaty clause.	Rome Statute (India has not signed the Rome Statute)
Appeals	None. The ICJ decision in a contentious case is binding upon the parties. If a State fails to comply with the judgment, the issue may be taken to the UN Security Council, which has the authority to review, recommend, and decide upon enforcement.	Appeals Chamber. Article 80 of the Rome Statute allows retention of an acquitted defendant pending appeal.

2.3.2. MIYAR HYDROELECTRIC PROJECT

- In the recent meet of the water commissioners in Islamabad, India and Pakistan have decided to re-design the Miyar hydroelectric project, Lower Kalnai and Pakul Dul projects.
- **Miyar project**
 - It is a barrage type of dam.
 - It is located in Himachal Pradesh.
 - It is located on the river Miyar Nalla, a right bank tributary of Chenab.
- **Pakul Dul project**
 - It is a proposed project on the river



Marudsar, a tributary of Chenab.

- It will be a concrete dam.
- It will be located in the Kishtwar district of Jammu and Kashmir.
- **Lower Kalnai project**
 - It is a proposed project on the Lower Kalnai Nall, a tributary of Chenab.
 - It would be located in Doda district in Jammu and Kashmir.
- Other disputed projects between India and Pakistan –
 - **Ratle project** – It is a concrete gravity dam. It is located on Chenab River in Kishtwar district of Jammu and Kashmir.
 - **Kishanganga project** – It will be a concrete rockfill dam that would be located on the river Kishenganga (a tributary of Jhelum). It will be located in Bandipora district of Jammu and Kashmir.
 - **Baglihar dam** – It is a run of the river hydroelectric project located on the Chenab river. It is situated in the Doda district of Jammu and Kashmir.

2.4. INDIA-SRI LANKA

Why in news?

Prime Minister Narendra Modi visited Sri Lanka to participate in the UN Vesak Day celebrations in Colombo.

Highlights of the visit

- Prime minister said that the **themes of social justice and sustainable world peace**, chosen for the Vesak day, resonate deeply with Buddha's teachings.
- He inaugurated the Dickoya Hospital that has been built with Indian's assistance.
- He hailed the spirit of Indian-origin Tamils in Sri Lanka and announced the construction of additional 10,000 houses in upcountry areas and the extension of the emergency ambulance service.

What is Vesak?

Vesak (Sinhalese), Vesākha (Pāli), Vaisākha (Sanskrit) is the name used for the 2nd month in Sri Lankan traditional Moon calendar (Lunar calendar) which corresponds with the month of May in the Gregorian calendar (Solar calendar).

- It was on the full moon day in the month of Vesak, Prince Siddharta was born, became enlightened and attained Mahaparinibbāna.
- Vesak is associated with three important locations of Buddhist history – Lumbini in Nepal, the birth place of Prince Siddharta, Bodh Gaya (Buddha Gaya) Bihar State in India where The Buddha attained the most exalted Enlightenment under a Bodhi Tree and Kushinagar (Kusinara) in Uttar Pradesh, India where The Buddha attained Mahaparinibbāna.

United Nations International Day of Vesak

International Day of Vesak is a National holiday declared by the United Nations in 1999. The proposal was tabled by Sri Lanka.

In 2017, United Nations International Day of Vesak was hosted by Sri Lanka under the theme **“Buddhist Teachings for Social Justice and Sustainable World Peace”**.

2.5. INDIA-TURKEY

Why in news?

Turkish President Recep Tayyip Erdogan paid official visit to India. This was Erdogan's first visit to India as the Turkish President.

Highlights of the visit

India and Turkey signed 3 agreements after delegation-level talks headed by PM Modi and Turkish President.

- An agreement was signed on a cultural exchange programme for the years 2017-2020.
- MoU was signed between the Foreign Services Institute of India and the Diplomacy Academy of Turkey.
- Another MoU was signed on cooperation in the area of information and communication technologies.

- The two countries have agreed to increase bilateral trade from the present \$6.5 billion to \$10 billion by 2020. Both sides also agreed on cooperation in the fields of IT, pharmaceuticals, health and tourism.

Bilateral relations

India-Turkey ties date back centuries: Mughal rulers and the Sultans of the Ottoman Empire exchanged diplomatic missions. The poet Rumi and the Sufi movement there found easy synergy with the Bhakti and Sufi movements here. In the 20th century India's freedom fighters supported the Turkish independence movement.

- The bilateral trade volume between the two countries is about \$6.5 billion, but it is more in favour of India.

2.5.1. TURKEY REFERENDUM

Why in news?

A **constitutional referendum** was held in Turkey in April on whether to approve proposed amendments to the Turkish constitution.

- The draft constitution that significantly increases the powers of Turkish President has been approved by a narrow margin of just over 51% votes.

Important Changes in the constitution

Before Referendum Constitution	After Referendum Constitution
Parliamentary system governance	Presidential system of governance
President holds symbolic powers. Prime minister and government are the active executor	The President of the Republic is the head of the State. The executive power shall be exercised by him. He appoints and dismisses vice-presidents and ministers.
President not aligned with any political party and cannot be any a party leader	President can be member of political party
Elections for the Grand National Assembly of Turkey shall be held every four years.	Elections for National Assembly and presidency shall be held every five years and on the same day.

2.6. INDIA-CYPRUS

Mr. Nicos Anastasiades, President of the Republic of Cyprus paid a state visit to India from April 25-29, 2017.

About Cyprus

- It is an island country in the Eastern Mediterranean and the third largest and third most populous island in the Mediterranean.
- It has been **divided** since 1974 when Turkey invaded the north in response to a military coup on the island which was backed by the Athens government.
- The island was effectively partitioned with the northern third inhabited by Turkish **Cypriots** and the southern two-thirds by Greek **Cypriots**.
- President Nicos Anastasiades has said that India can help Cyprus in its quest for reunification as it has close ties with Turkey.



2.7. INDIA-ARMENIA

Vice President paid official visit to Armenia, celebrating the 25th anniversary of establishment of diplomatic relations between India and Armenia.

- Armenia came into existence after the disintegration of the Soviet Union in 1991. However, Armenia is no stranger in India as a very historic Armenian church was built in Kolkata and the city boasts of an Armenian street and cemetery too.
- India's ITEC scholarship is very popular in Armenia and remains a key pillar of bilateral relations.



- India and Armenia signed 3 agreements - on peaceful uses of outer space, cooperation in youth matters and cultural cooperation.

2.8. INDIA-AUSTRALIA

Why in news?

Australian PM Malcolm Turnbull paid a state visit to India.

Bilateral relations

Comprehensive Economic Cooperation Agreement (CECA)

- Negotiations began in May 2011 on the proposed India-Australia Comprehensive Economic Cooperation Agreement (CECA) aimed at opening up bilateral investment as well as trade in goods and services. So far nine rounds of talks have been held with the last one being in September 2015.
- **India- Australia nuclear deal**
 - ✓ India and Australia signed the civil nuclear deal in September 2014.
 - ✓ Australian parliament had cleared legislation for the supply of uranium to India in 2016 and now "commercial negotiations" for it are going on.
 - ✓ Australia has about 40 per cent of the world's uranium reserves and exports nearly 7,000 tonnes of the yellow cake annually.

Highlights of the visit

India and Australia inked 6 pacts

- Combatting International Terrorism and Transnational Organized Crime
- Cooperation in Civil Aviation Security
- Environment, Climate and Wildlife.
- Cooperation in Sports.
- Implementation arrangement between ISRO and Geoscience Australia on Cooperation in Earth Observation and Satellite Navigation.

2.8.1. THE 457 WORKING VISA CHANGES

Why in news?

Australia abolished a visa programme used by over 95,000 temporary foreign workers, majority of them Indians, to tackle the growing unemployment in the country.

- The programme, known as 457 visa, allows businesses to employ foreign workers for a period up to four years in skilled jobs where there is a shortage of Australian workers.
- According to a new rule, Australian visa will be provided in two variants: a short-term two-year entry allowance and a medium term 4-year entry allowance.

2.9. INDIA-PALESTINE

Why in news?

Palestinian President Mahmoud Abbas visited India recently.

Highlights of the visit

- **"Political Support" to the Palestinian cause:**
 - ✓ India reaffirmed its support for a political solution to the Palestine issue.
 - ✓ Prime Minister said that India hope to see a sovereign, independent, united and viable Palestine, co-existing peacefully with Israel.
- **Peace talks between Palestine and Israel.**
 - ✓ India hopes for early resumption of talks between Palestinian and Israeli sides to move towards finding a comprehensive resolution.
- **Capacity building in Palestine**
 - ✓ India has been contributing to material & technical assistance to Palestine. India has been building a techno Park in Ramallah at the cost of \$12 million.
- Both the countries also called for enhancing cultural exchanges between the two sides. India has sought Palestine's participation in the International Yoga Day to be observed next month.
- The Palestinian President also condemned terrorism in all its forms and manifestations and called for regional and international efforts to fight the menace.



Background

India and Palestine enjoy historically close and friendly ties.

- In 1947, India voted against the partition of Palestine at the United Nations General Assembly.
- India was the first Non-Arab State to recognize Palestine Liberation Organisation (PLO) as sole and legitimate representative of the Palestinian people in 1974. India was one of the first countries to recognize the State of Palestine in 1988.
- In 1996, India opened its Representative Office to the Palestine Authority in Gaza, which later was shifted to Ramallah in 2003.

2.10. INDIA-EU

Why in news?

European Union foreign policy Chief Federica Mogherini paid official visit to India.

Highlights of the visit

- EU and India resolved to step up counter-terror cooperation, besides agreeing to expand engagement in several areas such as maritime security, trade, energy and environment.
- **Bilateral Investment Pacts:**
 - ✓ India's bilateral investment pacts with several European countries are expiring and citing this, the EU has been pushing for moving ahead with the FTA, known as the EU-India Broad-based Trade and Investment Agreement (BTIA).
 - ✓ EU has also been pressing India to extend by six months, expiring investment pacts, saying absence of the treaties could adversely impact the trade ties and FTA talks.
 - ✓ India wants to re-negotiate those pacts on the basis of the new draft text of BIT.
 - ✓ The most contentious issue in the model BIT is the Investor-State Dispute Settlement Mechanism as it allows companies to seek international arbitration only when all domestic options have been exhausted.
 - ✓ The removal of taxation from the purview of BITs has also come in for criticism from foreign partners.
- **EU-India Broad-based Trade and Investment Agreement (BTIA)**
 - ✓ Launched in June 2007, negotiations have witnessed many hurdles as both the sides have major differences on crucial issues. The BTIA talks have been stalled since May 2013.
 - ✓ The two sides are yet to iron out issues related to tariff and movement of professionals.
 - ✓ Besides demanding significant duty cuts in automobiles, the EU wants tax reduction in wines, spirits and dairy products, and a strong intellectual property regime.
 - ✓ On the other hand, India is asking the EU to grant it 'data secure nation' status.
 - ✓ The matter is crucial, as it will have a bearing on Indian IT companies wanting to have market access.

2.11. INDIAN OCEAN RIM ASSOCIATION (IORA)

Why in news?

The Indian Ocean Rim Association (IORA) held its summit meeting in Jakarta on 5-7 March on the 20th anniversary of its formation.

The 21 member states issued a strategic vision document, known as the **Jakarta Concord**, that "sets out a vision for a revitalized and sustainable regional architecture".

- Besides maximizing the potential of trade, investment and economic cooperation in the region, the **Jakarta Concord also aims to address non-traditional issues, such as illegal, unreported and unregulated fishing, human trafficking, drug trafficking, illegal migration and piracy.**

2.12. WORLD TRADE ORGANISATION (WTO)

Why in news?

India has asked WTO for expediting the negotiation process for a global services pact.

- India had, in February, submitted to the World Trade Organisation (WTO) a legally-vetted proposal for a **Trade Facilitation in Services (TFS) Agreement.**

Trade Facilitation in Services (TFS) Agreement

The proposed pact is similar to the **WTO's Trade Facilitation Agreement (TFA) in Goods** that recently came into force, and aims to ease customs norms to boost global goods trade.

- The proposed TFS, among other things, aims to ensure **portability of social security contributions and cross-border insurance coverage to boost medical tourism.**
- India had specified that the proposed TFS pact is also **about 'facilitation,'** that is "making market access 'effective' and commercially meaningful and not about 'new' (or greater) market access."
- TFS, among other things, aims **to ease norms for movement of skilled workers across borders.**
- The TFS agreement will address the key issues that are pertinent to facilitating trade in services, such as **transparency, streamlining procedures, and eliminating bottlenecks.**
- India argued that the draft legal text covering **Mode 1 (cross-border services), Mode 2 (consumption abroad) and Mode 4 (movement of short-term services providers or natural persons)** is based "on a careful mix of certain mandatory obligations, and those qualified as 'to the extent practicable,' or as 'endeavor' obligations."
- India argued that it provides for **special and differential treatment provisions** under which developing countries are offered transition period while least-developed countries are exempted from undertaking any commitments arising out of the TFS agreement.

2.13. ITI-DKD-Y CORRIDOR

Why in news?

Indian Railways is going to run a trans-continental container train full of goods from Dhaka to Istanbul, which would cover a 6,000-km journey across five countries - **Bangladesh, India, Pakistan, Iran and Turkey.**

- India already has connectivity with Bangladesh and Pakistan. But there is a proposal to extend this linkage to Istanbul (Turkey).
- This proposed "**Trans-Asian Railway (TAR)**" or the "ITI-DKD" (Istanbul-Tehran-Islamabad; Delhi-Kolkata-Dhaka) corridor will be 6,000 km long, covering Dhaka-Kolkata-Delhi-Amritsar-Lahore-Islamabad-Zahedan-Tehran- Istanbul.
- There is also a proposal to extend this corridor to **Yangon (Myanmar).** Thus, the "ITI-DKD-Y" corridor could become one of the major international rail corridors in the world.
- The feasibility studies of the strategic route connecting the capitals of the countries have been done by the **United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)** as part of its **Trans-Asian Railway (TAR)** project for an integrated freight network across Europe and Asia.

2.14. WORLD FOOD PROGRAMME (WFP)

United Nations chief Antonio Guterres has appointed former South Carolina Governor **David Beasley** to run the Rome-based World Food Programme (WFP).

About WFP

The World Food Programme is the food-assistance branch of the United Nations and the world's largest humanitarian organization addressing hunger and promoting food security.

- Assisting **80 million people** in around **80 countries each year**, the World Food Programme (WFP) is the leading humanitarian organization fighting hunger worldwide, **delivering food assistance in emergencies** and **working with communities to improve nutrition and build resilience.**
- Its headquarters is located in **Rome, Italy.**

2.15. SOUTH ASIA SUBREGIONAL ECONOMIC COOPERATION (SASEC)

Why in News?

Myanmar has formally become a full member of South Asia Subregional Economic Cooperation (SASEC) programme of Asian Development Bank (ADB).

About SASEC

The SASEC program was formed in 2001 in response to the request of the four countries of South Asia – **Bangladesh, Bhutan, India and Nepal** – from ADB to assist in facilitating economic cooperation among them.

- These four countries comprise the **South Asia Growth Quadrangle (SAGQ)**, formed in 1996, as a vehicle for accelerating sustainable economic development through regional cooperation.
- The SASEC program is a **project-based partnership to promote regional prosperity by improving cross-border connectivity**, boosting trade among member countries and strengthening regional economic cooperation.
- The Asian Development Bank is the secretariat and lead financier of the program, which to date has supported a total of 46 projects worth about \$9.2 billion in transport, trade facilitation, energy, information and communications technology (ICT) and economic corridor development.
- The SASEC member countries are: **Bangladesh, Bhutan, India, Nepal, Maldives Sri Lanka and Myanmar.**

2.16. INTERNATIONAL ENERGY AGENCY (IEA)

Why in news?

India has joined the International Energy Agency as an associate member.

- India is already a partner of the International Energy Agency, but the upgradation of the status will enhance its status and weight in its dialogue with major oil suppliers and consumers.
- The "Association" status would facilitate it **to participate in meetings of the standing groups, committees and working groups that constitute the IEA governance structure.**
- Important publications of IEA:
 - ✓ **World Energy Outlook 2016**
 - ✓ **World Energy Investment 2016**

International Smart Grid Action Network (ISGAN)

- ISGAN is an agreement under **International Energy Agency (IEA)** and India is one of the **founding Member** of ISGAN.
- ISGAN creates a **mechanism** through which stakeholders from around the world can **collaborate to accelerate** the development and deployment of **smarter electric grids.**
- ISGAN promotes a **dynamic exchange** of knowledge and best practices, tool development, and project coordination.
- It aims to **improve** the understanding and adoption of smart grid technologies, practices, and systems as well as related enabling government policies.

2.17. TIR CONVENTION

The Union Cabinet has given its approval for India's accession to the Customs Convention on International Transport of Goods under cover of TIR Carnets (TIR Convention).

About TIR

The Customs Convention on International Transport of Goods under cover of TIR Carnets, 1975 (TIR Convention), is an international transit system under the auspices of the **United Nations Economic Commission for Europe (UNECE)** to facilitate the seamless movement of goods within and amongst the Parties to the Convention.

- India will be the **71st signatory to this international transit system.**
- The two countries which signed TIR before India were **Pakistan (2015) and China (2016).**
- The TIR Convention can be an instrument for movement of goods along the **International "North-South" Transport (INSTC) Corridor** and would be helpful in boosting trade with the Central Asian Republics and other Commonwealth of Independent States (CIS), particularly using ports in Iran like the Chabahar port.
- India's participation in TIR may also facilitate trade with **its eastern and western neighbours.**

2.18. COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF (CLCS)

India will- for the first time in two decades- not have a member in a prestigious, U.N. scientific body, **Commission on the Limits of the Continental Shelf (CLCS)**.

- The CLCS has five-year tenure and elections are due in June for the 2017-2022 term.
- Ministry of External Affairs (MEA), which formally nominates Indian candidates, chose to nominate a person to another U.N. body, called the International Tribunal for the Law of the Sea (ITLOS).
- India became a signatory to the UNCLOS in 1982 and has had continuous representation in CLCS, ITLOS and the International Seabed Authority (ISA) since their inception in 1997, 1996 and 1994 respectively.

About CLCS

Commission on the Limits of the Continental Shelf (CLCS) is one of the three institutions created under the **1982** United Nations Convention on the Law of the Sea (UNCLOS). The other two institutions are the International Tribunal for the Law of the Sea (ITLOS) and the International Seabed Authority (ISA).

- The purpose of the CLCS is **to facilitate the implementation of the UNCLOS** in respect of the establishment of the **outer limits of the continental shelf beyond 200 nautical miles (M) from the baselines** from which the breadth of the territorial sea is measured.
- To consider the data and other material submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles.
- **To provide scientific and technical advice**, if requested by the coastal State concerned during preparation of such data.

2.19. EURASIAN ECONOMIC UNION (EAEU)

India is set to formalise a free trade agreement with the Eurasian Economic Union.

About Eurasian Economic Union

- The Eurasian Economic Union comprises Russia, Belarus, Armenia, Kazakhstan and Kyrgyzstan.
- The Eurasian Economic Union has an integrated single market of 183 million people and a gross domestic product of over 4 trillion U.S. dollars (PPP).

2.20. FUNDING OF UNITED NATIONS

- Recently, USA has proposed to decrease its funding to the United Nations agencies.
- The United Nations is funded by its member countries as decided by the UN General Assembly.
- Each member state of the UN is **obligated to contribute to the UN**.
- The contribution of each member country is **determined based on an assessment done every three years (currently it is 2016-18)**. The assessment takes into account the **GNP, per capita income & external debt of countries** for fixing the quantum of contribution. This is done by the Committee of Contributions (setup under Article 17 of the UN Charter).
- India contributes the 24th highest with 0.737%. **Among the BRICS nations, India's contribution is more than only South Africa.**
- The **decreasing order of the funding contributions** to the UN budget is – USA > Japan > China > Germany > France > United Kingdom.

2.21. UN ELECTION ASSISTANCE DIVISION

- India has made a quarter-million-dollar contribution to the UN programme for **helping countries to hold elections and develop their electoral systems**.
- **About UN election assistance division**
 - It was **set up in 1991**.
 - It is a division of the **UN Department of Political Affairs**.
 - UN has helped over 100 countries with their elections with this division.

- It **provides technical assistance** for organizing and conducting elections.
- It sent observers to ensure the integrity of elections at the request of the General Assembly or the Security Council.
- It has been setup as per the principles of UN Declaration of Human Rights.
- It has even organized elections like in countries such as **Cambodia and Timor-Leste**.

2.22. UN-HABITAT

Why in news?

India has been unanimously elected as the president of the UN-Habitat, an organ of the United Nations promoting sustainable human settlements across the globe.

- On behalf of India, Housing and Urban Poverty Alleviation Minister will preside over the deliberations of the 58-member Governing Council (GC) of the UN-Habitat for the next two years.
- Since the UN-Habitat came into being in 1978, it is the third time that India has been elected to lead this organisation after 2007 and 1988.

About UN Habitat

The United Nations Human Settlements Programme (UN-Habitat) is the United Nations agency for human settlements and sustainable urban development.

- It was established in 1978 as an outcome of the First UN Conference on Human Settlements and Sustainable Urban Development (Habitat I) held in Vancouver, Canada in 1976.
- UN-Habitat maintains its headquarters at the United Nations Office **at Nairobi, Kenya**.
- It is mandated by the United Nations General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.
- It is a member of the United Nations Development Group.
- The mandate of UN-Habitat derives from the Habitat Agenda, adopted by the United Nations Conference on Human Settlements (Habitat II) in Istanbul, Turkey, in 1996.

2.23. MONTENEGRO'S BID FOR NATO

- Montenegro parliament has ratified to join NATO.

About NATO

- Its founding treaty was Washington treaty.
- NATO's essential purpose is to safeguard the freedom and security of its members through **political and military means** (either under Washington treaty or under UN mandate).
- **All decisions are taken by consensus**.
- Its headquarters is in **Brussels, Belgium**.
- **Members of NATO are** – Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, UK, USA, Greece, Turkey, Germany, Spain, Czech Republic, Hungary, Poland, Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia, Albania and Croatia.

2.24. BELMONT FORUM

- The government has given its approval for **supporting the Belmont Forum Secretariat**.
- **About Belmont Forum**
 - It was created in 2009 as a high level group of the world's major and emerging funders of **global environmental change research and international science councils**.
 - **India is a member of Belmont Forum**, besides Australia, Brazil, Canada, European Commission, France, Germany, Japan, Netherland, South Africa, UK and USA etc.
 - Ministry of Earth Science (MoES) represents India in the Belmont Forum since 2012.

2.25. RECENT MILITARY EXERCISES

- **Al Nagah-II:** Al Nagah-II exercise with Oman is underway at Bakloh in Himachal Pradesh.
- **Bold Kurukshetra exercise:** The Bold Kurukshetra exercise with Singapore is an armoured exercise under way at the Babina field firing range in Uttar Pradesh.

2.26. MISCELLANEOUS TITBITS

- **El Salvador has become the first country to ban mining of metals** (exploration, exploitation, extraction and processing) for environmental protection.
- Russia recently hosted **global peace conference on Afghanistan** to discuss ways of ending conflict in Afghanistan and establish durable peace. Russia invited Iran, Pakistan, India, China and five Central Asian States. USA is not part of the conference.
- **Operation Euphrates Shield** was launched by Turkey to support Free Syrian Army (FSA) rebels and push ISIL fighters away from its border and stop the advance of Kurdish militia fighters.
- Recently, Nepal and China held the first military exercise named **Sagarmatha Friendship – 2017** in Maharajganj, Nepal.
- **Peace in the Home programme** has been launched by **Commonwealth** to help member states tackle domestic violence that affect the women disproportionately.
- **Shahpur Kandi Dam:** Punjab and Jammu and Kashmir agreed to resume work on stalled Shahpur Kandi Dam project, which is to be built on the river Ravi. This high gravity dam will help in providing irrigation facility to Punjab and J&K besides generation of power and will help India utilise its rights over eastern rivers of the basin under Indus Water Treaty.
- **Reporters Without Borders (RWB)** is an international non-profit, non-governmental organization that promotes and defends freedom of information and freedom of the press. It compiles the **World Press Freedom Index** every year that ranks 180 countries according to the level of freedom available to journalists. India slipped three places in the 2017 world press freedom rankings to 136th.

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3. ECONOMY

3.1. FRBM REVIEW COMMITTEE

Why in News?

- FRBM review committee chaired by NK Singh which was setup to give recommendations on future FRBM roadmap presented its report recently.

Background

- The key trigger of the default at the time of 1991 economic liberalization was irrational public spending on borrowed money in the late-1980s.
- FRBM law (2003) was enacted to limit the government's borrowing authority under Article 268 of the Constitution.
- The FRBM law envisaged a fiscal deficit of 3% of GDP by 2008-09, but due to Global Financial Crisis and amendments over the years the same target has been set now to 2017-18.
- The government has set a fiscal deficit target of 3.2% of GDP in 2017-18.

Recommendations

- Flexibility to the Centre on the fiscal consolidation** (eg. adopting fiscal expansion for the near term) by maintaining a fiscal deficit to GDP ratio of 3% till 2019-20. After this, it recommends a reduction in fiscal deficit targets (See box).
- It recommends **escape clause** which would allow the government to skip the fiscal deficit target for a particular year. (see box)
- Existing FRBM Act should be scrapped and a new **Debt and Fiscal Responsibility Act** be adopted.
- It has also suggested the **creation of a Fiscal Council** which will:
 - Prepare multi-year fiscal forecasts for the central and state governments.
 - Provide an independent assessment of the central government's fiscal performance.
 - Government must also consult the council before invoking escape clauses.
- Instead of fiscal and revenue deficit numbers, the government should focus on **public debt as a proportion to GDP to 60% by 2023** (presently 68%). This is a simple measure of insolvency, also used by rating agencies.
- It recommends **institutional reforms in fiscal management** like-
 - Centre giving consent to State borrowings (as per Article 293)
 - RBI to issue a consolidated document for bond and loan issues by each government.
- Establish a debt ceiling** (acting as a long term fiscal anchor) apart from year on year targets for fiscal and revenue deficits as in FRBM.

Tightening the FRBM Act

The NK Singh Committee's recommendations seek to place stringent controls over Central and State government spending

*Fiscal deficit targets (%)



Revenue deficit targets (%)



Set up a 3-member Fiscal Council

Government debt

- 60% general government debt by 2022-23
- 40% threshold for the Centre, 20% for States

- A 300 bps rise in real output growth above average for four successive quarters, should translate to a 50 bps cut to the fiscal deficit target

Exceptions

- ('escape clause' applies)
- National security considerations, war
 - Calamities of national proportions
 - Severe collapse of agriculture
 - Far-reaching structural reforms in the economy
 - Fall in real output growth by 300 bps below average for four successive quarters
 - Caveat:** Deviations should not exceed fiscal deficit target by 0.5 percentage points

3.2. GENERAL ANTI-AVOIDANCE RULES

Why in News?

- Government of India had assured to make General Anti-Avoidance Rules (GAAR) effective from April 1, 2017.

Background

- GAAR was first proposed in the Direct Tax Code 2009.
- It was again proposed in the Budget speech 2012 (by amendment to Income Tax Act) to be implemented by April 2014.

P. Shome Committee recommendations accepted by the government were—

- Non applicability of GAAR to transactions where tax benefit is less than Rs 3 crore in a financial year
- Exemption to FIIs.
- Approving Panel for tax benefits under GAAR would have a high court judge, Indian revenue service officer and a specialist in tax and trade practices.

- **Parthasarthy Shome committee (2012)** was later setup after opposition, to recommend GAAR provisions.
- In the Budget 2016, its rollout date was decided to be 1 April 2017.

Components of GAAR

- GAAR is a **set of rules/framework** which helps the revenue authorities to decide:
 - Whether a particular transaction has **commercial substance** or not.
 - The **tax liability associated with a genuine transaction**.
- It allows the government to **tax overseas deals involving local assets**.
- GAAR provisions would **apply on those who claim a tax benefits of over Rs 3 crore**.
- **Exceptions:**
 - If the Limitations of Benefits (LOB) clause sufficiently addresses tax avoidance, then GAAR will not apply.
 - Court approved arrangements would be kept out of GAAR.
 - If an arrangement is permitted by the Authority for Advance Rulings, then GAAR will not apply.

Different Tax Reduction measures

- **Tax mitigation** – It is the situation when taxpayer **uses fiscal incentives like tax concession** given by the government to lower tax burden. Eg. Setting business in SEZ to avail tax benefits in it.
- **Tax Avoidance** – It is a situation where a taxpayer tries to **exploit the legal loopholes** to reduce tax liability which would otherwise be incurred.
 - It is an arrangement **solely entered into for tax advantages**.
 - E.g. Transferring profits within company by Base erosion and Profit Sharing.
- **Tax Planning:** It is a plan to minimize tax payment using options like retirement plans etc.

SOME RELIEF

- Arrangements approved by court or held permissible by the Authority for Advance Rulings will not be covered by GAAR
- Transaction proposed to be covered will be vetted first by commissioner and second by an approving panel headed by HC judge
- If the panel holds a transaction to be permissible and conditions remain the same, GAAR will also not be invoked in the next year
- GAAR will apply where the tax avoidance arrangement results in an aggregate tax benefit of ₹3cr or more for all parties across countries

Challenge

- The powers and responsibilities of revenue authorities in relation to GAAR still remain undefined and it can lead to harassment of legitimate tax planning.
- There is subjectivity in differentiating between tax mitigation and tax avoidance practices.

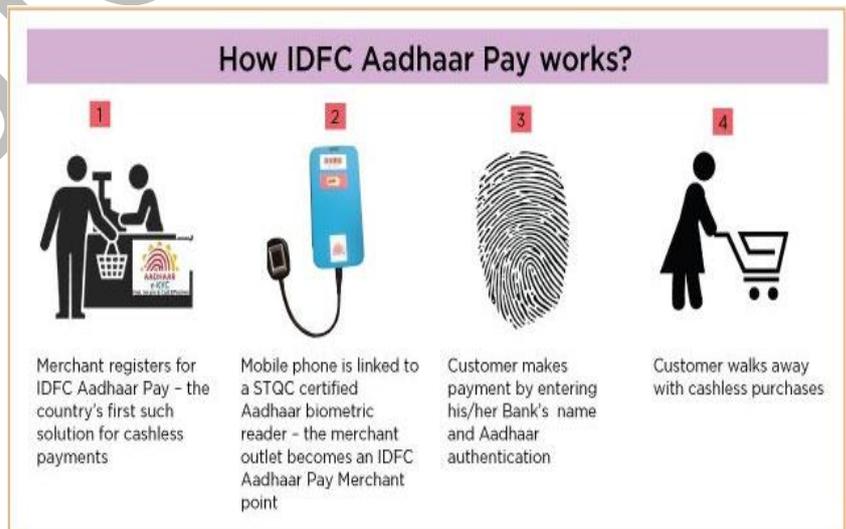
3.3. AADHAAR PAY

Why in news?

- The government has requested all public sector banks to go live with Aadhaar Pay.

What is Aadhaar Pay?

- While the government launched BHIM as a payment application for peer-to-peer transactions, Aadhaar Pay is meant for merchants to receive digital payments from customers over the counter through Aadhaar authentication.
- Customers need not use debit or credit cards, download mobile applications or even carry a mobile or any other device to make cashless transactions. They will need just a bank account seeded with Aadhaar and will be able to use their thumb impressions for authentication.
- The merchant needs a smartphone and has to download his or her bank's Aadhaar Pay app and accept payments by sending a pull notification to the customer's bank account.
- For Aadhaar Pay transactions the merchants will have to pay to their respective banks the merchant discount rate, or MDR, which has been fixed at 0.25% of the transaction amount.



3.4. GOVERNMENT E-MARKETPLACE

- The government has approved for the setting up of a **Special Purpose Vehicle** to be called **Government e-Marketplace (GeM SPV)** as the **National Public Procurement Portal** as “not for profit company” registered under the Companies Act, 2013.
- It will provide for **procurement of goods & services** required by **Central & State Government** organizations
- **Directorate General of Supplies and Disposal** will be replaced by GeM.

Directorate General of Supplies and Disposal

- It was established in 1951 for rendering procurement & disposal services to Central/State Government/PSUs /Autonomous Bodies, etc.
- After de-centralization of Ad-hoc procurements in December, 1991, the main focus of it has been to conclude rate contracts for common user goods and services.

3.5. WPI AND IIP BASE YEAR CHANGE

Why in news?

- The **CSO** and the **Department of Industrial Policy and Promotion (DIPP)** has shifted to 2011-12 base year from 2004-05 base year for Index of Industrial Production (IIP) and Wholesale Price Index (WPI) respectively.

Background

- WPI is primarily used as an indicator to measure inflation. RBI has recently moved to using CPI as a measure of inflation for formulating monetary policy.
- WPI is used as a **deflator** for many sectors such as for estimating GDP by CSO as well as for calculating IIP.
- A **Technical Review Committee (TRC)** has been constituted for the first time by the CSO in order to review the indexes and recommend appropriate methodological interventions in line with changing economic structure of the country. The TRC is to be chaired by Secretary, DIPP. It shall meet once a year.

What is new?

- Apart from the WPI base year, its basket of goods and their weightage have also been overhauled. 199 new items have been added and 146 items have been dropped in line with the changing demand in the country.
- **Taxes have been left out of WPI** in order to remove the impact of fiscal policy.
- The WPI will now be calculated based geometric mean rather than the earlier of arithmetic mean. CPI is calculated on geometric mean.
- 149 items have been added to the IIP and 124 deleted.

Changes in composition

IIP old series (Base year: 2004-05)		New series (Base year: 2011-12)		
Item groups	Weight (%)	Item groups	Weight (%)	
Mining	1	14.16	1	14.37
Manufacturing	397	75.53	405	77.63
Electricity	1	10.31	1	8
Total	399	100	407	100

WPI old series (Base year: 2004-05)		New series (Base year: 2011-12)		
Item groups	Weight (%)	Item groups	Weight (%)	
Primary articles	102	20.12	117	22.62
Fuel and power	19	14.91	16	13.15
Manufactured items	555	64.97	564	64.23
Total	676	100	697	100

Implications

- The change in base year has brought all macroeconomic indicators on the same base making comparison easier. The new base year will provide a more realistic picture.
- Change in WPI basket of goods and weightage has brought it **closer to the CPI** and to changing consumption pattern in the country.
- Removing indirect taxes from WPI will make it a **compatible and appropriate deflator**. It will also bring it closer to **PPI (Production Price Index) and global practices**.
- This is how GVA is calculated (without the taxes) therefore making it **consistent with GVA**.
- Change in the IIP basket would **make it closer to the current production structure**.

3.6. TRANSITION TO INDAS

Why in news?

- The first full fiscal year of reporting under Indian Accounting Standards (IndAS) has been completed.

What is Ind AS?

- Ind AS or **Indian Accounting Standards** govern the accounting and recording of financial transactions as well as the presentation of statements such as profit and loss account and balance sheet of a company.
- For long, there has been a heated debate about Indian companies moving to the globally accepted **International Financial Reporting Standards (IFRS)** for their accounts.
- Ind AS has been evolved as a compromise formula that tries to harmonise Indian accounting rules with the IFRS.

3.7. VOLUNTARY UNEMPLOYMENT

Why in News?

- Recently, NITI Aayog member Bibek Debroy has flagged a **dramatic rise of voluntary unemployment** across the country.

Voluntary Employment

- **NSSO defines following three broad Activity Status** -
 - Working/Employed (engaged in an economic activity)
 - Seeking or available for work i.e. 'Unemployed'
 - Neither seeking nor available for work.
- **Labor force/work force** is the total number of people employed or seeking employment in a country or region.
- **One is classified as voluntary unemployed**, if he or she is not employed and is not willing to join the workforce. It is mostly because **people choose not to work below a certain income level after 'investing' in education.**

Activity Status

- Activity Status refers to the activity situation in which the individual is found during the reference period with respect to his participation in economic or non-economic activities.

3.8. FREE CREDIT REPORT

Why in news

- The Reserve Bank of India (RBI) has made it mandatory for all credit information bureaus in the country to provide a full credit report, on demand and without any charge, to individuals whose credit history is available with them.
- At present, there are four such companies in India: CRIF High Mark Credit Information Services Pvt. Ltd, Equifax Credit Information Services Pvt. Ltd, Experian Credit Information Co. of India Pvt. Ltd and Transunion Cibil Ltd.

THE MAKING OF YOUR CREDIT SCORE

- Credit bureaus receive your data from lending institutions
- This information includes:
 - Credit products held by you
 - Your payment behaviour
 - Credit utilization
 - Time for which you serviced the credit payments
 - Enquiries made for new credit products
- The bureau analyses this data using various algorithms
- The end result of this analysis is your credit score
- Credit scores vary across bureaus as their parameters and algorithms are different

If you detect a major discrepancy in your report, contact the bureau's redressal desk to rectify it

3.9. PROMPT CORRECTIVE ACTION

Why in news?

- The RBI is set to revise guidelines for **Prompt Corrective Action (PCA) plan** required to be mandatorily set in motion by ailing banks.

What is PCA?

- PCA is a process or mechanism to ensure that banks don't go bust.

- Thus, RBI has put in place some trigger points to assess, monitor, control and take corrective actions on banks which are weak and troubled.
- PCA was first introduced after the global economy incurred huge losses due to the failure of financial institutions during the 1980s and 1990s.
- According to the latest Prompt Corrective Action (PCA) plan, the banks are assessed on three parameters, and they are:
 - ✓ Capital ratios
 - ✓ Asset Quality
 - ✓ Profitability
- Indicators to be tracked for Capital, asset quality and profitability would be CRAR/ Common Equity Tier I ratio, Net NPA ratio and Return on Assets respectively.
- Breach of any risk threshold would result in invocation of PCA.

- **CRAR** is the acronym for **Capital to Risk-weighted Assets Ratio**, a standard metric to measure balance sheet strength of banks
- **ROA** stands for **return on assets**. It is the percentage of net income generated with respect to average total assets.
- **CET 1 ratio**: The percentage of core equity capital, net of regulatory adjustments, to total risk-weighted assets as defined in **RBI Basel III guidelines**
- **NNPA Ratio**: the percentage of net NPAs to net advances
- **Tier 1 Leverage Ratio**: the percentage of the capital measure to the exposure measure as defined in RBI guidelines on the leverage ratio.

3.10. RBI TIGHTENS RULES FOR JOINT LENDERS' FORUM

- RBI has given joint lender's forum (JLF) more teeth to deal with recovery proceedings (see box).
- **About Joint Lender's Forum**
 - Where the principal or interest payment of an account is overdue between 61-90 days and if the aggregate exposure (AE) of lenders in that account is Rs 1000 million and above, the lenders **should mandatorily forms a committee to be called Joint Lenders' Forum (JLF)**.
 - **JLF can also be formed voluntarily** if interest/principal is overdue for less than 61-90 days and the aggregate exposure is less than Rs 1000 million.
 - **Usually, the lender with the highest Aggregate exposure convenes the JLF.**
 - JLF may appoint government representatives if they have a role in project implementation.
 - Under the JLF framework for revitalizing distressed assets in the economy, even before a loan account turns into an NPA, the **accounts are segregated into three categories** –
 - ✓ **Special Mention Accounts (SMA) SMA-0** - if loan overdue for less than 30 days+ incipient signs of stress
 - ✓ SMA-1 – if loan overdue for 31-60 days
 - ✓ SMA-2 - if loan overdue for >60 days
 - JLF should **arrive at a corrective action plan within 45 days** and decide whether the debtor merely needs some hand-holding, or if the forum should opt for debt restructuring or recovery.

RBI Gets Cracking

Decisions agreed to by a minimum of 60% creditors by value and 50% creditors by number in a joint lenders' forum enough to approve a restructuring plan

Decision of forum binding on all members and no bank board will have the power to overrule it

Banks will have to implement the agreed plan without any additional conditions

The earlier rule required approval of 75% of creditors by value and 60% by number



Those who do not support the majority decision will be given time to exit the group

Non-adherence to the instructions and timelines under the framework shall attract monetary penalties



3.11. FARMER PRODUCER ORGANISATIONS (FPOS)

Why in news?

A conclave was held in Delhi to discuss the idea of creating a national-level association of FPOs as a lobbying platform.

What is FPO?

- A Producer Organisation (PO) is a legal entity formed by primary producers, viz. farmers, milk producers, fishermen, weavers, rural artisans, craftsmen.
- A PO can be a producer company, a cooperative society or any other legal form which provides for sharing of profits/benefits among the members.

- FPO is one type of PO where the members are farmers.
- Farmers, who are the producers of agricultural products, can form groups and register themselves under the Indian Companies Act.

Institutions involved

- NABARD initiated the **Producer Organisation Development Fund (PODF)** and SFAC has set up nearly 250 FPOs since 2011.
- To strengthen their capital base, SFAC has launched a new Central Sector Scheme “**Equity Grant and Credit Guarantee Fund Scheme for Farmers Producer Companies**”.

3.12. TRADE IN AGRICULTURAL PRODUCTS-WAREHOUSE RECEIPTS

Why in News?

- Central Depository Services (CDSL) is set to launch the country's first demat facility for commodity markets that would primarily allow **warehouse receipts in demat form**.

Central Depository Services Limited

- A depository facilitates holding of securities in the electronic form and enables securities transactions.
- CDSL was set up with the objective to provide secure depository services at affordable cost to all market participants.
- It is promoted by BSE Ltd, and sponsored by India's leading banks.

Background

- The **grant of repository licenses to CDSL and NCDEX** and the **SEBI proposals to introduce commodity options** are positive signs.
- Currently a farmer can take the produce to a certified warehouse and receive a negotiable warehouse receipt with a unique identity (ISIN).

Negotiable Warehouse Receipt (NWR)

- Warehouse Receipts are documents issued by warehouses to depositors (like farmers) against the commodities deposited in the warehouses.
- Negotiable warehouse receipts are those that are **transferable by simple endorsement /signature**. Therefore they can be traded.
- It has been defined in the Warehousing Act 2007.

3.13. DRAFT MODEL LAW ON AGRICULTURAL MARKETING

Why in news?

- Centre has unveiled a draft model law, **Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM), 2017** which will replace the **Agriculture Produce Markets Committee Act, 2003**.
- Agriculture is a ‘state’ subject, so it depends on states whether to adopt the provisions partially or in totality.

Objective

- To create a **single agri-market** where with single licence one can trade agri-produce as well as livestock.
- Better **price realization** for farmers.
- **Doubling farmer’s income** by 2022.

Provisions of the Draft Model Act

- **Intra-state trade** made available by paying a single fee.
- The draft law proposes to **cap market fees and commission charges payable by a farmer** after bringing produce to a wholesale market.
- Warehouses and cold storages are to act as regulated markets
- Farmers can directly sell their produce to bulk buyers.

3.14. COMMERCIALISATION OF GM MUSTARD

- Genetic Engineering Appraisal Committee (GEAC) gave a positive recommendation for the commercial use of GM mustard for 4 years subject to certain field conditions.

About GEAC

- It is a statutory body under MoEFCC.
- It is the apex body for approval of proposals relating to release of genetically engineered organisms and products into the environment.
- The GEAC considers proposals for trial only after approval from the RCGM (Review Committee on Genetic Manipulation - a body comprising scientists) under Dept. of Biotechnology.

- India, so far, has permitted only GM cotton, a non-food crop. NITI Aayog recently, in its three-year draft action plan had backed GM food crops also.
- India spends about \$12 billion on imported edible oil which is bound to increase with the increase in population and per capita income.
- In 2010, the GEAC had also approved the commercialization of Bt brinjal. However, the then environment minister declined to sign off on the proposal due to strong protests. As of now, there is a case pending before the Supreme Court.

3.15. BLUE REVOLUTION

Why in News?

- Government has envisaged a program named 'Blue Revolution' based on integrated approach to tap India's potential in the fisheries sector.

Blue Revolution

- Blue Revolution in technical sense refers to **integrated development and management of Fisheries**.
- In a broader sense, blue revolution is now assumed to **encompass even infrastructure development and creation of livelihood** for communities along coasts.

Components of envisaged program

- **Productivity enhancement** shall be achieved by production oriented activities such as:
 - Production of quality fish seeds
 - Cost effective feed and adoption of technology.
 - Use of High Yielding Varieties of brooders
- It will have a **sub mission on Fish Fingerling (finger shaped fishes)**.

Pilot Project on Ornamental Fisheries

- It is a fishery sub-sector dealing with breeding and rearing of **coloured fish** of both freshwater and marine water.
- They are used for aesthetics like aquarium.
- The major objectives of the pilot project are:
 - Promote ornamental fish culture with cluster-based approach.
 - Augment ornamental fisheries trade and exports.
 - Rural and peri-urban employment opportunities
 - Employ modern technology and innovation.

3.16. PUSA KRISHI APP

Why in News?

- This app was recently inaugurated in the Krishi Unnati Mela.

About the app

- It has been developed by ICAR's Indian Agricultural Research Institute.
- The Pusa Krishi app gives information about –
 - The varieties of products available to farmers
 - Technology that can be used to yield better crops
 - Information about produce and the region it is best suited for.
 - Information about animal feed and bio-fertilizers
- There is a feedback section which enables the agricultural scientists to have a real time conversation with the stakeholders.

Institutions related to agricultural extension

1. **National Centre for Management of Agricultural Extension (MANAGE) (1987) –**
 - ✓ It is an autonomous institute under Ministry of Agriculture.
 - ✓ It is located in Hyderabad.
 - ✓ It assists the Central and State Governments and other organizations in effective management of their agricultural extension.
2. **Indian Council of Agricultural Research (ICAR)**
 - ✓ It is an autonomous body under Ministry of Agriculture.
 - ✓ Its head is Minister of Agriculture.
 - ✓ It coordinates agricultural education and research in India.

3.17. NATIONAL POLICY ON MARINE FISHERIES 2017

Why in News?

- National Policy on Marine Fisheries was launched recently by the Department of Animal Husbandry, Dairying and Fisheries.

Background

- India is the second largest producer of fish in the world contributing to 5.43% of global fish production.
- India is also a major producer of fish through aquaculture and ranks second in the world after China.
- After 2015 report of **B.Meenakumari on deep sea fishing**, the government had decided to revise the existing Marine Fisheries policy of 2004.

Branches of fisheries

1. **Marine Fisheries** – It is that branch of fisheries which deals primarily with marine fishes and other sea products.
 - ✓ E.g. Oil sardines, mackerels, Bombay ducks, tunas and the prawns, catfishes, polynomids , pomfrets, crabs, oysters, marine algae
2. **Inland fisheries** - Inland fisheries include both fresh water and brackish water fisheries. The commercially important fresh water fishery resources are carps, mullets, chanos, and prawns. Some brackish water fisheries include shrimps.

About the Policy

- The **aim of the policy** is to ensure the health and ecological integrity of the marine living resources of India's EEZ through sustainable harvests.
- The **overall strategy would be based on seven pillars**, namely sustainable development, socio-economic upliftment of fishers, principle of subsidiarity, partnership, inter-generational equity, gender justice and precautionary approach.
- The policy would be in line with the **FAO's Code of Conduct for Responsible Fisheries** on conservation, development and management of fisheries.

Significance

- **Women SHGs** would be promoted in the women dominated post harvest sector of fisheries.
- The policy if well implemented would **promote SDG Goal 14** of conserving and sustainably using Oceans, Seas and Marine resources for Sustainable development.

3.18. SAMPADA SCHEME

Why in News?

- The government has given its approval for **new Central Sector Scheme – SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters)** for the period 2016-20.

Background

- India ranks number one in total food production globally. However, it has a less than 10% processing level of the large production base.
- The government has allowed **100% FDI (automatic route) in trading including through e-commerce**, in respect of food products manufactured and/or produced in India.
- The government has set up a **Special Fund of Rs. 2000 crores** in NABARD to give affordable credit at concessional rate of interest to designated food parks and agro processing units.
- Food and agro-based processing units and cold chain infrastructure have been brought under the ambit of **Priority Sector Lending (PSL)**.

• **Mega Food Park Scheme**

- It aims to provide modern infrastructure facilities for the food processing with a cluster based approach based on a hub and spokes model.
- It includes creation of infrastructure for primary processing and storage near the farm in the form of Primary Processing Centres (PPCs) and Collection Centres (CCs) and common facilities and enabling infrastructure like roads, electricity, water etc. at Central Processing Centre (CPC).

• **Integrated Cold Chain and Value Addition Infrastructure**

- It is a Central Sector scheme.
- Financial assistance is given in the form of grant-in-aid upto maximum of Rs. 10 crore per project.

Provisions

- The **objective of the scheme** is to supplement agriculture, modernize processing and decrease agri-waste.
- **It is an umbrella scheme** incorporating ongoing schemes of the Ministry of Food Processing -
 - Earlier schemes like Mega Food Parks, Integrated Cold Chain and Value Addition Infrastructure, Food Safety and Quality Assurance Infrastructure, etc.

- New schemes like Infrastructure for Agro-processing Clusters, Creation of Backward and Forward Linkages, Creation of Food Processing & Preservation Capacities.

3.19. GEO-TAGGING OF ASSETS CREATED UNDER RKVY

Why in News?

- The government has decided to geo-tag all assets (80 kinds of assets are created under the RKVY) like farm ponds, soil testing labs and seed godowns for their better utilisation.
- RKVY is a **special Additional Central Assistance scheme** to incentivise States that increase their investment in agriculture and allied sectors.

What is Geo-tagging?

- It is the **process of adding geographical identification like latitude and longitude to media such as photo or video.**
- It can help users find a wide variety of location-specific information.

What is Geo-mapping?

- It is a **visual representation of the geographical location of geotagged assets** layered on top of map or satellite imagery.
- Both the features will be visible on the Govt-owned '**Bhuvan**', developed by ISRO, that allows users to explore a 2D/3D representation of the surface of the earth.

3.20. KRISHI KARMAN AWARDS

- **Madhya Pradesh** has been selected for the Krishi Karman Award for highest production of wheat during the year **2015-16**.
- **About Krishi Karman awards**
 - They were instituted in the year 2010-11 to reward the best performing States in production of **foodgrains and individual crops of Rice, Wheat, Pulses and Coarse Cereals.**
 - They are instituted by Union Ministry of Agriculture and Farmers Welfare.
 - There are eight awards including three for the States with highest foodgrains production in three identified categories -
 - ✓ Category I (Large) – where production is >10 million tones
 - ✓ Category II (Medium) – where production is between 1 – 10 million tonnes
 - ✓ Category III (Small) – where production is <1 million tonnes

There is no categorization of States for individual crops of Rice, Wheat, Pulses, Coarse cereals and Oilseeds.

- **Tripura, Himachal Pradesh and Tamil Nadu** has been given the Krishi Karman Awards of 2015-16 under the **small, medium and large categories** respectively.

3.21. INCREASE OIL PALM PRODUCTION

Why in News?

- Cabinet recently approved measures to increase oil palm area and production in India.
- Palm oil makes **70% of vegetable oil import** and is one of the cheapest due to high productivity per hectare.
- Cabinet **relaxed land ceiling limit to assist areas more than 25 hectare** under NMOOP.

National Mission on Oilseeds and Oil Palm (NMOOP)

- It aims to bring an additional area of 1.25 lakh hectare under oil palm cultivation by the end of 2016-17.
- Increasing irrigation coverage under oilseeds from 26 percent to 38 percent;
- Diversification of area from low yielding cereals crops to oilseeds crop
- Inter-cropping of oilseeds and use of fallow land along with area expansion under oil palm.
- Enhancing procurement of oilseeds and collection.

3.22. ROADBLOCKS IN HYDROCARBON INDUSTRY OF INDIA

Why in News?

- Farmers in Neduvasal village of Tamil Nadu are protesting against an onshore hydrocarbon project block allotted under the Discovered Small Fields bidding.

Under recoveries

- It denotes **notional losses** that oil companies incur due to the difference between the subsidized price at which the companies sell certain products like diesel and the price which they should have received for meeting their production cost.

Need of new energy projects

- India **now imports more than 80 per cent of its crude oil and 40 per cent of its natural gas** requirement. This leads to sufficient depletion of foreign currency reserves and lose control on domestic inflation.
- Demand is rising with economic growth but **domestic production has been falling**.

Government steps to promote hydrocarbon sector

- **Pricing reforms:** Fuel prices like petrol and diesel have been deregulated especially after the slump of global oil prices. This has improved the profit margins of oil companies too.
- The Hydrocarbon Exploration Licensing Policy has the following provisions:
 - **Revenue-sharing contract:** Sharing revenue with the government as soon as commercial production begins.
 - **Unified licensing policy:** Exploration of all possible hydrocarbons in a block
 - **Open acreage licensing:** Bidders can select the exploration blocks on its own without waiting for the formal bid round.
 - Pricing and marketing freedom for new gas production from difficult terrains.
- **Planning of strategic reserves** in places like Vishakhapatnam, Padur, Bikaner etc. in times of low oil prices.
- In the recent Budget, the government has proposed to create an **integrated public sector 'oil major'**. This would enhance finances to bid for big-ticket foreign assets that see intense competition from major international players.

3.23. DYNAMIC FUEL PRICING

Why in News?

- The government has decided to allow fuel-retailers to change petrol and diesel prices every day, in sync with global prices.

Impact of the proposed change

- **Political interference** will be minimised
- **No shock to customers** as international oil prices do not fluctuate widely on a daily basis.
- **Effect on inflation** as the new practice will add one more factor to the change in price of essential commodities such as food items, cereals, fruits and vegetables



A global practice Making fuel prices a daily function of global rates of crude is implemented as a norm in developed countries

Test run: A pilot for daily revision of petrol and diesel price will be implemented first in Puducherry, Visakhapatnam in Andhra Pradesh, Udaipur in Rajasthan, Jamshedpur in Jharkhand and Chandigarh

Crude reality: A worker rests on a crude oil pipeline at Ennore. Crude prices globally will now decide movement of fuel price in India. • S.R. RAGHUNATHAN

CURRENT PRACTICE: State fuel retailers currently revise rates on 1st and 16th of every month, based on average international fuel prices in the preceding fortnight and the exchange rate

PROPOSED PRACTICE: Instead of using fortnightly average, pump rates will reflect daily movement in international oil prices and rupee-U.S. dollar fluctuations

- Petrol prices were deregulated in June 2010, and diesel prices in October 2014

Books of accounts of oil marketing firms will immediately reflect the price movement, allowing them to reduce or make provision for losses or profit arising out of sale and purchase of fuel on daily basis.

3.24. INDIGENOUS NUCLEAR POWER

Why in news?

- Cabinet has recently cleared the proposal to construct 10 indigenous pressurised heavy water nuclear reactors (PHWR) with each having a capacity of 7,00 MWe, to be built by Nuclear Power Corporation of India Ltd (NPCIL).

Current status of India's nuclear capacity

- NPCIL is presently operating 22 commercial nuclear power reactors (details shown in the figure)

Why India chose PHWRs?

- Availability of fuel - guaranteed as India has put most of its PHWRs under IAEA safeguards.
- No need of establishing expensive enrichment facility as it uses natural uranium as fuel.
- Availability of indigenous technology, expertise and resources.
- More energy efficient than comparable Light Water Reactor.

- The total installed capacity in India is 6780 MWe, constituting 2.1% of the total installed capacity in India.
- The reactor fleet comprises of three types of reactor
 - PHWR
 - Boiling water reactor (BWR)
 - VVER (Pressurized water reactor type)
- India today has civil nuclear cooperation agreements with several countries, including France, Russia, UK, US and Japan.

Plant	Unit	Type	Capacity (MWe)
Tarapur Atomic Power Station (TAPS), Maharashtra	1	BWR	160
Tarapur Atomic Power Station (TAPS), Maharashtra	2	BWR	160
Tarapur Atomic Power Station (TAPS), Maharashtra	3	PHWR	540
Tarapur Atomic Power Station (TAPS), Maharashtra	4	PHWR	540
Rajasthan Atomic Power Station (RAPS), Rajasthan	1	PHWR	100
Rajasthan Atomic Power Station (RAPS), Rajasthan	2	PHWR	200
Rajasthan Atomic Power Station (RAPS), Rajasthan	3	PHWR	220
Rajasthan Atomic Power Station (RAPS), Rajasthan	4	PHWR	220
Rajasthan Atomic Power Station (RAPS), Rajasthan	5	PHWR	220
Rajasthan Atomic Power Station (RAPS), Rajasthan	6	PHWR	220
Madras Atomic Power Station (MAPS), Tamilnadu	1	PHWR	220
Madras Atomic Power Station (MAPS), Tamilnadu	2	PHWR	220
Kaiga Generating Station (KGS), Karnataka	1	PHWR	220
Kaiga Generating Station (KGS), Karnataka	2	PHWR	220
Kaiga Generating Station (KGS), Karnataka	3	PHWR	220
Kaiga Generating Station (KGS), Karnataka	4	PHWR	220
Kudankulam Nuclear Power Station (KKNPS), Tamilnadu	1	VVER -1000 (PWR)	1000
Kudankulam Nuclear Power Station (KKNPS), Tamilnadu	2	VVER -1000 (PWR)	1000
Narora Atomic Power Station (NAPS), Uttarpradesh	1	PHWR	220
Narora Atomic Power Station (NAPS), Uttarpradesh	2	PHWR	220
Kakrapar Atomic Power Station (KAPS), Gujarat	1	PHWR	220
Kakrapar Atomic Power Station (KAPS), Gujarat	2	PHWR	220

Total Nuclear Power Plant Capacity : 6780 MWe

Comparison of different types of reactor

The different types of reactor have been compared in the following table:

	BWR	PWR	PHWR	FBR
Purpose	electricity	Electricity, nuclear powered ships	Electricity, plutonium production	Electricity, plutonium production
Coolant	water	water	Heavy water (D ₂ O)	Molten, liquid sodium
Moderator	water	water	Heavy water (D ₂ O)	Not required
Fuel	Uranium dioxide	Uranium dioxide (UO ₂)	UO ₂ or metal	Plutonium dioxide and UO ₂ in different combinations
Enrichment level	Low-enriched	Low-enriched	Not-enriched	Various mixtures of P-239 and U-235

3.25. JAL VIKAS MARG PROJECT

Why in news?

- **Ministry of Shipping** is implementing **Jal Vikas Marg Project** with the financial assistance of World Bank.

About Jal Vikas Marg Project

- This Project envisages developing a **navigable channel** between 1,620 km **Allahabad and Haldia** (National Waterway-1) stretch on river **Ganga**.
- **Main objective** of the project is to provide an **environment friendly, fuel efficient** and **cost-effective** alternative mode of transportation.
- **National Waterway-1 (NW-1)** is a waterway passing through Uttar Pradesh, Bihar, Jharkhand and West Bengal serving major cities like Allahabad, Varanasi, Patna, Howrah, Kolkatta, Haldia, etc.
- **International Waterway Authority of India (Iwai)** is the implementing agency of this project.



3.26. DEVELOPMENTS IN RAILWAY SECTOR

3.26.1. RAILWAY DEVELOPMENT AUTHORITY

Why in News?

- Government has approved to setup a Rail Development Authority (RDA) based in Delhi.

Need

- Central governments have been fixing the fares mostly based on political considerations. This has led to **instances of cross subsidization and losses to freight sector**.
- **This initiative has been emphasised by various committees** like:
 - Rakesh Mohan expert group (2001).
 - National Transport Development Policy Committee (NTDPC) (2014).
 - Bibek Debroy Committee on Mobilisation of Resources for Major Railway Projects and Restructuring of Railway Ministry (2015).

Functions of the authority

- **Its primary functions will be:**
 - To **recommend tariff** commensurate with costs.
 - Frame **principles for social service obligation**
 - Suggest **policies for private investment**
 - **Fix efficiency standards and resolve disputes** related to any concession agreements.
 - Collect, analyze and disseminate information and statistics concerning the rail sector.
- It will act within the parameters of the Railway Act 1989 and make recommendations to the Railway Ministry on passenger and freight fares.
- It will be an independent body. The provisions of a separate budget, and the appointment and removal process would help maintain its independence.

Composition of the authority

- It will have a **chairman and three members** with a fixed term of five years each.
- The Central government will appoint the chairman and members by **choosing from a panel of names recommended by the search and selection committee** consisting of –
 - Cabinet secretary (Chairman)
 - Railway board chairman
 - Department of personnel and training secretary
 - Chairman of any regulatory body of the Central government nominated by the cabinet secretary.
- They would be **removed by the government** on grounds like insolvency, conviction, misbehaviour, etc.

Challenge

- Its recommendations **would not be binding**. It would only give its recommendations to the Railway Ministry which will be the final authority to take decisions. Therefore, **this move may remain tokenistic**.

It is not a statutory body as it is made through an executive order. This reduces its legitimacy and makes it prone to political interference.

3.26.2. DRAFT TOURISM POLICY OF INDIAN RAILWAYS

Why in News?

- Government of India has recently come out with a draft tourism policy

Policy Features

- **Introduce dedicated train services** for domestic and international tourists.
- **Involve several service providers**, including Indian Railway Catering and Tourism Corporation (IRCTC), to manage services like hotel accommodation and sightseeing for tourists.
- **Auction dedicated tourist coaches** to tour operators.
- **'Bharat Darshan Trains' for the masses** with affordable rates will be launched.
- To promote religious tourism:
 - **Astha Circuit Trains**: To be operated by the Railways at its own expense.

IRCTC

- It is a **public sector enterprise (PSE)** inducted in 1999.
- It is a **Mini Ratna Category 1 PSE**.
- **Its functions include:**
 - ✓ Upgrade and manage the catering and hospitality services at stations, on trains and other locations
 - ✓ Develop budget hotels, special tour packages, information & commercial publicity and global reservation systems.
 - ✓ Manufacture packaged drinking water for Rail Passengers.

State Tirth Trains: To be run on request from state governments at their cost.

3.27. POWERTEX INDIA

Why in News?

- It is a comprehensive scheme for Powerloom Sector Development that was launched recently by Union Textile Ministry for three years.

Provision of the scheme

- It aims to **boost common infrastructure and modernization of the powerloom** sector.
- It has **nine major components** like Group Workshed Scheme (GWS), Yarn Bank Scheme, Common Facility Centre (CFC), Tex Venture Capital Fund etc. **Two new schemes have been added** recently -
 - **Pradhan Mantri Credit Scheme for powerloom weavers**
 - **Solar energy scheme for powerloom**
- Minimum number of looms needed for **group workshed scheme** has been brought down to 24 from 48.
- Some **existing schemes** such as yarn bank and in-situ upgradation of plain powerlooms have been modified.

Powerloom

Looms operated with the aid of electric power for manufacturing of cloth are called as **Powerlooms** whereas the looms operated without aid of power are **Handlooms**.

Other Government Schemes on powerloom

- Government of India has launched **various subsidy schemes for powerloom sector** such as –
 - **Amended Technology Up-gradation Fund Scheme (A-TUFS).**
 - **In-situ Up-gradation Scheme** for Plain Powerlooms for up-gradation of technology.
 - **Group Workshed Scheme** for giving assistance for constructing workshed for powerloom sector
 - **Integrated Scheme for Powerloom Sector Development (ISPSD)** for providing extending assistance for marketing support in the form of Buyer Seller Meets

Challenges related to powerloom sector

- **Marketing:** dependent on the middlemen who eat into the profits.
- **Finance:** lack of access of financial institutions giving dedicated funding towards this sector
- **Raw Material:** not available in adequate quantity at reasonable prices and prices fluctuate.
- **Technology:** Most powerlooms are old and obsolete. Hence, productivity and quality of product suffers.
- **Lack of entrepreneurial skills.**

3.28. COIR INDUSTRY

Why in News?

- A severe shortage of water, affecting coconut farms in Tamil Nadu, Kerala and Karnataka has decreased the yield of the coir industry in these parts.

Background

- India accounts for about 66% of the global production of coir and coir products.
- **Kerala** accounts for majority of coir industry in India. The geographical location of the coir industry is dependent on the availability of raw material (Coconut) available in states like Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Odisha.

Basic facts on coir industry

- Coir is a fibrous mass extracted out from the coconut husk.
- It is an important cottage industry.
- Coir Industry in India consists of two distinct segments namely –
 - **White fibre** - It is smoother and finer but weaker. It is obtained from immature green coconuts. It is used primarily for rope manufacture.
 - **Brown fibre** – It is obtained by harvesting fully mature brown coconuts. It is stronger and thus used to make objects like brushes, mats etc.
- Main export destination of India is USA.
- This industry directly employs about 7 lakh people that are mostly from the rural areas. Women constitute about 70% of the workforce.

Government initiatives

- **Coir Udyami Yojana-** Rejuvenation, Modernization and Technology Upgradation has been renamed as Coir Udyami Yojana.
 - This is a **credited linked subsidy scheme** which provides 40% as Govt. subsidy, 55% as Bank loan and 5% beneficiary contribution for setting up of coir units with project cost up to Rs.10 lakh
 - No collateral security/third party guarantee is required and there is no income ceiling.
 - Assistance is available to individuals, companies, self help groups, NGOs, institutions registered under Societies Registration Act, 1860, co-operative societies, joint liability groups and charitable trusts.
- **Coir Vikas Yojana -**
 - It involves skill upgradation and quality improvement of the products.
 - It also **includes Mahila Coir Yojana** – training for men & women coir workers and providing subsidized ratts to women workers.
 - Its other components are development of production infrastructure, domestic market promotion, export market promotion etc.

Coir Board

- It is a statutory body developed under Coir Industry Act 1953.
- It regulates the production and distribution of coir through registration and licensing.
- It also fixes standards for this industry.
- It is an advisory body to the government for production of coir products.
- It functions under the Ministry of MSME.

3.29. TECHNICAL TEXTILES

Why in News?

- **TechnoTex 2017** was recently launched in Mumbai with the theme of “**Technical Textiles: Towards future**”.

Background

- Government launched **Scheme for growth and development of technical textiles (SGDTT)** (2007-2010). Its 3 components were:
 - Baseline survey to build technical textile industry database.
 - Setup centres of excellence for infrastructural support like **BTRA for Geotextiles, SASMIRA for Agrotextiles, NITRA for Protective Textiles and SITRA for Medical Textiles**.
 - Awareness generation among entrepreneurs.
- Subsequently, government launched **Technology Mission on Technical Textiles** (2010-2014) to overcome the issue of technical textile industry.
- All technical textiles based machinery is covered under Technology Upgradation Fund Scheme.

Technical/Functional textiles

- They are a group of textiles not used for aesthetic purposes but for its functional properties.
- They can be woven or non-woven.
- E.g. Geo textiles are permeable fabrics that are used in association with soil and have the ability to separate and filter.

Significance

- **Technical textile** has many benefits like:
 - Agricultural textiles are used in shading and in weed and insect control.
 - **Environmental conservation**- Geotextiles like non-woven bags stored with sand are used to prevent soil erosion.
 - **Meditech products** include use in hygiene, personal care and surgical applications. E.g. Diapers etc.
 - **Industrial textiles** used in industrial products like filters, printed circuit boards etc.

3.30. INFRASTRUCTURE FUNDING

3.30.1. LONG TERM FINANCE BANKS

Why in News?

- A RBI discussion paper has proposed to set up **long-term finance banks** especially to fund **infrastructure and Greenfield projects of industries**, with a minimum capital requirement of Rs. 1,000 crores.

Proposal of RBI

- The **eligibility criterion for promoters of a Wholesale and Long-term Finance Bank (WLTFB)** is the similar to on-tap universal banking licenses. Eg.
 - Individuals with 10 years of experience in banking and finance, with total assets of at least Rs 5,000 crore and with less than 40 per cent of their total income from non-financial sources, can apply for the licence along with business groups,
 - These banks would be exempted from opening branches in rural and semi-urban areas and would not be forced to lend to agriculture and weaker sections of the society.
- WLTF Banks would be allowed to **raise funds from selling rupee denominated bonds, commercial bank borrowing** and certificate of deposits.
- They would have to **maintain a Cash Reserve Ratio** but not for funds raised through infrastructure bonds.
- WLTF banks would **not be required to maintain Statutory Liquid Ratio**.

3.30.2. STATES ALLOWED OVERSEAS LOANS

Why in News?

- Cabinet cleared a proposal recently to **enable State government entities to directly access funding from international bilateral financing agencies**.

Background

- Presently, **external development assistance from bilateral and multilateral sources is received by the Government of India**
 - For projects or programmes in the Central sector
 - For projects executed by Central Public Sector Undertakings
 - On behalf of the State Governments for State sector projects or programmes to be implemented by the State Governments or local bodies and state PSUs.
- The existing guidelines do not allow direct borrowings by the State Government entities from external agencies.

Need

- State entities **have to approach State governments** to avail international funding and any such funding is included in the State's borrowing budget which **leads to violation of the Fiscal Responsibility and Budget Management (FRBM) Act.**

Proposal

- State entities with revenue of greater than Rs. 1,000 crore and working on infrastructure projects above Rs. 5,000 crore, are permitted to directly take money from bilateral Official development assistance partners.
- The concerned State Government will furnish guarantee for the loan and the Government of India will provide counter guarantee for the loan.

3.31. START-UPS INTELLECTUAL PROPERTY PROTECTION SCHEME

Why in news?

Government has extended Start-Ups Intellectual Property Protection (SIIP) scheme for 3 years till March 2020.

About the scheme

- The major objective of the scheme is to protect and promote Intellectual Property Rights awareness for startups and to encourage creativity and innovation amongst them.
- For implementation, DIPP has empanelled several facilitators, who are required to provide IPR-related services to startups. Facilitators will not charge anything from a startup as government will bear the cost of facilitation.
- The facilitators shall be empanelled by the Controller General of Patent, Trademark and Design (CGPDTM).

Start up as defined by government

Start-up means an entity, incorporated or registered in India not prior to five years, with annual turnover not exceeding INR 25 crores in any preceding financial year, working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.

CGPDTM

It is a subordinate office under the DIPP. It administers the working of the Patents Act, 1970, the Trade Marks Act, 1999, the Geographical Indications of Goods (Registration and Protection) Act, 1999 and the Designs Act, 2000 and also renders advice to the Government on matters relating to Intellectual Property Rights.

3.32. TRADE MARK RULES

Why in News?

- The Trade Mark Rules, 2017 have been notified recently by the Ministry of Commerce and Industry.

Rules

- **Ease of filing Trademarks – eg - Trade Mark Forms** have been reduced from 74 to 8.
- **Trademark Fees –** All fees related to trademark have been rationalized.
- For the first time, **modalities for determining well-known trademarks** have been introduced.

What is a Trademark?

- It is a **sign capable of distinguishing the goods or services** of one enterprise from those of other enterprises.
- It is **protected by Trademarks Act 1999.**
- **Trademarks registry** established in India in 1940, presently administers the Trademarks Act. It is also a resource centre for trademarks.

3.33. BUSINESS REFORM ACTION PLAN 2017

Why in news?

The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, and the World Bank Group, released the Business Reform Action Plan (BRAP) 2017 for implementation by States/UTs

About BRAP 2017

- It includes 405 recommendations for reforms on regulatory processes, policies and procedures spread across 12 areas that includes labour regulation; contract enforcement; inspection; single window system; land availability and allotment, etc.
- This year there are 103 new reforms (out of 405) focusing on central inspection system, online land allotment system, online single window system for construction permits, registration under Inter State Migrant Workmen (RE&CS) Act, 1979, etc.
- BRAP 2017 also includes **two new sectors i.e. Healthcare and Hospitality.**

DIPP

It was established in 1995 and reconstituted in 2000 with the merger of the Department of Industrial Development.

Role of DIPP

- Formulation and implementation of industrial policy and strategies for industrial development
- Monitoring the industrial growth including advice on all industrial and technical matters
- Formulation of Foreign Direct Investment (FDI) Policy and promotion, approval and facilitation of FDI
- Encouragement and formulating policy for foreign technology collaborations at enterprise level
- Formulation of policies relating to Intellectual Property Rights in the fields of Patents, Trademarks, Industrial Designs and Geographical Indications of Goods and administration of regulations, rules made there under
- Administration of Industries (Development & Regulation) Act, 1951
- Promoting industrial development of industrially backward areas and the North Eastern Region

3.34. ED CRACKS DOWN ON 300 SHELL FIRMS

Why in News?

- The Enforcement Directorate conducted searches against 300 shell companies across

What are Shell companies?

Shell Company is a firm without active business operations or significant assets.

Enforcement Directorate

- It is a government agency responsible for enforcement of the **Foreign Exchange Management Act, 1999 (FEMA)** and certain provisions under the **Prevention of Money Laundering Act (PML)**.
- The Directorate is under the administrative control of **Department of Revenue** for operational purposes; the policy aspects of the FEMA, its legislation and its amendments are within the purview of the **Department of Economic Affairs**.

3.35. RULES EASED: MERGER WITH FOREIGN FIRMS

Why in news?

- Indian companies have been permitted to conduct outbound mergers, according to a notification by the **Ministry of Corporate affairs**.

Key Features

- With outbound mergers permissible, there would be opportunities for **Indian companies to acquire, restructure, or list on offshore exchanges**.
- The merger would be in compliance with the **Companies Act, 2013**, and require prior approval of **RBI**.
- The government had recently exempted firms, with Indian revenue of less than Rs. 1,000 crore, from seeking the prior approval of the **Competition Commission of India (CCI)** while going in for a merger.

Outbound Merger

- Outbound merger and acquisitions (M&A) refers to investments by a company of Indian origin in a foreign based company.
- The Companies Act, 1956 had no provisions for outbound mergers (only inbound mergers). It was replaced by Companies Act, 2013.

3.36. NEW EMPLOYEE PENSION SCHEME

Why in news?

- The government announced to bear employers' contribution of 8.33% of basic pay to the Employees' Pension Scheme (EPS) for **new employees** under the **Pradhan Mantri Rojgar Protsahan Yojana (PMRPY)** even if new posts are not created by the firm.

A "new employee" is defined as one who had not worked in any EPFO-registered establishment or had a Universal Account Number in the past, i.e. prior to April 1, 2006.

Pradhan Mantri Rozgar Protsahan Yojana

- This scheme was announced in budget 2016-17.
- It has been designed to incentivise employers for generation of new employment, where Government of India will be paying the 8.33% EPS contribution of the employer for the new employment.
- employer is incentivised for increasing the employment base of workers in the establishment.
- A direct benefit to employees is access to social security benefits of the organized sector.

3.37. TRAVEL AND TOURISM COMPETITIVE INDEX

Why in news?

- India's position improved to 40th rank in the **World Economic Forum's latest Travel and Tourism Competitive Index (TTCI)**.

About the Index

- It measures factors and policies that enable the sustainable development of Travel & Tourism sector, contributing in development of a country.
- It is published biennially and ranks 136 economies.
- India improved 12 places to 40 from 2016 and improved 25 places since 2013.

Government Initiatives to Improve Tourism Sector

- ✓ **PRASAD Scheme:** development of tourism infrastructure in and around famous religious and pilgrimage cities.
- ✓ **Swadesh Darshan Scheme** aims at the development of a complete circuit on a specific theme.
- ✓ **E-visa process simplified.** covering nationals of 161 countries and allowing visits for business and medical treatment.
- ✓ A task force for **Cruise Tourism** and a **Medical and Wellness Tourism Promotion Board** was set up.

3.38. TRADE INFRASTRUCTURE FOR EXPORT SCHEME

- It has been launched by the Ministry of Commerce and Industry.
- It will focus not just on the infrastructure but also how to professionally address the needs of the exporters.
- It will provide assistance for **setting up and up-gradation of infrastructure projects** with export linkages like the Border Haats, Land customs stations, quality testing and certification labs, cold chains, trade promotion centres, dry ports, export warehousing and packaging, SEZs and ports/airports cargo terminuses.
- The Central and State Agencies, including Export Promotion Councils, Commodities Boards, SEZ Authorities and Apex Trade Bodies recognized under the EXIM policy of Government of India; are eligible for financial support under this scheme.

3.39. LESS CASH TOWNSHIPS

- Recently, Prime Minister launched a **cashless/less cash township model in Nagpur**, developed by **Gujarat Narmada Valley Fertilizers and Chemicals Ltd (GNFC)**, across 81 townships in 12 States.
- About Less cash townships -
 - To achieve the **target of 2500 crore digital transactions** during the current financial year, the Government has announced **select townships spread all over India as 'less-cash townships'**.
 - The initiative has been launched by **NITI Aayog**.
 - A less-cash township is one where –
 - ✓ Deployment of payment acceptance infrastructure is complete
 - ✓ All the families in the township are covered under training programs
 - ✓ More than 80% of the total number of transactions in the township being done through digital modes.

3.40. TECHNOLOGY AND INNOVATION SUPPORT CENTRES TO COME UP

Why in news?

- The **Department of Industrial Policy and Promotion (DIPP)** and **World Intellectual Property Organisation (WIPO)** have joined hands to set up **Technology and Innovation Support Centres (TISC)**.

What is it?

- **TISC** programme provides innovators in developing countries access to locally based, high quality technology information and related services, helping them exploit their innovative potential and to create, protect, and manage their intellectual property (IP) rights.
- The **Cell for IPR Promotion and Management (CIPAM)**, under the Ministry of Commerce & Industry, has been designated as the national focal point for the TISC network.

WIPO

- WIPO is the **global forum for intellectual property services, policy, information and cooperation**.
- It is a specialized self-funding agency of the **United Nations**, with 189 member states.
- It was established in 1967 and is headquartered in Geneva, Switzerland.

3.41. STRATEGIC PARTNERSHIP MODEL

Why in news?

Cabinet cleared Strategic Partnership model for defence manufacturing.

What is strategic partnership?

- The idea is to enlist private sector defence companies in each of the segments as strategic partners for long-term contracts.
- This company then starts a Joint Venture with the foreign Original Equipment Manufacturer selected through the procurement process, to build the platform in India with significant technology transfer.
- And long term contracts will be awarded to these companies, to give them the economies of scale as defence involves large investments.

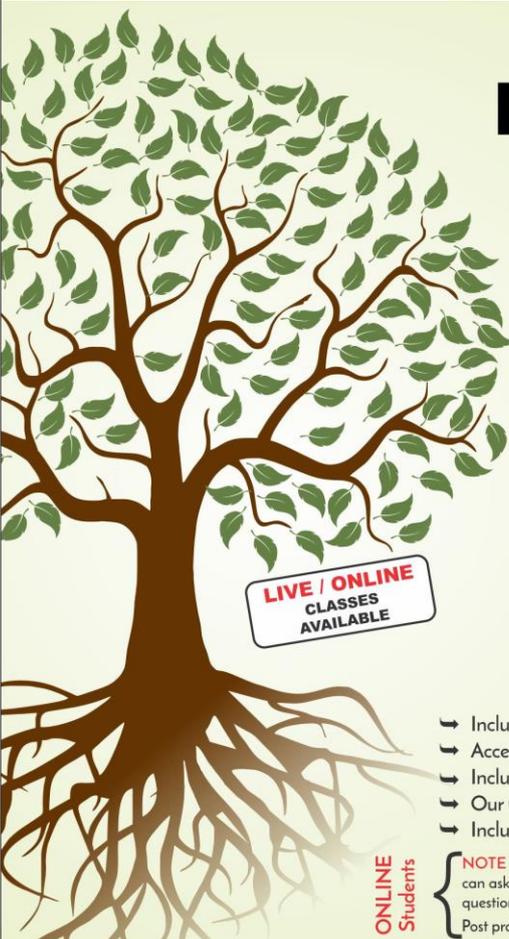
3.42. STRATEGIC OIL RESERVES

- The Indian Strategic Petroleum Reserve (ISPR) is an emergency fuel store of total 5 MMT (million metric tonnes) or 36.92 MMbbl of strategic crude oil.
- It will be sufficient enough to provide 10 days of consumption and will be maintained by the Indian Strategic Petroleum Reserves Limited.
- Strategic crude oil storages are at 3 underground locations in Mangalore, Visakhapatnam and Padur near Udupi are located on the east and west coasts of India
- India is planning to expand 4 more strategic crude oil facilities in the second phase at Bikaner in Rajasthan, Rajkot in Gujarat, Padur in Udupi district of Karnataka and Chandikhole in Jajpur district of Odisha. Bikaner and Odisha were recently announced in 2017-18 Budget.

3.43. MISCELLANEOUS TITBITS

- **World Economic situations and prospects** is a report release by United Nations. It recently, projected India's growth to be 7.3% in 2017 and 7.9% in 2018. It is a joint product of -
 - ✓ United Nations Department of Economic and Social Affairs (UN/DESA)
 - ✓ United Nations Conference on Trade and Development (UNCTAD)
 - ✓ Five United Nations regional commissions Economic Commissions for Africa, Europe, Latin America and the Caribbean, Asia and the Pacific (ESCAP) and Western Asia.
- **Japan** has officially recognized crypto currencies like **Bitcoin** as legal tender by amending Japan's banking act.
- The **Global Energy Architecture Performance Index**, prepared in collaboration with Accenture, is part of the World Economic Forum's System initiative on Shaping the Future of Energy. India is ranked 87th on the index.

- **Annual Survey of India's City-Systems** is an independent benchmarking of cities conducted by Janaagraha Centre for Citizenship and Democracy, a non-profit organization. Thiruvananthapuram was ranked first and Chandigarh last.
- **Madhya Pradesh** has become the first state to shift its budget's financial year to the January-December financial year.
- NHA (National Highways Authority of India) has launched **Masala Bond** issue at the London Stock Exchange.
- ISRO's Space Applications Centre (SAC) has come up with a **Solar Calculator App** for computation of solar energy potential which is essential to select the locations for solar photovoltaic (PV) thermal power plants.
- Government has recently notified **Phased Manufacturing Programme (PMP)** under Ministry of Electronics and Information Technology (**MieTY**) for promoting the growth of domestic manufacturing of Cellular mobile handsets.
- **Think20 Task Force** was setup as a result of the first-ever G20 "digital ministers" meeting. It comprises of think tanks and academia (Observer Research Foundation of India is in this force) that will offer recommendations to strengthen digital economies and manage the "digitalization" of traditional sectors.
- **Odisha** becomes the first state to carry **financial inclusion** and extend banking services to the unbanked areas through **SHGs**. State Bank of India will partner the government in this regard. It will leverage the resources from the Odisha livelihood Mission under which SHG operate.
- India's longest road tunnel called Chenani-Nashri tunnel (also known as Patnitop tunnel) measuring 9.2 kms connecting Udhampur with Ramban on Jammu-Srinagar highway (NH-44) has been commissioned.



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4. ENVIRONMENT

4.1. RIVER CONSERVATION

4.1.1. LIVING PERSON STATUS TO GANGA AND YAMUNA

Why in news?

The Uttarakhand HC division bench declared the Ganga and Yamuna living entities, bestowing on them same legal rights as a person.

The Court verdict

- The Ganga and The Yamuna, all their tributaries, Glaciers like Gangotri, Yamunotri and Forest are declared as living person with all corresponding rights, duties and liabilities.
- Director of the Namami Gange programme, the Uttarakhand Chief Secretary, and the Advocate-General of Uttarakhand would serve as “parents” for the rivers and would be the human faces to protect, conserve and preserve the rivers and their tributaries.
- Directed the state government to impose a ‘glacier tax’.(It’s a cess imposed on tourists visiting the Himalayas in order to protect depleting glacier ecology and the amount realized by way of it would be used only for the benefit of people visiting the area including the pilgrims)

Earlier precedents

- Earlier New Zealand has recognised the Whanganui Riverans ecosystem as living being.
- In Ecuador, people went to court in the name of the Vilcabamba River, being affected by a road widening project.

4.1.2. CLEANING GANGA

Why in News?

- National Green Tribunal on Thursday prohibited all camping activity on beaches along the Ganga which fall within 100 meters from the middle of the river during lean season flow from Shivpuri to Rishikesh.

Background

- The various types of pollution abatement schemes taken up to clean Ganga may be categorized into core and non-core schemes.
- Core Schemes include Interception and diversion (I&D) of sewage discharging into the Ganga River and creating treatment infrastructure to treat the intercepted sewage.
- Non-Core Schemes include Providing Low Cost Sanitation (LCS) at community and individual levels at identified locations, Installation of Crematoria (electric as well as wood based improved crematoria), River Front Development (RFD) including bathing ghats, Afforestation, protecting bio-diversity and creating Public awareness and participation.

History of Cleaning Ganga process

Ganga Action Plan(GAP) Phase I & II:

- Phase I was launched in 1985, covering 25 Ganga towns in three states.
- Phase II launched in 1993 covered 59 towns in five states;
- Rivers such as Yamuna, Gomti, Damodar, Mahananda had separate action plans.

NGBRA

- Setting up of National Ganga River Basin Authority NGRBA in 2009
- Focused on a basin-specific approach; 43 towns were covered in five states.

National Mission for Clean Ganga

- National Mission for Clean Ganga (NMCG) was registered as a society on 12th August 2011 under the Societies Registration Act 1860.
- It acted as implementation arm of National Ganga River Basin Authority (NGRBA).

4.1.3. DRAFT GANGA MODEL LAW

Why in News?

- **A committee of experts headed by Justice Girdhar Malviya** recently submitted its draft model law to the government on cleanup of river Ganga and its tributaries.

Background

- In 2016, government had formed 2 committees on cleaning of river Ganga and prepares adequate law on it.
 - Girdhar Malviya committee** given the charge to prepare a draft law on clean and uninterrupted Ganga.
 - Madhav Chitale committee** was formed to prepare guidelines for de-silting the river stretch between Bhimgauda (Uttarakhand) and Farakka (West Bengal).

Findings of the committee

- The committee recognized the challenges being faced to maintain the wholesomeness - Nirmalta (cleanliness) and Aviralta (uninterrupted flow) of Ganga perpetuated due to
 - Over stressed water demand from agricultural, domestic and industrial sectors
 - Sustaining the religious faith, historical and social belief
 - No possible increase in availability of water in river course in comparison to the increasing demands
 - Apprehension of climate change affects.
- It has also come up with a draft model law (*See provision in the box*).

RIVER CLEAN-UP ACT

DRAFT GANGA ACT:

Centre will bring a bill after consulting states and central ministries

KEY POINTS

- 1 Sets December 31, 2020 as deadline to free the river from pollution



2 STRICT PENALTY PROVISIONS FOR VARIOUS POLLUTING ACTS

a. No person will spoil or deface 'ghats' and stairs by disposing of any kind of solid waste on river bank by any means, including incineration/burning

Punishment | One-month jail or fine up to **₹10,000** or both

(Exception: Ritual ceremonies of human corpses as per prevailing practice will not be an offence)

b. Encroachments on the river bank or flood plain

Punishment | Three months' jail or fine up to **₹5,000** or both; fine will increase by **₹5,000** for every day during which contravention continues

(Exception: Temporary encroachment for religious or traditional ceremony will be allowed for specific time period)

c. Punishment for adopting non-organic farming in flood plain

Punishment | One month jail or **₹2,000** fine or both. Fine may increase to **₹10,000** if violation continues

d. Punishment for contaminating river by throwing non-degradable plastic, waste batteries or hazardous chemicals

Punishment | Jail up to 7 years with fine as fixed by local bodies

e. Disrupting flow of river through construction or change of design of storage capacity of dams:

Two years' jail or fine up to **₹100 crore** or both

f. Discharge of industrial effluent or untreated sewage

Punishment | Up to seven years jail or **₹10 lakh** fine or both; **₹5 lakh** for every day if violation continues

3 Setting up Integrated Development Council for overall monitoring of Ganga —PM will be ex-officio chairperson, central ministries, CM will be members

4 Setting up National River Ganga Management Corporation (headed by Ganga rejuvenation minister) for implementation of various river cleaning projects

5 Setting up Ganga Volunteer Force for protection, security and enforcement activities

4.1.4. WWF TO UNDERTAKE GANGES DOLPHIN COUNT

Why in News?

- World Wide Fund for Nature-India has raised concern about the decreasing numbers of Ganges Dolphin in River system.
- WWF decide to count the number of Dolphins by using equipment which help in more accurate imaging.
- Earlier, counting was based on sightseeing.

What is World Wide Fund for Nature (WWF)?

- Switzerland based International **Non-Governmental organisation**, est. in 1961 and engages in conservation of wildlife and natural habitat.

Objectives

- Works under the mission statement:
 - To stop the degradation of the planet's natural environment and build a future in which humans live in harmony with nature.
- Conserving the world's **biological diversity**.
- Ensuring that the use of **renewable natural resources** is sustainable.
- Promoting the reduction of **pollution** and wasteful consumption.
- Enhancing **active participation** of all sections of society in nature conservation and environmental protection through environmental education, awareness and capacity-building.

Conservation Action

- Ganges Dolphin is legally protected in all range states and occurs in a number of national parks and other designated areas.
- Vikramshila Gangetic Dolphin Sanctuary (Bihar) in the mainstream of the Ganges River was designated as a protected area for dolphins.
- Its species are listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I.

Threats to the Ganges River dolphin

- Water development projects
- Pollution loads/ Toxic element
- Deliberate Killing (Meat and oil)
- Mortality in Fishing net

4.1.5. NARMADA SEVA MISSION

- Narmada Seva Mission is a road-map for steps to be taken for the conservation of the Narmada River in Madhya Pradesh.
- Narmada, **also known as Rewa**, is one of only three major rivers in the country that **flows from east to west**. The other two are Tapti and Mahi.
- **About Narmada river**
 - It is the largest west flowing river of the Peninsula. It is the fifth largest river in the country and the largest one in Gujarat.
 - It rises near Amarkantak range (Maikala range) of mountains in Madhya Pradesh.
 - It traverses Madhya Pradesh, Maharashtra and Gujarat and meets the Gulf of Cambay
 - Its major tributaries of the Narmada river are the **Hallon River, Banjar River, Barna River and Tawa River** (longest tributary of Narmada rising in Satpura ranges).

4.1.6. NATIONAL HYDROLOGY PROJECT

- Recently, the **World Bank** approved \$175 million for India's National Hydrology Project.
- It will be a **central sector scheme** which will also create a **National Water Informatics Centre (NWIC)** as an independent organization **under Ministry of Water Resources, River Development and Ganga Rejuvenation**.
- The **entire project will be implemented by 2023-24**. The World Bank will provide financial assistance for **nearly 50% of its total cost**.
- The National Hydrology Project will build on the **success of India's earlier projects - Hydrology Project-I and Hydrology Project-II** – done for **real-time flood forecast** on two river systems - **Krishna and Satluj-Beas**.

4.2. POLLUTION

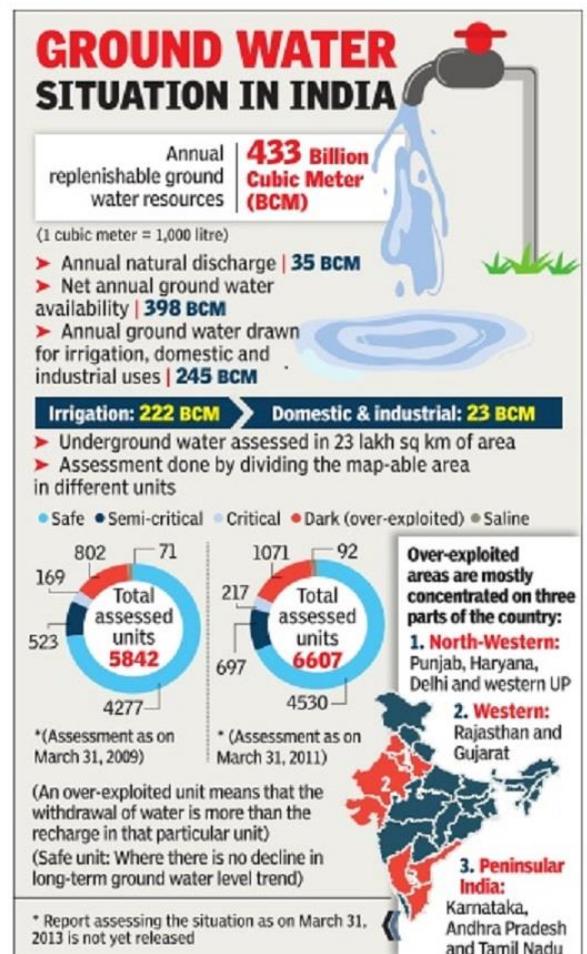
4.2.1. GROUNDWATER EXPLOITATION

Why in news?

- On the **World Water Day on March 22**, the Karnataka government admitted that the groundwater levels in more than 140 of the total 176 talukas have depleted due to overexploitation.

What is groundwater exploitation?

- **Excessive withdrawal of groundwater** for various purposes including **irrigation, domestic and industrialization**, which result in decline in ground water levels.
- On the other hand, ground water recharge in many areas is reduced due to varied & erratic rainfall pattern as well as change in land use.



Initiatives Taken Up by GOI

- The **National Water Policy (2012)** was formulated which **advocates conservation, promotion and protection of water and highlights the need for augmenting the availability of water** through rain water harvesting, direct use of rainfall and other management measures.
- **Central Ground Water Authority (CGWA)** has been constituted.
- Under “The Environment (Protection) Act, 1986” for the purpose of regulation and control of ground water development and management.
- As per Schedule-I of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the **water conservation and water harvesting structures** to augment **ground water constitute** a special focus area for MGNREGA works.
- CGWB has taken up **Aquifer Mapping and Management** programme during XII Plan.
- Ministry of Environment, Forest and Climate Change have merged two separate programmes, namely, **National Lake Conservation Plan (NLCP)** and **National Wetland Conservation Programme (NWCP)** into a new **Integrated Scheme of National Plan for Conservation of Aquatic Eco-Systems (NPCA)** for conservation and management of identified lakes and wetlands in the country.
- CGWB has been organizing **mass awareness programmes** in the country to promote rain water harvesting and artificial recharge to ground water.

4.2.2. ALGAL BLOOM

Why in news?

- The algal bloom has expanded from the shores of Oman on the west to India and Pakistan on the east raising environmental concerns.

What is algal bloom?

- An algal bloom is a rapid increase in the population of algae in an aquatic system.

What are harmful algal blooms?

- Algal bloom is caused by **Noctilucascintillans-microscopic dinoflagellates** that feed on plankton and suck up energy from the sun through microscopic algae living within their cells.

Effects of harmful algal blooms

- Produce extremely dangerous toxins that can sicken or kill people and animals.
- Create dead zones in the water.
- Raise treatment costs for drinking water
- Hurt industries that depend on clean water

Causes of Algae Blooms

Environmental Conditions

- Abundant light
- High temperatures
- High pH levels
- Stagnant water
- Excess nutrients

Sources of Excess Nutrients

Agriculture:
Fertilizer runoff (nitrogen & phosphorus) and animal waste

Industry:
Chemical discharge and waste

Urban Life:
Sewage and waste runoff

Climate Change

Climate change is increasing the frequency and severity of blooms due to:

- Increases in water and air temperature
- Increases in droughts and flooding
- Changes in salinity
- Increased amount of CO₂
- Sea level rise and coastal upswelling

Dinoflagellates are **one-celled aquatic organisms** bearing two dissimilar flagella and having characteristics of both plants and animals.

4.2.3. AMMONIA HOTSPOTS OVER AGRICULTURAL AREAS

Why in news?

- Researchers have discovered increased ammonia concentrations from 2002 to 2016 over agricultural centres in the US, Europe, China and India.

Probable causes

- Increased ammonia is linked to fertilizers, livestock animal wastes, changes in atmospheric chemistry and warming soils that retain less ammonia.
- The use of nitrogen fertilizers has grown worldwide, especially in those regions where they are subsidised.

Issues

- Ammonia concentration in the atmosphere over India is the highest in the world due to cattle population

and excessive fertilizer use.

- Gaseous ammonia is a natural part of the Earth's nitrogen cycle, but excessive ammonia is harmful to plants.
- It can also lead to algal blooms and "dead zones" with dangerously low oxygen levels in oceans.
- Ammonia plays a role in the transportation and enhanced deposition of acidic pollutants - resulting in acidification of ground and water bodies.

4.2.4. BHARAT EMISSIONS STANDARDS

Why in News?

- From April, **all of India will move to Bharat Stage IV (BS-IV)** vehicular emission norms.

Background

- India introduced emission norms in 1991 and by 1996 most vehicle manufacturers had to incorporate technology upgrades like catalytic converters to cut exhaust emissions.
- Supreme Court in 1999 made Centre notify Bharat Stage-I (BIS 2000) and Bharat Stage-II norms, broadly equivalent to Euro I and Euro II respectively,
- In 2014, Saumitra Chaudhary committee gave recommendations on **Auto Fuel Vision Policy 2025** which had recommended implementation of BS-IV (2017), BS-V (2019) and BS-VI (2024) standards.
- In recent times, government decided to move up to the toughest emission standards of BS-VI from the current BS-IV **by April 2020** skipping BS-V standard.

Challenges

- Moving to BS-VI directly will **require significant technological upgrades for which auto companies may have to invest heavily.**
- Smaller bonnet cars of India may not be able to imbibe DPF in them.
- This can have the effect of making cars and other vehicles **more expensive.**
- Directly aping the Euro norms is problematic, considering that driving conditions in India are different from Europe.

Technologies used in vehicles for emission reduction

1. Diesel Particulate filter (DPF):

- It is used for BS-V emission standard.
- It removes Particulate Matter/soot from the diesel exhaust.
- It needs temperature of 600 degree Celsius to function, difficult in Indian conditions.

2. Selective catalytic reduction technology (SCR):

- It reduces the nitrogen oxides by injecting an aqueous solution having ammonia.
- It is used for BS-VI emission standard.
- It is fixed in the engine exhaust.

Bharat Stage emission standards

- These are norms instituted by the government to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles.
- India has been following the European emission norms with a time-lag of five years.
- The BS-IV compliant fuels have Sulphur concentration of 50 parts per million (ppm).
- This will come down to as low as 10 ppm in BS-VI compliant fuels and auto engines.
- By switching to BS-VI, India will join the league of the US, Japan and the European Union, which follow Euro Stage VI emission norms.
- BS-VI is the Indian equivalent of Euro Stage VI.

4.2.5. FLUE GAS TECHNOLOGY

Why in news?

- Ministry of Environment Forest and Climate Change (**MoEFCC**) has decided to use **Flu-Gas Desulfurization** to reduce emissions from thermal power plants following new environmental notification.

Flu-Gas Desulfurization (FGD) technology

- Flue gas desulfurization (FGD) is a **set of technologies** used to remove **sulfur dioxide (SO₂)** from exhaust flue gases of fossil-fuel power plants, as well as from the emissions of other sulfur oxide emitting processes.

Flue Gases

- It is a **mixture of gases** which is produced by combustion of fuel and other materials in power stations and various industrial plants and released in the atmosphere via flu (ducts).
- It largely contains **oxides of nitrogen** derived from combustion of air, **carbon dioxide, carbon monoxide, water vapour, excess oxygen, sulphur oxides, particulate matter** like soot.

Electrostatic Precipitators: It is a filtration device that removes fine particles like particulate matter using electrostatic force by ionizing the passing gas.

- Common methods used to remove SO₂ are: Wet scrubbing method, Spray-dry scrubbing method, Wet and Dry lime scrubbing method, SNOX method, Dry sorbent injection method, etc.
- For a typical coal-fired power station, **flue-gas desulfurization (FGD)** may remove 90 percent or more of the SO₂ in the flue gases.
- Sulfur dioxide emissions are a primary contributor to **acid rain** and have been regulated by every industrialized nation in the world.

4.2.6. CHANGE POLICY TO STOP STUBBLE BURNING

Why this problem of stubble burning?

- The paddy-wheat system leaves farmers with the sowing time of less than a month between the two crops.
- The amount of stubble generated is higher than the harvest. Every four tonne rice or wheat leave behind about six tonne straw.

Reasons

- **Cost Factor:** The straw management equipment is costly and the process is time consuming. Also, the cost of stubble management is not taken into account while determining the minimum support price (MSP).
- **Increasing mechanisation of agriculture:** Stubble problem was not as severe when paddy was harvested manually because the farmers use to cut it as close to the ground as possible. Due to mechanisation the crop residue that remains in the field is of larger quantity.
- **Time Factor:** Delay in sowing means yield decline. This leaves very little time to clear the farm for sowing.
- **Monoculture of wheat and paddy.** In Andhra, bean gram and black gram are planted while rice stubble decomposes on its own.

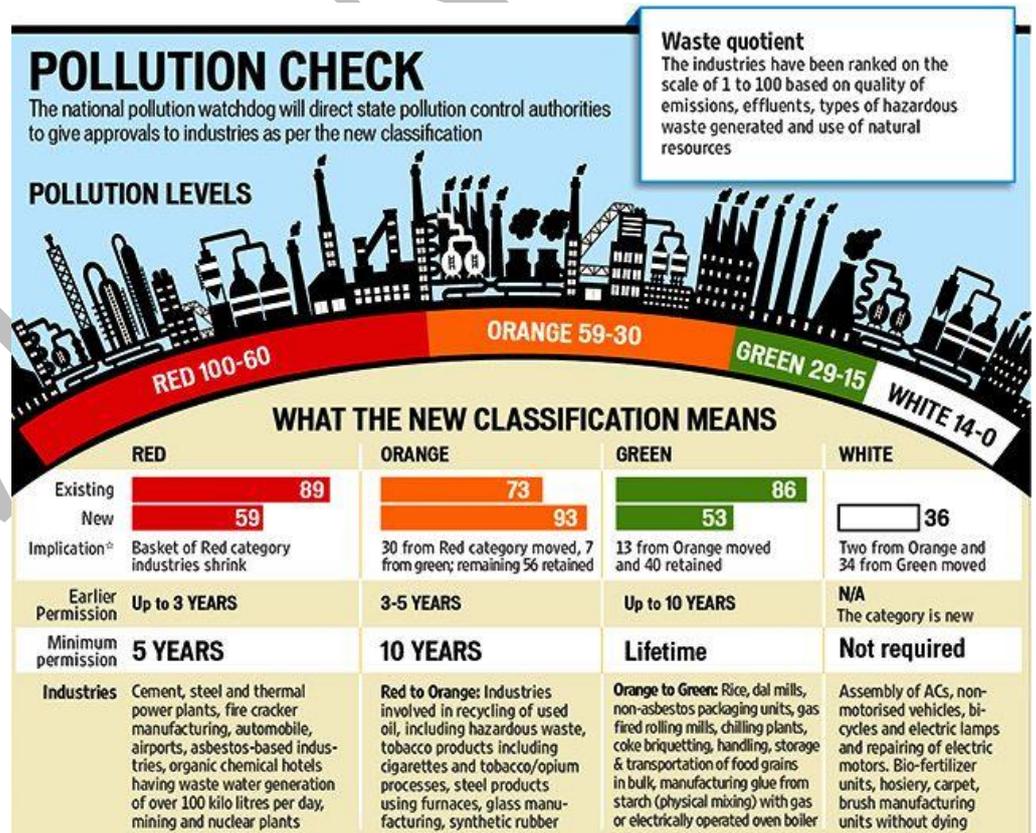
4.2.7. EASING OF RULES FOR CLEARANCE OF NON-POLLUTING INDUSTRIAL PROJECTS

Why in news?

- The **Ministry of Environment, Forests and Climate Change (MOEF)** has said that Projects under the new category of “white” will not require environmental clearance.

Background

- **MOEF** in consultation with the **Central Pollution Control Board** has reclassified the industries into “Red”, “Orange”, “Green” and “White” with an objective to promote “Ease of Doing Responsible Business”.
- Projects are supposed to get environmental clearances under **Environment (Protection) Act, 1986** or Consent under **Air (Prevention and Control of Pollution) Act, 1981** and **Water (Prevention and Control of Pollution) Act, 1974**.



4.2.8. CEMENT INDUSTRY

Why in news?

- The cement industry failed to comply by the new pollution norms notified in May 2016 by the MoEF&CC, the deadline for which was 31st March, 2017.

Industry's arguments

- Limited availability of technology suppliers and that technological and process-related change required at least two years to comply.

The major pollutants released by cement industries:

- Oxides of Nitrogen
- Sulfur dioxide
- Particulate matter (PM10 and PM2.5)
- TSP (Total Suspended Particles)
- Carbon Monoxide

4.2.9. LIGHT POLLUTION

Why in News?

- The Earth Hour highlighted the issue of **Light Pollution**.

What is Light Pollution?

- It is also known as photo-pollution or luminous pollution.
- It is an excessive, misdirected, or obtrusive artificial (usually outdoor) light in the environment.
- In the process of urbanisation, demand for outdoor lighting has increased and light pollution sprawled beyond the city limits and into suburban and rural areas.

Effect of Light Pollution

- **Environment**
 - ✓ Excessive night-time lighting releases more than 12 million tons of carbon dioxide.
 - ✓ Photo-pollution increases air pollution by suppressing a naturally occurring **Nitrate radical** that cleans the air at night. (Nitrate prevents ground level Ozone formation).
- **Wildlife**
 - ✓ Lights can attract or repel animals and insects. Most of the animal life functions on a diurnal or nocturnal system that is thrown out of sync by light pollution. This can place the entire species in danger, or attract unwanted species into human areas.
- **Astronomy**
 - ✓ Light spill and sky glow interferes with astronomical equipment, and makes viewing faint celestial bodies difficult, even with the aid of a telescope.
- **Human-Health**
 - ✓ Affect the circadian rhythms which regulate physiologic activities such as brain wave patterns, hormone production, and cell regulation.

4.3. BIODIVERSITY CONSERVATION

4.3.1. WESTERN GHATS CONSERVATION

Why in News?

- A draft government notification has allowed the Centre to create an Ecological Sensitive Area (ESA) **over 50,000 square kilometers** in the Western Ghats.

Background

- Issue of conservation of Western Ghats surfaced in 2011 with the **Western Ghats Ecology Panel/Madhav Gadgil committee giving its recommendations** (see box).

Ecologically Sensitive Area (ESA)

- **MoEF defines it as** a bio-climatic unit wherein human actions have caused irreversible changes in the structure of biological communities and their natural habitats.
- As per **Environment (Protection) Act, 1986**, the government can prohibit industrial operations like mining, sand quarrying and thermal power plants in it.
- But Environmental Act 1986 **does not mention ESA explicitly**.

- In 2012, K. Kasturirangan committee recommended that only about 60,000 sq km (**about 37% of Western Ghats**) be declared as ESZ. It also recommended a ban on hydroelectric projects here.

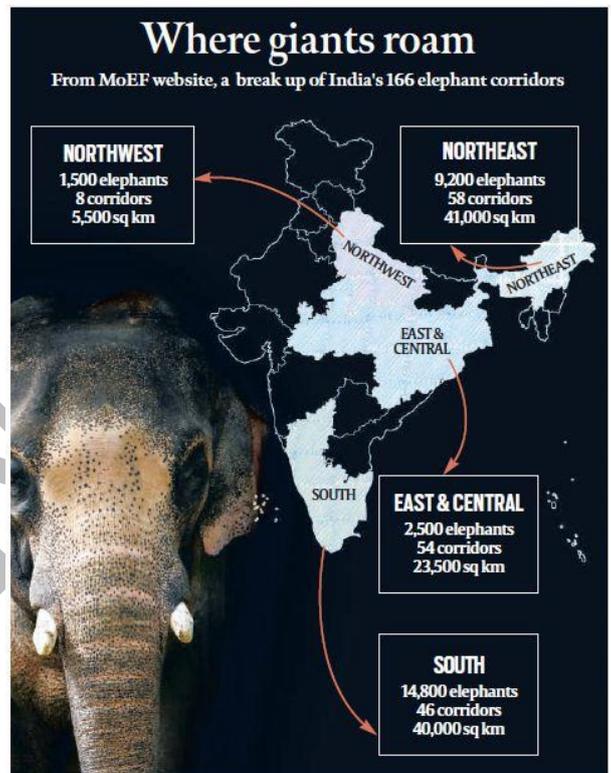
Madhav Gadgil committee recommendations

- It recommended making **entire Western Ghats an Ecologically Sensitive Area**.
- It advocated **zoning of ecological sensitive area** of the Western Ghats in three layers –
 - Most significant area as **Ecologically Sensitive Zone I (ESZ I)**
 - Moderately significant area as **Ecologically Sensitive Zone II (ESZ II)**
 - Least significant area as **Ecologically Sensitive Zone III (ESZ III)**

Zone 3 was given considerable flexibilities in infrastructure. By this Gadgil asked to protect about 64% of Western Ghats.

4.3.2. ELEPHANT CENSUS

- **Odisha, West Bengal, Chhattisgarh and Jharkhand** have decided to conduct a synchronised elephant census.
- The States will conduct the census **using the direct and indirect counting methods**.
 - **Direct method** – It is based on direct sighting of elephants
 - **Indirect method** – It uses the **'dung decay' formula**, in which the analysis of elephant dung is used to estimate the population.
- **Elephant Census of India:**
 - India is home to 60% of Asian Elephant population.
 - India comes out with an elephant census report **every five years** and last one came out in 2012.
 - India started **Project Elephant in 1992** to protect the Asian elephant, its habitat and corridors and address man-elephant conflict.
 - In 2010, the central government declared the elephant a national heritage to scale up measures for its protection.
 - *For details on elephant corridors see image*



4.3.3. BARASINGHA CONSERVATION

Why in news?

Bhoorsingh the Barasingha- Kanha tiger reserve becomes first in India get official mascot.

About Barasingha

- Barasingha also called swamp deer is state animal of Madhya Pradesh
- It comes under **vulnerable** category in IUCN red list.
- It is extinct in Pakistan and Bangladesh and its native of India and Nepal.
- The swamp deer differs from all the Indian deer species in that the antlers carry more than three tines because of this distinctive character it is designated barasingha meaning twelve-tined.

4.3.4. SPARROW CONSERVATION

Why in news?

- The House Sparrow which was declared as the **State bird of Delhi** in 2012 is now fast disappearing.

Reasons

- **Anthropogenic factors** food and nesting places are destroyed by humans.

- Homeless due to “**matchbox styled**” architecture that makes it difficult for the bird to build nests.
- Increased use of **packaged food**.
- Insects which are their primary source of food are killed due to **use of pesticides and insecticides** in farms and gardens
- **Radiation** from mobile towers.

What is being currently done?

- **Seminary hills in Nagpur** is to designated as a sparrow conservation site.
- A similar sparrow conservation programme is also being launched at **Sanjay Gandhi National Park (SGNP), Borivali**, and forest department's **Rambagh Colony in Chandrapur**

- The **Great Sparrow Count** is a **Nature Forever Society of India (NFSI)** Initiative.
- The aim is document the population and distribution of 24 different species of sparrows found across the world.
- NFSI is a non-profit organization found to conserve house sparrows.
- **March 20** is celebrated as **World Sparrow Day** across 50 countries annually since 2010.

4.3.5. SHAHTOOSH TRADE

Why in news?

Recently a parliamentary standing committee demanded lift of ban on shahtoosh trade in Kashmir.

Background

- Globally, shahtoosh trade **was banned in 1975 under the Convention on International Trade in Endangered Species (CITES) to which India is a signatory.**
- Shahtoosh wool is obtained from **Tibetan antelope, Chiru** which migrates from Tibet to Ladakh in summer
- It is listed in Schedule I of the India’s Wildlife (Protection) Act. **Its IUCN status is near threatened.**
- The committee demands a removal of the ban because trade in shahtoosh provides livelihood security to people of Kashmir specially the women.

4.3.6. BUSTARD BREEDING CENTER

Why in news?

The Rajasthan government will set up a captive breeding centre for the great Indian bustard.

Background

- This will be the **first such facility** in the country aimed at saving the bird, which is the State bird of Rajasthan.
- Rajasthan accounts for 95% of the total world population of Great Indian bustard.

About Great Indian bustard

- A large bird with a horizontal body and long bare legs giving it an ostrich like appearance
- This bird is among the **heaviest of the flying birds.**
- **Found in central India, western India and eastern Pakistan**
- Habitat: Arid and semi-arid grasslands, open country with thorn scrub, tall grass interspersed with cultivation. It avoids irrigated areas.
- Listed in **Schedule I** of the Wildlife (Protection) Act, 1972 and **CMS or Bonn Convention** .
- It is also listed in Appendix I of CITES, as **Critically Endangered on the IUCN Red List.**
- It has also been identified as one of the species for the recovery programme under the **Integrated Development of Wildlife Habitats** of the Ministry of Environment and Forests.
- The biggest threat to this species is hunting. This is followed by occasional poaching outside Protected Areas, collisions with high tension electric wires, fast moving vehicles and free-ranging dogs in villages.

Integrated Development of Wildlife Habitats

It is a Centrally Sponsored Scheme where GoI provides financial and technical assistance to the State/UT Governments for activities aimed at wildlife conservation. The scheme has following three **components**:

- **Support to Protected Areas** (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- **Protection of Wildlife Outside Protected Area**
- **Recovery programmes for saving critically endangered species and habitats.**

Convention on the Conservation of Migratory Species of Wild Animals (CMS) or Bonn convention

- It is an environmental **treaty under the aegis of the United Nations Environment Programme.**

- CMS provides a global platform for **the conservation and sustainable use of migratory animals** and their habitats. Migratory species threatened with extinction are listed on Appendix I of the Convention.
- CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.
- Only global convention specializing in the conservation of migratory species, their habitats and migration routes. India is a member of the convention.

4.3.7. INDIAN WILD DOGS (DHOLES)

Why in news?

The Indira Gandhi Zoological Park (IGZP), running a conservation breeding centre for dholes plans to reintroduce a pack of 16 into the forests.

About dholes

- Dholes occur in several regions of India such as the Western Ghats, central Indian forests, Eastern Ghats, northeastern states and Terai region in north India.
- In the Himalayan region, they are found **in Sikkim and Ladakh**
- Protected under **Schedule 2** of the Wildlife (Protection) Act, 1972
- Listed as '**endangered**' by the International Union for Conservation of Nature (IUCN)

Indira Gandhi Zoological Park

- It is one of the largest zoological parks of Andhra Pradesh situated in Visakhapatnam.
- Surrounded by Eastern Ghats on three sides, the park has the flowing Bay of Bengal on its fourth side.

4.3.8. BLACK NECKED CRANE

Why in news?

The cranes are facing huge threats especially in Arunachal Pradesh.

About the crane

- **Migratory bird** most commonly found in China.
- It is legally protected in Bhutan and India and is considered sacred to certain Buddhist traditions.
- **IUCN status – Vulnerable**
- Listed in India's Wildlife Act as a **Schedule 1 species**
- It is locally known as **Dhung Dhung Karma**.
- Also it is the only high altitude crane amongst the 15 species found in the world.
- These birds build their nests in vast open environments, making them vulnerable to a host of predators.

4.3.9. INDIAN STAR TORTOISES

Why in news?

Chinnar Wildlife Sanctuary (CWS) has successfully rehabilitated Indian star tortoises, making it the only rehabilitation centre for star tortoises in the country.

About Indian star tortoise

- This species naturally inhabits **scrub forests, grasslands, and some coastal scrublands of arid and semi-arid regions**.
- It is found in northwestern India (Gujarat, Rajasthan) and adjoining southeastern Pakistan; eastern and southern areas from Tamil Nadu, Andhra Pradesh and eastern Karnataka to Odisha and throughout Sri Lanka
- Threats to this species survival include illegal collection and habitat loss.
- Included in Appendix II of the CITES
- **IUCN status: vulnerable**
- Placed under **Schedule IV of the Wildlife (Protection) Act 1972**

About Chinnar wildlife sanctuary

- Chinnar Wildlife Sanctuary is a **unique protected area** located in the rain shadow region in the eastern slope of Western Ghats in **Idukki in Kerala**.
- The area is diverse in eco systems and rich in ethnic cultural heritage.
- It is a well-known repository of **medicinal plants**.
- It supports a population of grizzled giant squirrel, star tortoise, tufted grey langur, gaur, spotted deer, slender loris, wild elephant, crocodile, tiger, leopard and many a birds, insects and plants.

4.3.10. AMUR FALCON

Why in news?

Amur Falcon were spotted at Umred Karhandla Wildlife Sanctuary near Nagpur.

About Amur Falcon

- Amur Falcons are **the migratory bird** that stay every year at **Doyang lake** (Nagaland) during their flight from Mongolia to South Africa
- **Pangti village** in Nagaland is considered as the world's Amur Falcon capital
- Centre will soon develop the Doyang Lake area as an eco-tourism spot for bird-watchers across the world.
- Until recently, Amur falcons were hunted by Naga tribesmen for meat.

Umred Karhandla Wildlife Sanctuary

- It is situated in **Maharashtra** and is 60 km from nagpur.
- Umred-Karhandla Wildlife Sanctuary is declared as the **satellite core of Bor Tiger** Reserve by national tiger conservation authority
- It is the first sanctuary in Maharashtra to be declared as 'satellite core', which means a sub-protected area supporting another protected area.

4.3.11. KHARAI CAMELS

Why in news?

For two days a week, the Kharai camels are left to themselves on a mangrove island in Kutch district of Gujarat.

About kharai camels

- Kharai Camel or **Swimming Camels are found only in Gujarat's Bhuj area**.
- Kharai Camel can live in both **coastal and dry ecosystems**.
- It **grazes on saline / mangrove trees** and is tolerant to high saline water.
- It can swim up to three kilometers into the sea in search of mangroves, their primary food
- They are bred by two distinct communities — **Fakirani Jats**, the handlers, and **Rabaris**, who are owners.

4.3.12. NTCA ORDER AGAINST FOREST RIGHTS

Why in news?

National Tiger Conservation Authority (NTCA) has ordered against the recognition of forest rights in 'critical tiger habitats' (CTH).

Background

- The order has been based on a premise that forest rights cannot be conferred inside 'critical tiger habitats' because guidelines for notification of 'critical wildlife habitats' which were envisaged under the FRA, 2006 had not been issued yet.
- This is confusing because the declaration of the two habitats is governed by two different legislations, which follow a two-step process—identification and notification.
- CTH are the core areas of tiger reserves

Critical Tiger Habitats versus Critical Wild Life Habitats

Critical 'tiger' habitats	Critical 'wildlife' habitats
Identified under the Wild Life Protection Act (WLPA), 1972	Defined only in the Forest Rights Act, 2006
Notified by state government in consultation with expert committee	
Notified with the consent of the Gram Sabhas and affected stakeholder	

- Like CTH, the identification of CWLH is done based on scientific and objective criteria.
- CTH areas are required to be kept as inviolate for the purpose of tiger conservation without affecting the rights of forest dwellers. Same is the case with areas of CWLH for the conservation of wildlife but they mandatorily require settlement of forest rights under FRA.

'Inviolat' is a general term used to indicate no human settlement and usage. This inevitably implies that establishing CTHs as inviolate areas requires relocation of people living in such areas.

Criticism of the guidelines

- The order has no legal basis as NTCA has no jurisdiction over the rights of forest dwellers.
- Compromises on the rights of tribals can be made only where there is proof that their presence in these protected areas will create irreversible damage to the ecology.
- There are evidence that tribals have helped in tiger conservation, e.g. the Soligas in the Biligiri Rangaswamy Temple Tiger Reserve in Karnataka.
- The strictness of law is manifest only in excluding people but allows commercial projects in the CTH.

4.3.13. WHITLEY AWARDS

- **Sanjay Gubbi of Karnataka and Purnima Barman of Assam** have won the prestigious Whitley Award/**Green Oscars**, for their efforts in wildlife conservation.
- These awards are given by the **U.K.-registered charity Whitley Fund for Nature**, which supports nature conservationists in their endeavour to conserve wildlife and nature.
- Mr. Gubbi has been awarded for his work to **protect tiger corridors in Karnataka** and Ms. Barman has won the award for her work in conservation of **Assam's Greater Adjutant Stork** and its habitat.

Great Adjutant stork

- Assam has about two-thirds of the world's total population of this bird
- It is included in the **Endangered** category of the IUCN red list.
- The greater adjutant is now restricted to a much smaller range with only two small breeding populations -- one in India with the largest colony in Assam and the other in Cambodia.

4.3.14. TREE-LIVING CRAB SPECIES

- Scientists have discovered a new species of long legged, tree-dwelling crabs in Western Ghats of Kerala.
- The new species named Kani maranjandu after the Kani tribe in Kerala.
- The characteristic traits of the crab include the structure of its hard upper shell, its male abdominal structure and reproductive parts and diagnostic elongated walking legs, which no other genus has water holding hollows in large trees are essential for the survival of this unique species.

Kani tribe

- Found in tropical forests of the Agasthyamalai hills of the Western Ghats
- Traditionally a nomadic people with a population of almost 25,000.
- They have a rich tradition of using wild plants found in the region for health reasons, and their tribal physicians, called Plathi, hold the traditional medicinal knowledge.
- Important medicinal plant used is locally known as 'arogyapacha'.

4.3.15. CONGRESS GRASS

- Congress grass also known as 'Carrot weed' in India is a versatile, annual herb. Its scientific name is *Parthenium hysterophorus*
- It is native of Tropical America, and West Indies

- it is a tall growing, deep rooted, much branched dicotyledonous plant species attaining a meter height.
- It was introduced to India as a contaminant of food grains imported from Mexico. It was first reported in 1956
- Today this weed has been reported from entire India except the hilly states.
- Congress grass enjoys monopoly in its growing habitat due to allelopathic property.

Harmful Effects of Congress grass

- The pollen grains are allergic causing bronchitis, asthma, rhinitis, conjunctivitis, sinusitis, etc.
- It is harmful and even fatal to the livestock. The animals suffer from itching, fall of body hairs, discolouration of skins, inflamed udder etc.
- The presence of congress grass pollen grains inhibit fruit set in egg plant, tomato, chilly, beans and maize.
- It substantially reduces the nitrogen fixing ability of pulse crops.
- They don't have natural predators and hence their growth is generally unchecked.

Control

- Biological control through Mexican beetle
- pesticides like Glyphosate and atrazine.

4.3.16. UNIQUE MAHUA TREE

About the tree

- A 40-year-old ippa or mahua tree (*Madhuca indica*) exhibits two-colored foliage in the first month of leafing.
- The tree is in the hilly areas of Heerapur in Adilabad district of Telangana.

Why this uniqueness?

- Chromosomal aberration could have lead to unique feature.
- The green leaves sprout first and attain maturity about 15 days earlier while the red ones will become green after a few days.

Possible Threats

- Recently, the tree escaped being cut down from the digging for Mission Bhagiratha drinking water project and laying of an electric line.

4.3.17. ONLINE FILING OF ACCESS AND BENEFIT SHARING APPLICATIONS

Why in news?

- **Ministry of Environment, Forest and Climate Change (MoEF)** launched the online filing of Access and Benefit Sharing (ABS) applications.

What is Access and Benefit Sharing?

- **Access and benefit-sharing (ABS)** refers to the way in which genetic resources may be accessed, and how benefits from that result from their use are shared between the people or countries using the resources (users) and the people or countries that provide them (providers).
- The **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity** is a supplementary agreement to the Convention on Biological Diversity.

- NBA is a statutory body established under the provisions of the **Biological Diversity Act**.
- It performs facilitative and advisory functions for the Union government on issues of **conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources**.

4.3.18. NEW GLOBAL STANDARD ADOPTED FOR MAKING TRADE IN PLANTS AND SEEDS SAFER

Why in News?

The International Plant Protection Convention (IPPC)'s governing body- the Commission on Phytosanitary Measures (CPM) has adopted a new global standard for making trade in plants and seeds safer.

New standards

- When assessing pest risk and determining phytosanitary measures, **National Plant Protection Organisations (NPPOs)** should consider intended use of seeds: research, planting under restricted conditions or under natural conditions.
- A **pest risk analysis (PRA)** should be done to determine if the seeds facilitate entry and spread of pests.
- Specific **phytosanitary measures** including before planting, during growth, post-harvest etc. are allowed.
- Guidelines for an **import regulatory system** and a series of treatments that stop pests from burrowing into wooden packaging materials and methods to stop fruit flies from attacking citrus fruits.

International Plant Protection Convention (IPPC)

- It is a 1951 multilateral treaty **overseen by the Food and Agriculture Organization (FAO)**
- It aims to secure coordinated, effective action to prevent and to control the introduction and spread of pests of plants and plant products.
- The Convention extends beyond the protection of cultivated plants to the protection of natural flora and plant products.
- It also takes into consideration both direct and indirect damage by pests, so it includes weeds.
- The Convention created a **governing body** consisting of each party, known as the **Commission on Phytosanitary Measures (CPM)**
- The Convention is recognized by the World Trade Organization's (WTO) Agreement on Application of Sanitary and Phytosanitary Measures (the SPS Agreement) as the only international standard setting body for plant health.

4.4. VIENNA ENERGY FORUM

- Recently, Vienna Energy Forum was held which also had participation of India's power minister.
- **About Vienna Energy Forum**
 - It is a **biennial, global and multi-stakeholder forum** initiated in 2008.
 - It is a **joint initiative** of Austrian government, International Institute for Applied Systems Analysis, and the **UN Industrial Development Organization (UNIDO)**.
 - VEF aims to explore **how energy can contribute to meeting global developmental challenges**.
 - It will help meet goals of SDG 7 (clean and affordable energy) and SDG 13 (Climate action).

UN Industrial Development Organization

- It is a **specialized agency of the United Nations**
- Its mission as per Lima declaration is to promote inclusive and sustainable industrial development for poverty reduction, inclusive globalization and environmental sustainability.
- Its mandate is recognized in SDG 9 (build resilient infrastructure and inclusive and sustainable industrialization).
- Its organs include a General Conference (policy making body), Industrial Development Board (review implementation of programmes) and Programme and Budget committee.
- India is a member state of UNIDO.
- It is headquartered in Vienna.

4.5. IRENA

Why in News?

- International Renewable Energy Agency (IRENA) at the Berlin Energy Transition Dialogue (BETD2017), held on March 20, 2017 estimated that global carbon emissions can be reduced by 70% by 2050 and completely phased out by 2060.

What is International Renewable Energy Agency (IRENA)?

- It is an intergovernmental organization, principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.
- Promotes the widespread adoption of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy.
- India is a member country of IRENA.

4.6. BONN CLIMATE MEET

Why in news?

- The Bonn Climate Change Conference, organized by UNFCCC begin in Bonn, Germany to further implementation of Paris Agreement.
- At Bonn, Parties would continue their work on formulating the rule book for implementation of the provisions of Paris Agreement, the deadline of which is agreed to be 2018.

About UNFCCC

- In 1992, countries joined the United Nations Framework Convention on Climate Change, as a framework for international cooperation to combat climate change by limiting average global temperature increases.

Paris Agreement

- At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal.
- The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C.

4.7. WORLD ENVIRONMENTAL EDUCATION CONGRESS

- Canada will be hosting the 9th World Environmental Education Congress in Vancouver in 2017.
- **About World Environmental Education Congress**
 - The idea of an international meeting for environmental education was born during Earth Summit of 1992.
 - It is the largest international congress **addressing education for environment and sustainable development**.
 - It operates in accordance with the UN and its agencies in collaboration with educational, research, and cultural and scientific organizations at the international, regional, national and local levels such as Unep, Unesco, Unece, Un-Csd Education Caucus, Regional Centers of Expertise.
 - The participants can be researchers, environmentalists, students, NGOs, media, governments etc.
 - Its permanent secretariat is housed in Turin, **Italy**.

4.8. RENEWABLE ENERGY: RECENT DEVELOPMENTS

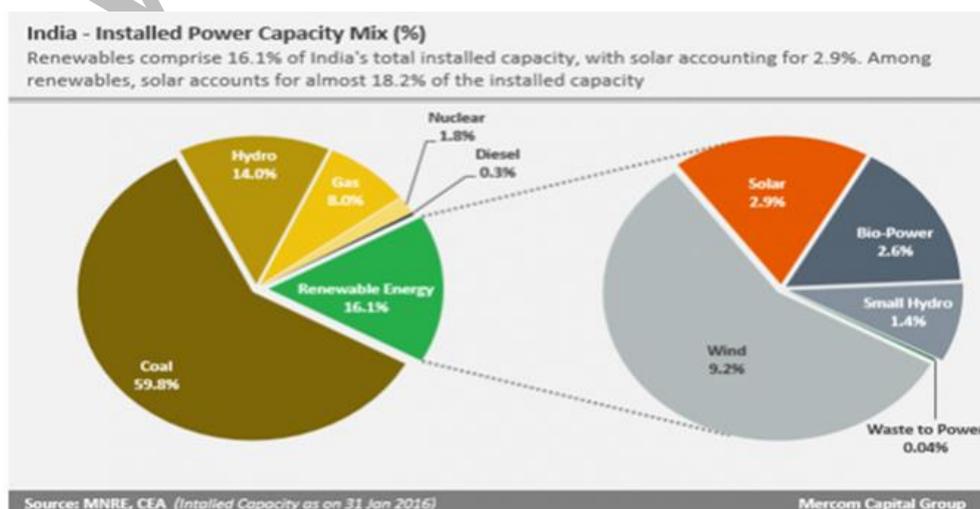
Renewable Energy: Background

Targets

- At the Paris Climate Summit, India promised to achieve 175 GW of renewable energy capacity by 2022. This includes 60GW from wind power, 100GW from solar power, 10 GW from biomass and 5GW from small hydro projects.
- The target set for the various renewable energy sources for the next three years are (in MW):

Source	2016-17	2017-18	2018-19
Solar Power	12,000	15,000	16,000
Wind	4000	4600	5200
Biomass	500	750	850
SHP	225	100	100
Grand Total	16725*	20450*	22150*

Present Status



4.8.1. RECORD 5,400MW WIND POWER IN 2016-17

Relevant Facts

- India added a record 5,400 megawatts (MW) of wind power in 2016-17, exceeding its 4,000MW target.
- The leading states were Andhra Pradesh at 2,190MW, followed by Gujarat and Karnataka.
- In February 2017, solar power tariffs hit a record low of Rs 2.97 per kWh and wind power Rs 3.46 kWh.
- Now, in terms of wind power installed capacity India is globally placed at 4th position after China, USA and Germany.

4.8.2. WIND, SOLAR RESOURCES: LOCATION

Observations

- Wind resources are concentrated mainly in the western states (Gujarat, Maharashtra and Rajasthan) and southern states (Andhra Pradesh, Karnataka, Tamil Nadu and Telangana).
- Solar PV resources are distributed across several states, but Rajasthan, Gujarat, Maharashtra and Madhya Pradesh have the most resource potential.
- Constraint in accessing high voltage transmission infrastructure: 47% wind zones and two-thirds solar PV zones are more than 25 km away from existing substations with transmission voltage of 220 kV and above.
- About 84% of all wind zones are on agricultural land. It provides opportunities for multiple uses of land, but may also impose constraints on land availability.
- Only 29% of suitable solar PV sites and 15% of Concentrated Solar Power (CSP) sites are within 10 km of a surface water body, suggesting water availability as a significant siting constraint for solar plants

Scope for developing co-location for wind and solar generation

- The research also points out that about a quarter (28 per cent) of all solar PV zones overlap with wind zones, which means it is an opportunity for developing co-location for both.
- It will also be economical and easy to develop transmission extensions which can be used for both.

4.9. DROUGHT IN SOUTH INDIA

Why in news?

Kerala and Tamil Nadu are facing an unprecedented drought – the worst ever in over a century, according to experts; Karnataka's northern districts are without water for the third consecutive year.

Reasons for the Drought

- **Rainfed agriculture**-Failure of Northeast monsoon and lack of irrigation facilities being the major reason for the drought.
- **Urbanization** has converted the wetlands and other areas into concrete surfaces that does not allow the conservation of water.
- **Inter state river water disputes**: southern states are not ready to sit together and solve the problem of sharing of river waters.
- **Water has lost the cultural connect**-historically large number of ponds were connected to each other so that overflow of water in one reaches other, there used to be celebration of festivals for conservation of water has gone, etc.
- **Faulty cropping pattern**- water intensive crops such as paddy, sugarcane are given preference by farmers because of high Minimum Support Price(MSP) given by government.

Drought Crisis Management Plan, 2015

The manual sets out four important measures that a State government should take at the time of a drought, with the Union government's help.

- MGNREGA to provide immediate employment to drought-affected people.
- The public distribution mechanism should be strengthened to provide food and fodder
- initiate actions to recharge the groundwater table by building check dams and providing pipeline water and other irrigation facilities
- The government should either waive off or defer farmer loans and arrange for crop loss compensation.

4.10. REVISED BUILDING CODE

- It has been **prepared by the Bureau of Indian Standards (BIS)** under the Ministry of Consumer Affairs, Food and Public Distribution.
- It is **voluntary in nature** and the states can by choice incorporate in their building code systems.
- Apart from **making builders liable**, the revised code has made necessary changes keeping in view the requirement of modern buildings.
 - It **specifies fire and life safety norms** for high rise buildings.
 - It **provides for universal accessibility for senior citizens and differently abled citizens**.

4.11. CITY COMPOST POLICY

Why in news?

Recently Parliamentary Standing Committee on Chemicals and Fertilisers suggested the government to review the progress of the policy on city compost (2016).

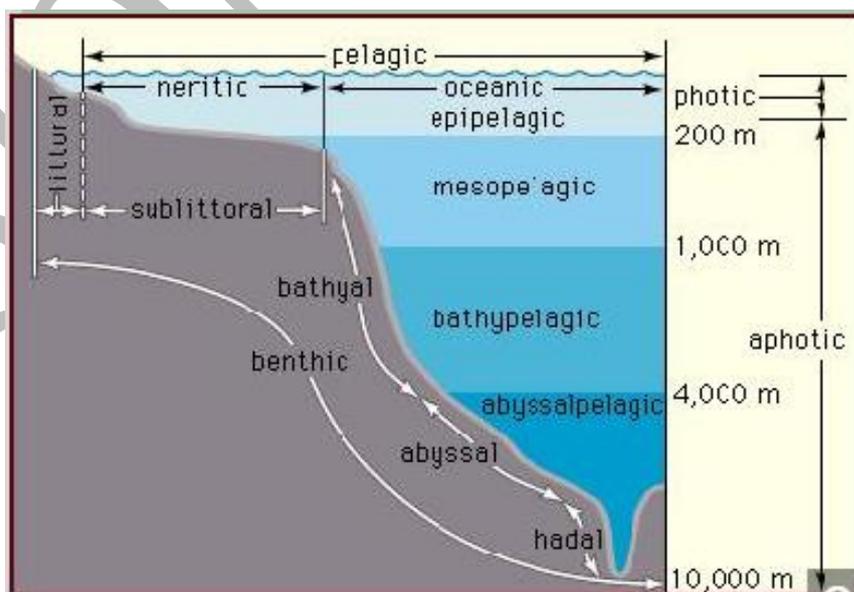
Key features of Policy are

- For increasing production and consumption of City Compost, provision for Market development **assistance of Rs. 1500 per tonne of city compost** has been added.
- To ensure that environment friendly quality city compost, **eco-Mark standard** has been made mandatory.
- Fertilizer companies will **co-market** City Compost along with chemical fertilizers.
- It will be mandatory for PSUs and Government Departments to use City Compost for their horticulture.
- Campaigns to create awareness among farmers about benefits of city compost and its uses.

4.12. MESOPELAGIC MAPPING

Mesopelagic Zone

- It is an aquatic layer of the ocean that runs from approximately 200m to 1000m below the surface, where little light penetrates, so algae do not live.
- It is home to largest number of vertebrates. There are bristlemouths, dragonfish, squid and swordfish, etc.
- Acts as a carbon pump: pulls tonnes of that element out of the surface waters and into the depths, by its inhabitants that are in a state of perpetual migration, rising to the surface at night to feed, then returning to depths to escape predation.



Mesopelagic Mapping

- Until now, the only sensible way to probe mesopelagic activity has been by sonar.
- Now, robots are also being used for mapping- called **Deep See, Mesobot and Snowclops**.

4.13. GREEN NOBEL PRIZE

- Social activist Prafulla Samantra was announced one of six winners of the Goldman Environmental Prize/Green Nobel Prize for his **12-year legal battle for the land rights of indigenous Dongria Kondh** and protection of Niyamgiri Hills through his **NGO Lok Shakti Abhiyan**.
- **About Goldman Environmental Prize**
 - It is given by Goldman Environment Foundation of San Francisco.
 - Annually, 6 awards are given to individuals from the world's six inhabited continental regions: Africa, Asia, Europe, Islands & Island Nations, North America, and South & Central America.
 - Prafulla Samantra would be the sixth Indian to get this prize.

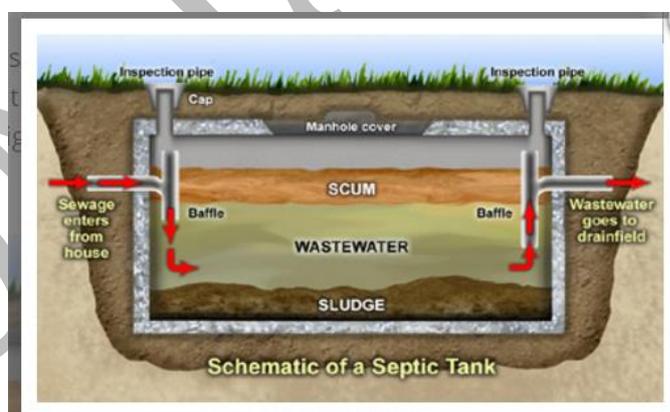
Dongria Kondh

- The Dongria Kondh are **indigenous Peoples who inhabit the plateaus of the Niyamgiri hill** ranges in Orissa
- The Dongria Kondh call themselves "**Jharnia**" meaning those who live by the streams.
- Unlike other indigenous Peoples of India, the **Dongria Kondh are accomplished horticulturists**, farming on the mountain ranges of Niyamgiri. They also practice animal husbandry.
- The Dongria have **distinctive jewellery, tattoos and hairstyles**. Women wear many rings through their ears and three through their noses, while boys wear two nose rings.
- **They worship the nature like gods of the hills**. Chickens, goats, pigs and buffalo are sacrificed for them and harvests.
- The Dongria Kondh have **no over-arching political or religious leader** - clans and villages have their own leaders and individuals with specific ceremonial functions, including the **beju and bejuni, male and female priests**.

4.14. TWO PIT SOLUTION

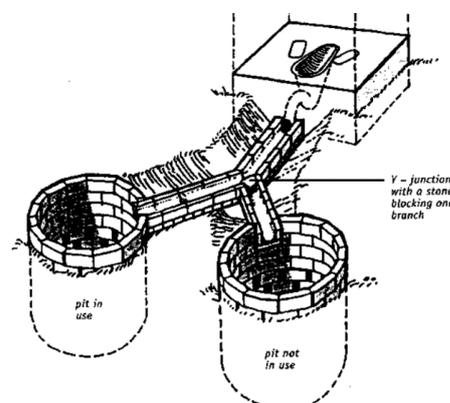
Background

- Septic tanks are generally preferred by rural households as a mini sewage treatment plants.
- It separates the solid waste from the waste water.
- They have the advantage of being economical, low maintenance cost and most importantly waste water can be used to drain the farms
- But they also have inherent disadvantages such as regular maintenance is required, foul smell, etc. Also, one time investment of building a septic tank is high for the rural households of India.



Two pit Latrines

- This system has two leach pits, with a 'Y' junction. The practice is to fill one and cover it over when nearly full, and leave it to stand while the second pit is used. The waste in the first pit will convert into manure in a year.
- It has the following advantages over septic tanks:
 - They are very cheap as compared to building septic tank. Also, maintenance cost is also minimal.
 - Manure can be used in field or can be sold out giving another economic advantage.
 - It will also promote the culture of using latrines because of the economic advantage of manure.



4.15. MISCELLANEOUS TITBITS

- **Bengaluru has become the first city to get India's first vertical garden** on the Hosur road. This initiative has been taken by the SayTrees NGO. The advantages of vertical garden include reduction of urban heating, cleaning of dust and pollutants, sound proofing, improving biodiversity etc.
- Recently, the government has established Banana Research Centre in **Vaishali**. It would be operative under the **Rajendra Prasad Central Agricultural University (Pusa)**.

- (a) This would be the second such centre after one in Tiruchirapalli (Tamil Nadu).
- (b) India holds **number one position in the world in the area of banana production**. Maharashtra is the largest producer followed by Tamil Nadu
- (c) **Bihar's banana productivity is lower than national average.**
- Ministry of Urban Development is set to launch a **Liveability Index** for cities from June 2017 based on indigenously evolved parameters. It would chart a city's progress against various standards under four categories – Physical (energy, waste water, housing etc.), Institutional/Governance, Social (health, education, culture etc.) and Economic.
 - **First ever river survey for aquatic wildlife** will be taken in **Ganga** for ascertaining the number of ghariyals, turtles, endangered Gangetic dolphins etc. **WII** and 8 NGOs will coordinate with the forest departments of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal.
 - Green Climate Fund (GCF) has recently approved a project of the National Bank for Agriculture and Rural Development (NABARD) in Odisha. The project entails the construction of a groundwater recharge system, as a concrete adaptation measure to ensure water conservation.

PHILOSOPHY/ दर्शनशास्त्र

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Classes at Jaipur & Pune

5. SCIENCE AND TECHNOLOGY

5.1. BITCOIN

- It is an electronic or digital currency that works on a peer-to-peer basis. It is decentralised and has no central authority controlling it.
- Bitcoins can be sent digitally to anyone who has a bitcoin address anywhere in the globe. One person could have multiple addresses for different purposes – personal, business and the like.
- A bitcoin is not printed currency but is a non-repudiable record of every transaction that it has been through. All this is part of a huge ledger called the blockchain.
- Bitcoins are available in bitcoin exchanges. They can be purchased from other users. A bitcoin is generated when an entity, i.e. a person or a business, uses software power to solve a mathematical puzzle that makes the blockchain more secure. The difficulty level of solving the problem is high enough to ensure that it takes time to do it.

- The Centre has setup an **inter-disciplinary committee** to recommend an **action plan for dealing with virtual currencies** like bitcoins. The committee will be Chaired by **Dinesh Sharma, Special Secretary, Department of Economic Affairs.**

5.2. HIGH NITROGEN STEEL

- High nitrogen steels are a new class of high alloy martensitic, austenitic or duplex grades with up to 0.9 mass% of N in solid solution.
- The alloy has significant applications in the defence sector due to its **much higher ballistic strength** than normal steel, but currently the country is largely dependent on imports.
- In addition to being **non-magnetic and corrosion-resistant**, the HNS **cost is about 40% less** compared to Rolled Homogenous Armour Steel (RHA)
- The HNS technology would further the Army's quest for **lighter and high-performance armouring material** compared to materials currently in use.

5.3. HYDROGEN FUEL VEHICLES

Why in news?

Recently Toyota Motor North America, Inc. unveiled "Project Portal", a hydrogen fuel cell system designed for heavy-duty truck use.

Advantages of hydrogen as a fuel

- Hydrogen is the lightest element but it has the highest energy content per unit weight of all fuels.
- Its energy density is three times greater than that of petrol.
- Hydrogen can be extracted from virtually any hydrogen-containing compound, including both renewable and non-renewable resources
- Waste products from hydrogen in vehicles are only water vapour and warm air.

Challenges

- Hydrogen, seldom found on its own in nature, typically combines with oxygen and carbon.
- Storing hydrogen a challenge because it requires high pressures, low temperatures, or chemical processes to be stored compactly.
- Production cost of hydrogen fuel based vehicles is high at present

Fuel cell

- A fuel cell uses the chemical energy of hydrogen or another fuel to cleanly and efficiently produce electricity. If hydrogen is the fuel, electricity, water, and heat are the only products.
- Fuel cells work like batteries, but **they do not run down or need recharging**. They produce electricity and heat as long as fuel is supplied.

- Fuel-cell vehicles use a completely different propulsion system from conventional vehicles that can be **two-three times more efficient**.

5.3.1. OTHER EMERGING SOURCES OF ENERGY

5.3.1.1. OCEAN ENERGY

- There are three subsets of this 24x7 energy source — waves (including up-down bob of the water surface), tides and underwater currents.
- For tidal energy- To harness it, difference of at-least 16 feet between high and low tide is needed which is a major impediment.
- Waves generated by wind and currents could contribute significantly to a carbon neutral energy system but this is mainly at its developmental stage.

5.3.1.2. COLD FUSION

- Cold fusion describes a form of energy generated when hydrogen interacts with various metals like nickel and palladium. Excess heat is generated by the interaction that can be used to turn the turbine.
- No radioactive materials are used in cold fusion and cold fusion makes no radioactive waste.
- The major challenge is to control the reaction.
- But they are very small, relatively simple, inexpensive and self-contained form of energy.

5.4. GRATZEL CELLS

- **Gratzel cells or Dye Sensitised Solar Cells (DSSCs)** are **thin film solar cells** composed of a **porous layer of titanium dioxide (TiO₂)** coated photoanode, a **layer of dye molecules** that absorbs sunlight, an **electrolyte** for regenerating the dye, and a **cathode**.
- Recently, scientists at Indian Institute of Technology (IIT) Roorkee have used **Jamun** to create some inexpensive and more efficient solar cells. A naturally occurring pigment found in jamun was used as an inexpensive photo-sensitizer for **Gratzel cells**.

5.5. NATIONAL LARGE SOLAR TELESCOPE

What is National Large Solar Telescope?

- It will be a 2-m class, multipurpose and state-of-the-art solar telescope (NLST).
- NLST will be the largest solar telescope in the world, because till recently, only one meter class solar telescopes are in existence throughout the world.
- NLST will be larger than the current solar telescopes such as the 1.5-m German telescope **GREGOR** (on Tenerife) and the 1.6-m New Solar Telescope at Big Bear.
- The project of NLST would be implemented by Bangalore based, Indian Institute of Astrophysics (IIAP).

Features of National Large Solar Telescope

- It is capable of doing both day and night astronomy because of unprecedented high spatial resolution.
- It will fill the longitude gap between Japan and Europe. Currently, there is no telescope between these regions.
- It will help in understanding the formation and decay of sunspots by using Helioseismology, which is a powerful technique for probing the solar interior using acoustic Oscillations.

Why Ladhak Region for NLST?

- High altitude region which will fundamentally enhance the NLST capacity.
- Prolong region of sunshine, clear sky (high visibility) with low sessional variation.
- Low concentration of aerosol and dust particles in sky.
- Lower wind speed and presence of mild gusts and direction; also the laminar winds blowing in favourable condition.

5.6. NEUTRINO PROJECT

Why in news?

National Green Tribunal suspended the Environmental Clearance granted to the India-based Neutrino Observatory (INO)

About INO

- India-based Neutrino Observatory (INO) is a particle physics research project under construction to primarily study atmospheric neutrinos in a 1,300 meters deep cave near Bodhi west hills reserved forest near pottipuram village in Theni district, Tamil Nadu.
- After photons, neutrinos are the most abundant particles in the universe. They are affected only by a weak sub-atomic force of much shorter range, making it possible for them to pass great distances through matter without being affected.

5.7. HYPERLOOP TECHNOLOGY

Why in News?

- Recently two companies **Hyperloop Transportation Technologies (HTT)** and **Hyperloop One (HO)** have evinced interest to develop hyperloop technology in India by 2021.
- Presently such a system is being developed between Abu Dhabi and Dubai.

Challenges

- It requires heavy investments.
- It may prove to be **non-inclusive way of transport** as its cost of travel may be prohibitive for the economically marginalized people.
- **High-power consumption, accidents and technical challenges** have hampered its progress.

Hyperloop

- It was an idea of entrepreneur Elon Musk.
- It is a **system of magnetically levitating capsules** that are sent at **high speeds through low-pressure tubes**.
- It can have speeds even greater than commercial air travel.
- **Linear Induction motors** are used in it and control its speed.

5.8. SOUTH ASIA SATELLITE

First South Asian satellite (GSAT-9), funded entirely by India, has been launched recently by ISRO. With this, India has placed itself uniquely in space diplomacy by giving a boost to neighborhood first policy.

About South Asia satellite

- It is 2,230kg geosynchronous communications and meteorology satellite, launched as a gift for South Asian countries.
- Its benefits include mapping natural resources, telemedicine, IT connectivity, DTH connectivity, more predictable weather forecasting and quick response to natural disasters.
- All the SAARC countries excluding Pakistan are part of this project.
- Other important points–
 - ✓ first Indian satellite to use an electric propulsion
 - ✓ 4th consecutive success of GSLV cryogenic upper stage indicating better future capability.

5.9. COMMERCIALIZING ISRO PROJECTS

- ISRO's services are presently commercialized by Antrix Corporation.
- ISRO needs to **scale up its capabilities in the commercial market** for space-based

Antrix Corporation

- It is a wholly owned Government of India Company that has been given 'Miniratna' status.
- It is under the administrative control of the Department of Space.
- The **current business activities of Antrix** include –
 - Provisioning of communication satellite transponders to various users.
 - Providing launch services for customer satellites.
 - Data Marketing from Indian and foreign remote sensing satellites.
 - Building and marketing of satellites and its sub-systems.
 - Establishing ground infrastructure for space applications.
 - Mission support services for satellites.

surveillance and communication through integrated modules.

- Till now, participation of firms like Godrej Aerospace, L&T etc. has been limited to the supply of components and systems for launches.
- In light of global competition in space from companies like Space X (Falcon 9 rocket) and Blue Origin (New Shephard rocket), the step of commercializing its services is a welcome step.

5.10. COLD ATOM LABORATORY

Why in news?

- NASA is planning to send an experimental instrument called **Cold Atom Laboratory (CAL)** on board **SpaceX CRS-12** to **International Space Station** to create coldest spot known in the universe.

About Cold Atom Laboratory (CAL)

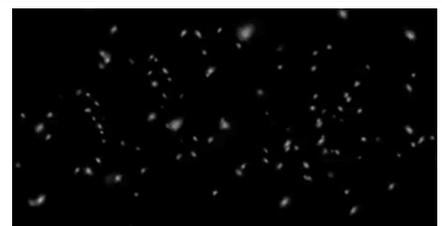
- This **ice chest-sized box** has been developed by NASA's **Jet Propulsion Laboratory**.
- When atoms are cooled to such low temperatures, they form a distinct form of matter called **Bose-Einstein condensate**. In such state matter behave less like particles and more like waves.
- Observing atoms in **Bose-Einstein condensate** form in earth is extremely difficult because of **gravity** which continuously pulls the atoms towards the ground. This prevents atoms from holding on to their wavelike form for longer period to be observed.
- However in space ultra-cold atoms can hold on to their wave like forms longer because of no gravity.

Utilities of this experiment

- Studying these hyper-cold atoms will provide new insights into **dark matter** and **gravity**.
- Better understanding of superfluids may help in more efficient transfer of energy.

Bose-Einstein Condensates

- They are **Superfluids** – a kind of fluid with zero viscosity.
- In this situation all atoms move without friction as if they are all one solid substance.



Bose-Einstein condensate

5.11. SMALL SATURN MOON CAN SUSTAIN LIFE: NASA

Why in News?

- On April 2017, NASA claimed on the evidence generated by **Cassini Mission** that Enceladus, Saturn's icy moon, contains the right chemicals to support life.

Some other Mission in Space for water

- **Curiosity Mars Rover** discovered an ancient streambed that existed amidst conditions favourable for life and water.
- **Mission Europa** is in search for icy crystal, lakes on outer cell of the Jupiter Moon Europa.
- **Dawn mission** is currently studying Ceres for water, which is the largest body in the asteroid belt between Mars and Jupiter.
- **Juno mission** will measure the assumption of water soaked up by the Jupiter planet.
- **Ganymede mission** is in search of ice and water crystal in between the crust and core of Ganymede (largest Moon of Jupiter and in our solar system).

In brief | Nasa's Cassini mission

- ♦ **Launch date:** 15 October 1997
- ♦ **End date:** 15 September 2017
- ♦ **Target:** Saturn

What is it?

An ambitious 20-year mission to gain a better understanding of Saturn, its rings, its magnetosphere and its icy moons.

How?

By sending Cassini – a sophisticated robotic spacecraft – to orbit the ringed planet and study the Saturnian system in detail.

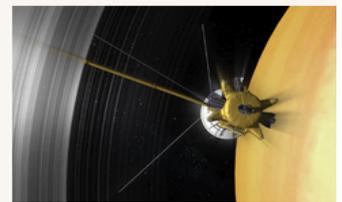
Phases

- 1 Cassini's initial four-year mission (2004-2008)
- 2 The first extension, called the Cassini Equinox Mission (2008-2010)
- 3 The second extension, called the Cassini Solstice Mission (2010-2017)
- 4 To conclude, the Cassini spacecraft will carry out a daring set of orbits called the Grand Finale (2017)

Scientific instruments

The Cassini orbiter carries 12 instruments capable of "seeing" in wavelengths the human eye can't, and of "feeling" things about magnetic fields and tiny dust particles that no human hand could detect. Cassini also carried a probe called Huygens, which parachuted to the surface of Saturn's largest moon, Titan, in January 2005 and transmitted a treasure trove of data.

Source: Nasa



CREDIT: NASA

5.12. NASA'S NEW FRONTIERS PROGRAMME

- The New Frontiers strategy is to explore the solar system with frequent, medium-class spacecraft missions that conduct high-quality, focused scientific investigations designed to enhance our understanding of the solar system.
- This would be the fourth mission in the New Frontiers portfolio. Its predecessors are the New Horizons mission to Pluto, the Juno mission to Jupiter, and OSIRIS-Rex.

5.13. SUPER PRESSURE BALLOON TECHNOLOGY

Why in News?

- NASA has successfully launched its stadium sized **super-pressure balloon** from Wanaka, New Zealand

About Super Pressure Balloon Technology

- The balloon is made from **polyethylene film** which is stronger and more durable with a potential to float continuously for **100 or more days** in the **southern hemisphere's** mid-latitude band.
- It also carries a payload (**cosmic ray fluorescence detector**) weighing 2495 kg by **International Extreme Universe Space Observatory on a Super Pressure Balloon (EUSO-SPB)**.

5.14. THE RACE TO DESTROY SPACE DEBRIS

Why in News?

- In April 2017, various space agencies such as NASA, European Space Agency in Washington raised the concern regarding increasing space debris.

More on the issue

- Space junk travels at speeds up to 30,000 km an hour, which turns tiny pieces of orbital debris into deadly shrapnel that can damage satellites, space shuttles, space stations and spacecraft with humans aboard.
- **Committee on the Peaceful Uses of Outer Space**, and Inter-Agency Space Debris Coordination Committee (IADC) advocates Global mitigation measures takes many forms ; including preventing the creation of new debris, designing satellites to withstand impacts by small debris, and improving operational procedures such as using orbital regimes with less debris, and predicting and avoiding collisions.

Committee on the peaceful uses of Outer space

- It is an **ad-hoc committee under United Nation** set up by the General Assembly in 1959 to govern the exploration and use of space for the benefit of all humanity: for peace, security and development.
- The committee encouraging space research programmes, and studying legal problems arising from the exploration of outer space

International Space debris Committee

- It is an international governmental forum for the worldwide coordination of activities related to the issues of man-made and natural debris in space to facilitate opportunities for cooperation in space debris research, to review the progress of ongoing cooperative activities, and to identify debris mitigation options.

What is Space Debris/Orbital Debris?

- Space debris encompasses both natural (meteoroid) and artificial (man-made) particles. Meteoroids are in orbit about the sun, while most artificial debris is in orbit about the Earth. Hence, the latter is more commonly referred to as orbital debris.

Kessler syndrome

- The term is associated with Space Debris, which used to describe a self-sustaining cascading collision of space debris in LEO (Low Earth Orbit).

5.15. EXOPLANET: GJ 1132B

Why in News?

- Recently, Astronomers detected an atmosphere around an Earth like planet known as **GJ 1132b**, which is **1.4 times** the size of earth and is at a distance of 39 light-years from earth.

- **GJ 1132b** orbits the **red dwarf** star **GJ 1132** in the southern constellation **Vela**. The parent star **GJ 1132** is much **smaller, cooler** and **dimmer** than our Sun.
- As per the astronomers this **super-earth** is cloaked in a thick layer of gases that are either water or methane or a mixture of both and is **tidally locked** (also known as **gravitational locking** or **captured rotation**) such that one side is always facing its **parent star**.
- It circles its parent star superfast, completing a single "**year**" in about **1.6 Earth days**.
- This is the **first time** that an atmosphere has been detected around an Earth-like planet.
- This observation is made using telescope at the **European Southern Observatory** in **Chile**.

5.16. YUEGONG-1

- It is a Chinese project that simulates a Moon-like environment - for a year, to test a life-support system that may allow future astronauts to spend longer periods of time in space.
- It is an attempt to see how the **Bioregenerative Life Support System (BLSS)** works in a Moon-like environment after a successful 105-day trial was conducted in 2014.
- The BLSS is a system where **animals, plants and microorganisms co-exist**. Water and food can be recycled in the system, creating an Earth-like environment.

5.17. SURVEY OF INDIA

Why in News?

- Survey of India launched a **new web portal called 'Nakshe'** on its 250th anniversary recently.

About Nakshe portal

- **Topographic maps or Open Series Maps (OSM)** would be available for free download on the 'Nakshe' portal.
- Maps would be available in pdf format on 1:50000 scale **through Aadhar enabled user authentication** process. Aadhar is there to make sure that only Indians are able to access them.

National Map policy

- The New Policy envisages two series of maps- the Defence Series Maps (DSMs) and the Open Series Maps (OSMs).
- The DSMs will be for exclusive use for defence forces and authorized Government Departments. Their policy would be determined by the Ministry of Defence.
- Policy on OSMs will be the responsibility of Survey of India/Department of Science and Technology.
- OSMs can be disseminated by Survey of India through an agreement for specific end use. The user can make value addition to these maps and can share the information after permission from the Survey of India.

About Survey of India

- It is the **principal mapping agency** of India formed in 1767 headquartered in Dehradun.
- It prepares map for both civilian and military purposes.
- It is headed by Surveyor General of India.
- It is the **oldest scientific department** in India functioning **under the Department of Science and Technology**.
- It has been oriented to **meet the needs of defense forces, planners and scientists** in the field of **geo-sciences, land and resource management**.

Survey of India to re-measure Mt. Everest

- 1855 - India became the first country under Sir George Everest (Surveyor General of India) to have declared the height of Mount Everest.
- After the Earth Quake (2015) the Survey of India, Ministry of Science and Technology with Nepalese government has proposed to re-measure Mount Everest.
- Currently, its height is 8848m above sea level.
- It will be measured using GPS with corrections applied from a **INDGEOID mathematical MODEL** developed recently.

5.18. SCIENCE CITIES SCHEME

It provides for setting up of **Science Cities** in all the states of the country.

- **States** desirous of setting up a Science City under this Scheme have to provide land, share the cost of setting up of facilities and maintain a corpus for its upkeep and maintenance.

- In case of approved projects, the time frame for completion of the project as per the Scheme is about **54 months for Science Cities, 33 months for Regional Science Centre** and **27 months for Sub-Regional Science Centre** from the date of start of the project.
- The Science Cities/Centres projects are taken by NCSM:
 - ✓ Depending upon availability of resources.
 - ✓ Project handling capacity of NSCM.
 - ✓ Existing level of science centre activities in that state.

Objectives for establishing Science Cities

- To portray the growth of **science and technology** and their applications in **industry, human welfare and environment**.
- To inculcate and sustain **Scientific Awareness & Scientific Temper**.
- Supporting **curriculum based education** at school & college level by imparting teachers training.

National Council of Science Museums

- Established in **April 1978**, it is an **autonomous Organization** under the Ministry of Culture.
- NCSM, headquartered in **Kolkata**, has its own network of 25 science museums/centres in India.
- **Central Research & Training Laboratory (CRTL) in Kolkata**, is the Council's central hub for professional **training, research and development**.
- Today, NCSM forms the **largest network of science centres and museums in the world**.
- In **2011**, NCSM has formed a **fully owned non-profit company called "Creative Museum Designers"** for development of museums and centres than science museums.
- NCSM also conduct **workshops, exhibitions, lectures, etc. to popularize science and educate common people**.

5.19. LI-FI

What is Li-Fi?

- Li-Fi or Light Fidelity, also known as **visible light communications (VLC)** is a super-quick alternative to Wi-Fi.
- Li-Fi utilizes **visible light in place of radio waves** to bar data through the air.

S. No.	Parameter	Li-fi	Wi-fi
1	SPEED	> 1 GB/S	around 150 Mb/s
2	Medium of data transfer	Use light as carrier	Use radio spectrum
3	Spectrum range	Visible light has 10000 times more	Having less spectrum range than VLC
4	Cost	Cheaper	Expensive
5	Network topology	Point to point	Point to point
6	Operating frequency	Hundreds of Tera Hz	2.4 GHz

5.20. EXPRESS WI-FI

- **Facebook's Express Wifi** was recently launched in India to solve India's internet connectivity problem.
- It will be a model for **public Wi-Fi deployment** to enable people to connect their phones, computers and other smart devices to the Internet.
- Unlike Internet.org, **Express Wifi by Facebook would not be a free Internet but would be affordable**. Customers would be able to purchase data packs via digital vouchers.

Free Basics

- Facebook's first initiative for internet connectivity was **Internet.org** (in partnership with Reliance industries) which tried to solve the problem of Internet access in India via mobile data.
- It was later renamed to Free Basics.

5.21. NEW WI-FI SYSTEM TO OFFER SUPER-FAST CONNECTIVITY

- Researchers and scientists of Edinburg University have recently developed a Wi-Fi technology based on **Infrared rays**.
- The current Wi-Fi technology uses radio signals with a frequency of 2.5 or 5 gigahertz. The new system uses infrared light with wavelengths of 1,500 nanometres and higher.
- The new technology has the potential to transfer data with more than 40 Gigabits per second (Gbit/s), which is 100 times faster than the existing Wi-Fi technology.

5.22. DATA EXCLUSIVITY

What is it?

- This refers to exclusive rights, granted over the pharmaceutical test data submitted by companies to drug regulatory authorities for obtain market authorisation. It means that information concerning a drug's safety and efficacy is kept confidential for a period of, say, five or ten years.

- It is a form of legal monopoly protection for a drug, over and above the patent protections. This is given expressly to compensate for the investment made during clinical trials. It implied that regulators cannot approve a similar drug with similar data for the next five years.

TRIPS plus measures

It means going beyond the TRIPS provisions. TRIPS plus provisions are frequently pushed as a part of free trade agreements between developed and developing countries. Some such provisions are:

- Data exclusivity - one of the most worrying demands in RCEP negotiations (covered in detail in subsequent subsection)
- Patent term extensions are given to compensate the company for delays in processing patent applications. A patent term extension will give another five-year monopoly to the innovator company.

Many developed countries have even signed Anti-Counterfeiting Trade Agreement (ACTA) which establishes international standards for IPR enforcement outside WTO and WIPO.

5.23. PHARMA MISSION TO DEVELOP BIO-PHARMACEUTICALS

- Government has approved a programme for **development of bio pharmaceuticals** through **industry-academia collaboration** entailing investment of **Rs 1,500 crore for five years**.
- The programme will focus on development of **specific products such as vaccines, biotherapeutics, medical devices and diagnostics**.
- The mission will be implemented by **Biotechnology Industry Research Assistance Council (BIRAC)** – a public sector undertaking of Department of Biotechnology (DBT).

Bio-pharmaceutical

- It is a **biological macromolecule or cellular component**, such as a blood product, used as a pharmaceutical.
- It can be a protein (including antibodies), nucleic acids (DNA, RNA) used for therapeutic or in vivo diagnostic purposes.
- The large majority of biopharmaceutical products are **pharmaceuticals that are derived from life forms**.

BIRAC

- It is a **not-for-profit company**.
- It acts as an **industry-academia interface agency** to strengthen and empower the emerging Biotech enterprise to undertake strategic research and innovation, addressing nationally relevant product development needs.
- **All BIRAC employees are employed on a contractual basis** by the Central government.

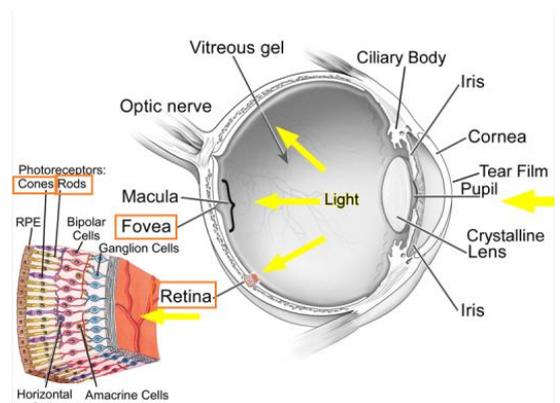
5.24. FOVEA

Why in news?

- Indian scientists have found that a **small depression** in the retina of eye called "**Fovea**" plays a crucial role in helping humans read the text, recognize faces, enjoy colours, focus on computer screens, etc.

About Fovea

- The fovea is a **specialized region** that dominates our visual perception which provides more than **half of the input** from the eyes to the visual cortex of the brain.
- It is located near the **optic nerve** and is best suited for fine task like reading.
- However Fovea is unable to process rapidly changing visual signals because of slow response of its **cone-photoreceptors** than **cone-photoreceptors** present in the peripheral retina. This inability let the humans see continuous motion in movies/flipbooks. (**Cone-photoreceptors are the neurons that are frontline of the visual system**).
- Understanding the functioning of Fovea helps in correcting central vision loss like **Macular degeneration** and design visual prosthetics (**Bionic eye**).
- Among the mammals, only **humans** and **other primates** have Fovea. Some predatory birds like **Owls** and **few reptiles** also have similar structures.



Note: **Bionic Eye** is a retinal implant which interprets images captured by a miniature video camera worn on a pair of glasses. It mimics the function of the retina to restore sight for those with severe vision loss.

5.25. DELTARETROVIRUS

- **Deltaretroviruses** are types of **retroviruses** that cause human B- or adult **T-cell leukemia/ lymphoma**, and **bovine leukemia**.
- **Retrovirus:** A retrovirus is a virus whose genes are encoded in RNA instead of DNA.
- The retrovirus genome needs to be reverse-transcribed into DNA by an enzyme called **reverse transcriptase** before it can be copied in the usual way.
- Retroviruses are "**retro**" because **they reverse the direction of the normal gene copying process**.
- In **most viruses**, cells convert DNA into RNA which is then made into proteins.
- But in **retroviruses**, first, **the viral RNA is transformed into DNA**. Then the cell can copy the DNA or transcribe it back into RNA for viral protein replication.

5.26. PRECURSOR MOLECULES

- Indian researchers, using a **novel technology**, has not only been able to **increase** wheat grain yield by more than **20%** but also made it more **resilient to environmental stress** like drought conditions.
- The technology entails using precursor compounds (a chemical compound preceding another in a metabolic pathway) that enhances the production of key sugar signaling molecule called **Trehalose-6-phosphate (T6P) molecule** which stimulate starch synthesis thus increasing the yield.
- Reseachers observed that plants treated with precursor compounds were able to achieve **100 times increase** in production of **T6P molecule** compared with plants that did not received the precursor molecule. Genetic methods achieved only **2-3 times** increase in production of T6P molecule.
- Since the pathway of T6P molecule is the same in other plants, the yield can potentially be increased by using suitable precursors.

5.27. H1N1

Why in News?

- **Swine Flu** has claimed more than 100 lives in **Maharashtra** since January 2017.
- **Changing climate** and the difference in **maximum and minimum temperatures** in the state is cited as one of the reasons for spread of the virus. This is creating favourable environment for virus to thrive.

About H1N1 (Also known as Swine Flu)

- It is a **contagious respiratory disease** caused by **Type A strains** of the **Swine Influenza virus** which enters body through inhalation of droplets or is transferred from a contaminated surface to eyes, nose or mouth.
- The spread of virus is **temperature dependent**.
- It is called **swine flu** because in the past, the people who caught it had direct contact with **pigs**.
- **Causes/means of spread:** When people who have it cough or sneeze, they spray tiny drops of the virus into the air. If anyone come in contact with these drops or contaminated surface, one can catch H1N1 swine flu.
- **Symptoms:** similar to most influenza infections: Sore throat, cough, fever and chills, body ache, headache, vomiting, nasal secretions, fatigue and acute gastrointestinal symptoms like diarrhea.
- **Preventive measures:** Maintaining oral and personal hygiene, avoid eating pork and its products, wash hands before eating, avoid crowded place and close contact with sick people, etc.
- **Treatment:** Antiviral drugs that are used to treat seasonal flu also work against swine flu like **Oseltamivir (Tamiflu)**, **Peramivir (Rapivab)**, **Zanamivir (Relenza)**. But these must be taken under medical supervision.

5.28. NASOFILTER

- A team of IIT Delhi researchers was awarded the **Startups National Award 2017 by the Technology Development Board** for creating a promising new technology to protect against air pollutants and minimize the risk of respiratory diseases.

Technology Development Board

- It was constituted in 1996, under the Technology Development Board Act, 1995, as a statutory body.
- It is **headed by the Secretary of the Department of Science and Technology**.
- It also provides equity capital or loans to industrial concerns and financial assistance to research and development institutions.

- **'Nasofilters'** a **Nano-respiratory filter** can protect against the finest particulate pollutants in the air (clears upto 95% of them).
- It is the **cheapest nasal filter** ever having a cost of Rs 10 and is ready for commercialization.

5.29. TARANG SANCHAR PORTAL FOR INFO ON MOBILE TOWER RADIATION

Why in News?

- The Telecom Department launched a portal – Tarang Sanchar Portal, that will allow people to track radiation emitted from mobile towers within a locality.
- The portal will empower consumers to know about the towers working in a particular area and whether they are compliant to the Electromagnetic field (EMF) emission norms defined by the government.

5.30. NOVEL MOLECULE TO TREAT CANCER-DISARIB

Why in news

- A novel small molecule, designed and synthesised by Indian researchers, has shown promise in targeted killing of cancer cells.

The molecule - Disarib

- The molecule (Disarib) works by binding itself to a protein called BCL2, which suppresses the death of cancerous cells while sparing normal cells.
- While BCL2 protein is produced in excess in cancer cells, its expression is almost undetectable in normal cells. Hence, Disarib targets and kills only cancer cells.
- Unlike the FDA-approved BCL2 inhibitor ABT199, Disarib showed better efficiency in killing cancer cells. Also, compared with ABT199 inhibitor, the small molecule did not cause any side effects.

Issue

- Expression of BCL2 is low in certain cancer cell lines such as breast cancer, chronic myelogenous leukemia and cervical cancer. So the Disarib molecule would be ineffective in these cancers.

5.31. REVERSING DRUG RESISTANCE MADE POSSIBLE

Why in news?

- Indian Researchers have been able to reverse antibiotic resistance in E. coli (Escherichia coli).
- They have unravelled the mechanism by which hydrogen sulphide (H₂S) gas produced by bacteria protects them from antibiotics and plays a key role in helping bacteria develop drug resistance.

The mechanism of antibiotics resistance

- Antibiotics kill by increasing the levels of reactive oxygen species (oxidative stress) inside bacterial cells. So any mechanism (here H₂S gas) that detoxifies or counters reactive oxygen species generated by antibiotics will reduce the efficacy of antibiotics.
- The drug-resistant strains were naturally producing more hydrogen sulphide compared with drug-sensitive E.

coli and by blocking/disabling the enzyme that triggers the biosynthesis of hydrogen sulphide in bacteria, the researchers, have been able to reverse antibiotic resistance in E. coli bacteria.

5.32. WILDLIFE DNA BANK

- North India will get its first DNA bank for wildlife when **Indian Veterinary Research Institute (IVRI) in Bareilly** will collect DNA samples of all wild animals by the year end.

DNA sequencing

Sequencing DNA means determining the order of the four chemical building blocks - called "bases" - that make up the DNA molecule. The sequence tells scientists the kind of genetic information that is carried in a particular DNA segment.

- At present, the **Laboratory for the Conservation of Endangered Species (LaCONES) in Hyderabad** is the only such facility in the country.

5.33. SREP

- **CSIR - National Institute of Oceanography (CSIR-NIO) (Goa)** has developed a robotic platform called **Seabed Resident Event Profiler (SREP)**.
- SREP is **designed to track oceanic processes such as upwelling** that occurs regularly during monsoon along the west coast of India and are important for the **ecosystem sustenance and fishery**.
- The SREP is particularly targeted at studies related to **monsoons, global climate and upwelling**.

Upwelling

Upwelling is a phenomenon associated with monsoons during which there is a migration of deep sea oxygen minimum zone (OMZ) towards the coast as shallow as 30 meters occurs, apart from bringing of the nutrient rich water to the surface and increasing the biological productivity of the region.

5.34. XFEL (WORLD'S BIGGEST X-RAY LASER) GENERATES FIRST X-RAY LASER LIGHT

Why in news

- European XFEL, the world's biggest X-ray laser has generated its first beam of light.
- The X-ray laser light was generated from an electron beam from a superconducting linear accelerator. In a 2.1 km long accelerator tunnel, the electron pulses were strongly accelerated and prepared for the later generation of X-ray laser light.

About XFEL

- The European XFEL is the largest and most powerful of the five X-ray lasers worldwide, with the ability to generate the short pulses of hard X-ray light.
- The X-ray light has a wavelength of 0.8 nanometre – about 500 times shorter than that of visible light.

Possible Benefits

- The achievable laser light wavelength corresponds to the size of an atom, meaning that the X-rays can be used to make pictures and films of the nanocosmos at atomic resolution – such as of biomolecules, from which better understanding of the basis of illnesses or the development of new therapies could be developed.
- The facility will enable research into chemical processes and catalytic techniques, with the goal of improving their efficiency or making them more environmentally friendly; materials research; or the investigation of conditions similar to the interior of planets.

5.35. CERN SEES “INDICATIONS” OF NEW PHYSICS

- The Large Hadron Collider experiment in CERN has shown a sign that contradicts a basic assumption of the Standard Model.

Meson

In particle physics, mesons are hadronic subatomic particles composed of one quark and one antiquark, bound together by the strong interaction.

Muon

The muon is an elementary particle similar to the electron, with an electric charge of $-1 e$ and a spin of $1/2$, but with a much greater mass.

- At the subatomic level, there are two types of processes that have been compared by the physicists at LHC. One is the decay of what is called a B meson into an excited K meson and a pair of muons (muon-plus and muon-minus). The other is where the B meson decays into K meson giving an electron-positron pair.
- According to the standard model, since the muons and electrons are identical except for their masses, the rates of these two reactions should be the same. However, the carefully done experiment finds the rates are quite different.

5.35.1. FIVE NEW SUB-ATOMIC PARTICLES

Why in News?

- In March 2017, Scientists of **Large Hadron Collider** accelerator at CERN (European Organisation for Nuclear Research) found five new sub-atomic particles.

More on the News

- The newly discovered particles are high-energy versions of the omega-c baryon, a particle made up of two strange **quarks** and one charm quark
- Omega-c-zero is a part of the same family of protons and neutrons, the so-called baryons, because they have three quarks, the fundamental building blocks of matter.
- These particle states are named, according to the standard convention, Omega-c-zero (3000), Omega-c-zero (3050), Omega-c-zero (3066), Omega-c-zero (3090) and Omega-c-zero (3119). The numbers indicate their masses in megaelectronvolts (MeV).

5.36. PAPER DEVICE CHARGED BY BODY MOVEMENTS

Why in News?

- Scientists have developed a light-weight, paper-based device that can harvest energy from body movements to power sensors and watches.
- The finding is based on triboelectric nanogenerators (TENGs) system which makes the energy through Triboelectrification.

What are TENGs?

- Triboelectric nanogenerator (TENG) is based on organic material to convert mechanical energy into electricity. It is a sensor that directly converts a mechanical triggering into a self-generated electric signal for detection of motion, vibration, mechanical stimuli, physical touching, and biological movement.
- It can be applied to harvest all kinds of mechanical energy available in our daily life, like motion, walking, rotation, wind, automobile, flowing water, etc.

5.37. BELLE II PROJECT

Why in News?

- Recently, **High Energy Accelerator Research Organisation (KEK)** successfully completed the integration of 1400 tons **Belle II detector** with **SuperKEKB** accelerator.
- This experiment is being carried out at **KEK in Tsukuba, Ibaraki Prefecture, Japan.**

About Belle II Project

- This experiment explores the **mysteries** of the beginning of the universe by observing the **various elementary particles** generated from high energy **electron-positron collisions**.
- The **Belle II detector** precisely measures **elementary particle interactions** artificially created with the upgraded SuperKEKB accelerator. It will also provide measurements of the direction and momenta of these newly produced particles.
- Main aim of the experiment is to find the “**significant deviation**” from **Standard Model of particle physics** and thus determine which of the many proposed new theories best describes world of **elementary particles**.
- It is grand collaboration of 700 scientists from 23 countries including **significant Indian participation**.

5.38. BRABO ROBOT

Why in News?

- TAL Manufacturing Solutions Ltd, a subsidiary of TATA Motors Ltd. has unveiled **India's first** ever industrial robot called '**BRABO**', short for "**Bravo Robot**".
- Other than the **motors** and **drives** for the **robo arm**, which are sourced from **Italy**, all the other parts of BRABO are manufactured in India.
- It is an **Articulated robot**, ie those Robots which have one or more rotary joints allowing it to perform full range of precise movements,.
- Recently BRABO acquired **CE (European Conformity) certification** that will enable **TAL** to export it to Europe and the US.

5.39. NOVEL GRAPHENE ELECTRICAL CONDUCTOR

Why in news?

Researchers from the Indian Institute of Science (IISc), Bengaluru have experimentally produced a new type of electrical conductor that was theoretically predicted 20 years ago.

About the discovery

- A single or a few layer thick graphene had shown high electrical conductivity at room temperature. The electric current path is along the zig-zag edge(edge of honey comb lattice structure of graphene) of the graphene layer.
- Many groups over the world have been trying to access these edges since the emergence of graphene in 2004, but have been largely unsuccessful because when current flows, it flows through both the edge as well as the bulk.

Graphene

It is extracted from graphite. Whereas graphite is 3D crystalline arrangement, graphene is a 2D crystal only an atom thick.

Important properties

- Very good conductor of electricity and heat
- 200 times stronger than steel
- Very light
- Perfectly transparent
- Impermeable to gases

5.40. CROP PROTECTION: FIRING TO KEEP THE STORM AT BAY

Why in news?

- Orchid owners of Himachal Pradesh have, recently, installed the anti-hail storm gun through collective mobilisation of funds.

How does it work?

- An anti-hail cannon is a shock wave generator intended to disrupt the formation of hailstones in the atmosphere in the beginning stage.
- An explosive charge of acetylene gas and air is fired in the lower chamber of the machine and the resulting energy passes through the neck and develops a shock wave.
- The shock wave travels at the speed of sound through cloud formations. It splits up the ice bearing layers of the cloud and it is observed that it either comes down as rain or a thin sleet that does not damage the fruit.

5.41. ANTI-DOPING RULE VIOLATION STATISTICS

- This was launched by **World Anti Doping Agency (WADA)** recently.
- India followed the **Russian Federation and Italy** in the chart, the same position as in the reports of 2013 and 2014.

World Anti-Doping Agency

- It is an **international independent agency** established in 1999.
- It is a **Swiss private law Foundation** whose seat is in Lausanne, Switzerland
- It is composed and funded equally by the **sport bodies and governments of the world**.
- WADA has also launched **Anti-Doping Administration & Management System (ADAMS)** for web based management of cases.

5.42. CHEMICAL WEAPONS

Why in news?

- A sarin gas attack in Syria's Idlib province killed more than 80 people, including several children.

What are chemical weapons?

- Chemical weapons are specialised munitions that deliver chemicals that inflict death or injury on humans through chemical actions.
- Some commonly used chemical weapons are mustard gas, phosgene, chlorine, and the nerve agents Sarin and VX.

Those in news

- **Sarin**: The UN had confirmed use of Sarin in the deaths of hundreds in a rebel-held Damascus suburb in 2013.

VX: nerve agent reportedly used in the assassination of Kim Jong-nam, half-brother of North Korean leader Kim Jong-un this February.

International conventions and forums against the use of chemical weapons

- **Geneva Protocol in 1925**: The Convention was silent on the production, storage and transfer of these chemicals.
- **Chemical Weapons Convention (CWC) of 1993** plugged these holes. It outlawed the production as well as stockpiling of chemical weapons. 192 countries have so far agreed to be bound by it— 4 UN states are not party: Israel, Egypt, North Korea and South Sudan.
- The CWC is administered by the Organisation for the Prohibition of Chemical Weapons (OPCW), which won the Nobel Peace Prize in 2013.
- The **Australia Group (AG)** is an informal forum of countries that, through the harmonisation of export controls, seeks to ensure that exports do not contribute to the development of chemical or biological weapons.

5.43. THE MASSIVE ORDNANCE AIR BLAST BOMB (MOAB)

- A GBU-43/B Massive Ordnance Air Blast (MOAB) bomb, nicknamed "mother of all bombs," was dropped on a tunnel complex of ISIS-Khorasan, a regional affiliate of the terror group, in Achin district of Afghanistan's Nangarhar province.
- It is also known as the 'mother of all bombs' is the largest non-nuclear bomb ever deployed in combat by the United States. The GBU-43 is a 21,600 pound (9,797 kg) GPS-guided munition.
- It is a thermobaric weapon, which uses oxygen from the surrounding air to generate an intense, high-temperature blast wave that packs an incredible amount of energy into a small, localised area. In comparison, most conventional bombs consist of a mix of fuel and oxygen-generating substances. Thermobaric weapons consist of almost entirely 100% fuel, and rely on atmospheric oxygen.

5.44. IMPORTANT DEFENCE/SECURITY RELATED NEWS

5.44.1. KALVARI CLASS SUBMARINE

Why in news?

- Indian navy successfully test fired an **anti-ship missile** from **INS Kalvari Submarine**.
- This anti-ship missile enhances submarines ability to neutralize surface threats at extended ranges.

About Scorpene class submarine

- Indigenously built diesel powered **Kalvari submarine** is first in the series of six **Scorpene class submarines**.
- These **Scorpene class** submarines are being built by **Mazagon Dock Limited (MDL)** in collaboration with **France's DCNS** under the **Project 75**.
- Recently, **INS Khanderi**, second of the six **Scorpene class submarine** was launched at **Mazagon Dock Limited**.
- These submarines are equipped with "**air independent propulsion system**" to allow submarine stay underwater for longer duration. They are designed to **operate in all theatres**, including the Tropics.
- They are endowed with superior **stealth features**, **precision guided weapons** and long range guided **torpedoes**.
- These classes of submarines can undertake various types of missions like anti-surface warfare, anti-submarine warfare, intelligence gathering, mine laying, area surveillance, etc.

PROJECT 75: Under this project, French company **DCNS** will provides design and technology to public sector **Mazagon Docks limited** to make **six** Scorpene submarines. These are expected to be commissioned by 2020.

5.44.2 KAVACH WALLS

- Kavach (KVx) series laser walls, developed by **Delhi-based defence firm CRON Systems**, will now be deployed on the India-Pakistan border to **detect intrusions and relay information for action**.
- Till now laser wall were being used that was visible. The terrain and alignments in the region was also a problem.
- Kavach series walls **would be based on infrared array** which is invisible. It would be used for rivers and unfenced marshy lands. It can also work in transparent water and glass.

5.44.3. BARAK MISSILES

- Defence Acquisition Council has approved the acquisition of **Barak long range surface-to-air missiles** for **Naval warships** to enhance India's maritime capability in the Indian Ocean region.
- The missiles will be **procured under 'Buy global' category** from **Rafael Advance Defense Systems Limited of Israel**.
- Almost all ships of the navy will be equipped with these missiles.
- **About Defence Acquisition Council**
 - It is headed by the Defence Minister.
 - It is a decision making body for the 'in principle' approval of Capital Acquisitions in the armed forces of India.
 - The decision flowing from the Defence Acquisition Council are to be implemented by the following three Boards:
 - ✓ Defence Procurement Board **headed by the Defence Secretary**;
 - ✓ Defence Production Board **headed by the Secretary (Defence Production)**;
 - ✓ Defence Research & Development Board **headed by the Secretary (Defence Research & Development)**.

Other decisions

The DAC also cleared procurement of '**Expendable Bathythermograph Systems**', a small torpedo-shaped device that holds a temperature sensor and a transducer to detect changes in water temperature, for the Indian Navy which **will be acquired from the US**.

5.44.4. PROJECT 15A

- INS Chennai, an indigenously designed **Guided Missile Destroyer and a part of Project 15A**, commissioned last year was dedicated to the service recently.
- **About Project 15A**
 - The **Kolkata class destroyers** are follow-on of the Delhi class destroyers (Project 15 – INS Delhi, Mysore and Mumbai) with enhanced stealth features.
 - The two preceding destroyers to INS Chennai are **INS Kolkata and INS Kochi**.

5.44.5. CCTNS

- **Sanjauli police station in Shimla, Himachal Pradesh** has become the first police post in the country to be linked with Crime and Criminal Tracking Network and Systems (CCTNS).
- **About CCTNS**
 - It was **launched in 2009** in the aftermath of the 26/11 attack.
 - It aims to establish **seamless connectivity among 15000 police stations** of India.
 - CCTNS is a **Mission Mode Project under the National e-Governance Plan**.
 - It will facilitate people in lodging online/offline complaints, police verification of job applicants, tenants, character verification and migrant labourer registration.
 - The data would be available to police district HQ or state HQ, institutions like IB, CBI and the Central Police Organizations.

5.45. MISCELLANEOUS TITBITS

- India's first **bio-refinery** (producing ethanol from variety of biomass like rice and wheat straw etc.) was recently launched in Pune. This would be a second generation biofuel plant. It will also help in the production of bio-fertilizers and bio-pesticides.
- Hyderabad has become India's first **Gigabit enabled city** (more than 1 Giga bit broadband speed).
- Uber used **Greyball**, a tool to systematically deceive law enforcement officials in cities where its service violated regulations. It allowed Uber to show images of "ghost" Uber cars on the app or show that no cars were available.

- Union Government is set to launch a scheme **IDEAS**, or Innovations for Development of Efficient and Affordable Systems, for students from higher educational institutions to volunteer to offer innovative, original and practical solutions to problems facing the country and win Rs 1 Crore.
- The **Synlight experiment** in Jülich, Germany which consists 149 film projector spotlights produces light about 10,000 times the intensity of natural sunlight on Earth. It is being developed as "the world's largest artificial sun" in the hope that intense light sources can be used to generate climate-friendly fuel.
- Scientists from the Chinese Academy of Sciences have found a soil fungus called **Aspergillus tubingensis** in Pakistan that **eats plastic**. It secretes enzymes onto the surface of the plastic, and these break the chemical bonds between the plastic molecules, or polymers.
- The researchers from Boston University School of Medicine have purified a protein – called PorB to provide a better vaccination response. It is found on the exterior of bacteria (neisseria meningidis).
- An **artificial womb/biobag** to support critically premature babies has been demonstrated successfully in animals (lamb) for the first time. It could radically improve outcomes for babies born prematurely that cannot breathe, feed or fight infection without medical help.
- The **Indian Railways** will soon introduce **End of Train Telemetry (EoTT)** equipment used to establish communication between the **locomotive driver and the last wagon of the train** ensuring that the train is running with all coaches/wagons as a complete unit.
- **Security/Defence related news-**
 - ✓ Recently, indigenously developed surveillance ship called INLCU L51, of the landing craft utility (LCU) Mk IV Class project, has been commissioned into Indian Navy.
 - ✓ Swathi is an indigenous mobile artillery locating radar (WLR) handed over to army and developed by DRDO. It has a range of 50 km, which brings all artillery guns presently in service worldwide under coverage.
 - ✓ **Terminal high altitude area defence system (THAAD)** is an USA's **missile defence system** that is designed to intercept and destroy short and medium and intermediate range ballistic missiles. **Israel's Iron Dome** has a **much shorter detection range** compared to the THAAD system.
 - ✓ The first ever 'Integrated Automatic Aviation Meteorological System (IAAMS)' was recently unveiled by Indian Navy at INS Rajali. It is a project of the Indian Navy to modernize the meteorological infrastructure of the nine Naval Air Stations (NAS).

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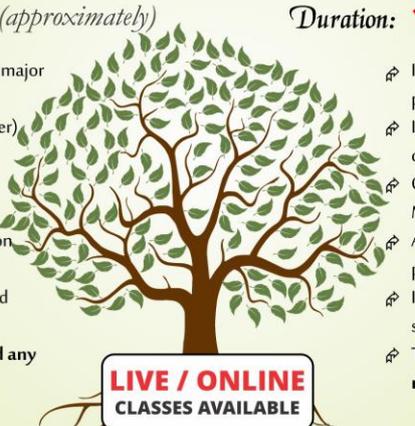
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LIVE / ONLINE CLASSES AVAILABLE

NOTE - Students can watch LIVE video classes of our COURSE on their ONLINE PLATFORM at their homes. The students can ask their doubts & subject queries during the class through LIVE Chat Option. They can also note down their doubts & questions & convey to our classroom mentor at Delhi center and we will respond to the queries through phone/mail. Post processed videos are uploaded on student's online platform within 24-48 hours of the live class.

6. SOCIAL

6.1. NATIONAL HEALTH POLICY 2017

Cabinet has recently approved National Health Policy (NHP) 2017 to address the current and emerging challenges in terms of socio-economic changes and epidemics since the last NHP in 2002.

Shifts seen in new policy

- **From communicable to non-communicable diseases:** policy advocates pre-screening and sets the target to reduce premature mortality via NCDs **by 25% by 2025.**
- **Collaborating & regulating the private sector:** it proposes
 - ✓ **National health care standards organization (NHCSO)** to lay down standards and protocol
 - ✓ **Tribunals** for redressal of grievances
- **Shift from sick-care to wellness:** For this,
 - ✓ **early screening** and diagnosis have been made a public responsibility
 - ✓ commitment to **pre-emptive care** to achieve optimum levels of child and adolescent health through school health programmes and focus on health and hygiene in curriculum
 - ✓ advocates 2/3rd or more allocation of health budget for Primary Health Care
 - ✓ assuring comprehensive primary health care through the Health and Wellness Centers'
- **Urban Health Care:** prioritizes addressing the primary health care needs of the urban population with special focus on poor populations, convergence among the wider determinants of health – air pollution, vector control, reduction of violence and urban stress.

Targets under NHP 2017

- Increasing life expectancy to 70 years from 67.5 years by 2025
- reduce infant mortality rate to 28 by 2019
- reduce under five mortality to 23 by 2025
- reduce Total Fertility Rate to 2.1 at the national and sub-national levels by 2025
- Maternal Mortality Ratio from current levels to 100 by 2020
- Reduce neo-natal mortality to 16 and stillbirth rate to “single digit” by 2025.

Provisions of health policy, its positive impact and related issues

Provisions	Positive impact	Related Issues
Strengthening role of public sector by increasing public health spending to 2.5% of GDP by 2025 from current 1.15% States should spend 8% of more of their budget towards health by 2020	<ul style="list-style-type: none"> • Will increase spending which has become nearly stagnant in recent years. 	<ul style="list-style-type: none"> • Lack of capacity to use higher level of funds • Still Much lower than even other developing countries' spending on health • Central budgets also must reflect steady rise annually
Affordable quality healthcare for all by ensuring following <ul style="list-style-type: none"> • Universal access to drugs and diagnostics, emergency and essential health services • providing every family with a health card for PHC services • secondary and tertiary care services through a combination of public hospitals & strategic purchasing in healthcare deficit areas from accredited non-governmental healthcare providers • Establish public health management cadre in all states 	<ul style="list-style-type: none"> • Reduce disease burden of India (from current 1/5th of the burden in world) • would bring people from diverse professional backgrounds acknowledging need for multi-disciplinary approach • Enable detection of state-specific health hazards and contain them before they spread. 	<ul style="list-style-type: none"> • Would require more human resources and funds • Need of more trained doctors and nurses and does not confront the pervasiveness of fake doctors constituting 'half' of the doctors here (WHO report) • District hospitals need to be strengthened and sub-district hospitals need to be upgraded.
Mainstreaming AYUSH systems by three-dimensional integration encompassing cross referrals, co-location and integrative practices across systems of medicines in both rural and urban areas.	<ul style="list-style-type: none"> • Stresses need of backing claims of traditional medicine focusing on pluralism and drawing upon diverse systems of medicine. 	<ul style="list-style-type: none"> • Still treated as subordinate to allopathic professionals

6.2. MENTAL HEALTHCARE ACT 2017

Background

The Act has been brought to harmonise the country's mental health laws to the UN Convention on Rights of Persons with Disabilities, to which the country is a signatory.

The **Bill defines "mental illness"** as a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, mental conditions associated with the abuse of alcohol and drugs.

Important provisions

- **Rights of person with mental illness-** every person shall have a right to access mental health care and treatment from mental health services run or funded by the appropriate government at an affordable price, free for homeless and BPL.
- **Advance Directives:** given by mentally ill person regarding her treatment and who shall be her nominated representative
- **Central and State Mental Health Authority:** These bodies are required to
 - register, supervise and maintain a register of all mental health establishments,
 - develop quality and service provision norms for such establishments,
 - maintain a register of mental health professionals
 - train law enforcement officials and mental health professionals on the provisions of the Act,
 - receive complaints about deficiencies in provision of services, and
 - Advise the government on matters relating to mental health.
- **Suicide is decriminalized:** person attempting suicide will be treated as mentally ill and will not be treated under IPC
- **Mental Health Review Commission:** will be a quasi-judicial body that will periodically review the use of and the procedure for making advance directives and advise the government on protection of the rights of mentally ill persons.
- Mental Health Review Board to protect the rights of persons with mental illness and manage advance directives.
- The Bill also specifies the process and procedure to be followed for admission, treatment and discharge of mentally-ill individuals.
- A person with mental illness shall not be subjected to electro-convulsive therapy without the use of muscle relaxants and anesthesia.

6.3. MEDICAL TERMINATION OF PREGNANCY (AMENDMENT) BILL, 2014

Why in News?

- In February 2017, the Supreme Court of India declined the plea of a woman to abort her foetus detected with Down syndrome.
- Medical Termination of Pregnancy Act 1971 (MTP Act), allows a woman to terminate her foetus till the 20th week of pregnancy. However, in certain exceptional circumstances, court relaxes the aforesaid time period and allows termination of pregnancy **only if** the foetus poses danger to the woman's life or is detected with an abnormal deformity.

Provisions of the Medical Termination of Pregnancy (MTP) (Amendment) Bill 2014

- Medical Termination of Pregnancy (MTP) (Amendment) Bill 2014 is intended to extend the legal limit for abortion from the present **20 weeks to 24 weeks** and will also allow for abortions-on-demand up to 12 weeks.
- The earlier act (MTP 1971) was guided by the objective of population control and preventing high mortality related to pregnancy; whereas, the new amended law would take into consideration a woman's choice and autonomy over her body by extending the time limit to go for abortion.
- The proposed bill would amend certain clauses by including special ground of 'substantial foetal abnormalities' for termination of foetus.
- The amended bill would cut the role of judiciary in case of any abnormality found in the foetus after the 20 week time period and would authorise the health care provider to terminate pregnancy

- Furthermore, the proposed bill has amended the definition of 'termination of pregnancy' by differentiating the medical and surgical methods. This would allow women to use and procure abortion-related medicines.

6.4. HIV/AIDS BILL

Why in News?

- Parliament has recently passed HIV and AIDS (Prevention and Control) Bill.

Provisions of the Bill

- **It aims to:**
 - Prevent and control the spread of HIV and AIDS
 - Prohibit discrimination against persons with HIV and AIDS
 - Provide informed consent and confidentiality in treatment
 - Place obligations on establishments to safeguard their rights
 - Creates mechanisms for redressing their complaints.
- It **lists out various grounds of discrimination** against HIV positive persons like **denial, termination, or unfair treatment** in employment, education, health care, housing, standing for public office, and insurance.
- It **prohibits individuals from publishing information or advocating feelings of hatred** against HIV positive persons and those living with them.
- No HIV test, medical treatment, or research will be conducted without an informed consent. **Only an informed consent or a court order can reveal this information.**
- Establishments keeping records of information of HIV positive persons **shall adopt data protection measures.**
- An ombudsman shall be appointed by each state to inquire into complaints related to the violation of the Act. It shall submit a report to the state government every six months stating the number and nature of complaints received and the actions taken.
- Every HIV infected or affected person below the age of 18 years has the right to reside in a shared household and enjoy the facilities of the household.

90:90:90 Strategy

It is a new HIV treatment that lays the groundwork to end the AIDS epidemic.

- 90% of all people living with HIV will know their HIV status (90% diagnosed)
- 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (90% on HIV treatment)
- 90% of all people receiving antiretroviral therapy will have viral suppression (90% suppressed)

Steps taken by Government of India

- Government launched a Central Sector Scheme - **National AIDS Control Programme (NACP).**
- **India has successfully achieved the 6th Millennium Development Goal (MDG 6) of halting and reversing the HIV epidemic.**
- For preventing HIV/AIDS transmission from mother to child,
 - **Prevention from Parent to Child Transmission (PPTCT)** programme have been integrated with the RCH programme.
 - **PALS (PPTCT ART Linkages Software) System has also been launched** to maintain details of all HIV positive pregnant and breast feeding women and their newborn babies.
- Government would be implementing the **90:90:90 strategy** as adopted by UNAIDS.
- **Test and Treat Policy for HIV:** As soon as a person is tested and found to be positive, he/she will be provided with free treatment of ART (antiretroviral therapy) irrespective of his CD4 T count or clinical stage.

What are CD4 T cells?

- White Bloods Cells in the body that strengthen immunity.

HIV tests

- **ELISA test**
 - ✓ An enzyme-linked test that detects and measures antibodies in your blood.
- **Viral load test**
 - ✓ Measure the amount of HIV in blood number of copies of HIV RNA in a millilitre of blood.

6.5. NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS ELIMINATION 2017-2025

Why in news?

- On the World TB day (24 March, 2017), Union Minister of Health and Family Welfare announced the National Strategic Plan for Tuberculosis Elimination 2017-2025.

Features of National Strategic Plan

- The action plan aims to achieve active case finding of TB to 100% by 2020 and complete elimination of TB by 2025.
- The aim of this Action Plan is to do away with the earlier strategy of self-reporting where few patients get themselves tested; and rather, focus on detecting more cases, both drug-sensitive and drug-resistant, by government itself reaching out to patients.
- The requirements for moving towards TB elimination have been integrated into the four strategic pillars of “**Detect – Treat – Prevent – Build**” (DTPB).
- It is a vision document designed to address co-morbidity of TB with HIV by strengthening care such as joint management of TB/HIV co-infected patients, TB/DM management etc.
- Implementation will be a combined effort of all stakeholders such as NGOs, local governments, state welfare schemes and machinery working towards the same goals.
- For the first time, the TB control programme talks about having in place patient-friendly systems to provide treatment and **social support**, which would encompass the reducing out of pocket expenditure such as; cost of treatment, cost of travels, cost of diagnosis and wage loss.
- The plan conceives a shift from regulatory approach to partnership approach (Synergy) with the largely unorganized and unregulated private sector.
- Moreover, new **anti-TB drug Bedaquiline** has been introduced under Conditional Access Programme (CAP).
- IT based **E-Nikshay platform** has been made user friendly so that Private Doctors find it easy to notify.
- **Swasth E-Gurukul TB** and myriad TB Awareness Media Campaigns would not only focus on awareness but also on fighting stigma and discrimination prevalent against the TB patients.
- The strategic plan envisions a TB Corpus Fund maintained by Bharat Kshay Niyantran Pratishtan’ (India TB Control Foundation).

What is Swasth E-Gurukul?

- Swasth-e-gurukul is an e-learning initiative of World Health Organization.
- It is a single repository for training material for all disease programmes such as TB, AIDS, leprosy, malaria, diabetes etc.
- The Initiative provides information to all health care providers.

What is NIKSHAY?

- It is an IT tool which facilitates monitoring of universal access to TB patients database.
- Developed jointly by the Central TB Division of the Ministry of Health and Family Welfare and National Informatics Centre (NIC).
- Implemented at national, state, district and Tuberculosis Unit (TU) levels.
- Utilises SMS technology for communication with TB patients and grassroots level healthcare services providers as well as health and family welfare policy makers.
- Moreover, the tool establishes a correlation between TB & HIV, leading to outcome analysis of treatment.

6.6. NATIONAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE

Why in News?

- India recently has launched **National Action Plan on Antimicrobial Resistance**.
- Government also signed a “**Delhi Declaration**” to strategize collectively with WHO, FAO and other UN agencies to implement the national and state action plans on Anti-Microbial Resistance.

Features

- **India's action plan has objectives of –**
 - Enhancing awareness among masses and strict adulteration laws.
 - Strengthening surveillance.
 - Improving rational use of antibiotics.
 - Reducing infections
 - Promoting policies and research in anti-microbial resistance.
 - Support neighbouring countries in collective fight against infectious diseases

Interagency Coordination Group on Antimicrobial Resistance

- The United Nations recently announced the establishment of an **Interagency Coordination Group on Antimicrobial Resistance**
- It would be which co-chaired by Deputy Secretary-General and World Health Organization (WHO) Director-General

Government efforts on AMR

- Government has initiated a series of actions including –
 - Setting up a **National Surveillance System for AMR**
 - Enacted **regulations (Schedule-H-1) to regulate sale of antibiotics**
 - Brought out **National Guidelines for use of antibiotics.**
 - AMR is now being addressed **comprehensively under "One Health Approach"**.

One Health recognizes that the health of humans, animals and ecosystems are interconnected. It involves applying a collaborative, multidisciplinary and cross-sectoral approach to address potential or existing risks that originate at the animal-human-ecosystems interface.

6.7. INDIA CHANGES THE DEFINITION OF BLINDNESS

Why in news?

- In April 2017, Union Health Ministry through a notification changed the definition of 'blindness' tuning it with the globally accepted definition of the blindness, as recommended by the World Health Organisation.

National Programme for Control of Blindness and Visual Impairment

- Centrally Sponsored scheme with the goal to reduce the prevalence of blindness from 1.4% to 0.3% of total population by 2020.
- It envisions developing and strengthening the programme for "Eye Health" and prevention of visual impairment; through provision of comprehensive eye care services and quality service delivery.
- Strengthening and up-gradation of infrastructure for eye health care.
- To enhance community awareness on eye care and lay stress on preventive measures.

More on the news

- Previous definition of Blindness
 - ✓ According to **National Programme for Control of Blindness (NPCB) 1976**, a person unable to count fingers from a distance of **six metres** is categorised as blind.
- New Definition of Blindness
 - ✓ According to the World Health organisation, a person who is unable to count fingers from a distance of **three metres** would be considered blind.
- Moreover, the name of the scheme, 'National Programme for Control of Blindness' has been changed to 'The **National Programme for Control of Blindness and Visual Impairment**'.

6.8. NEGLECTED TROPICAL DISEASES

- In April 2017, WHO released its fourth report on neglected tropical disease and progress made for achieving the roadmap target for 2020.
- Providing safe water, sanitation and hygiene (known as WASH) is a key component of the NTD strategy which has proved to be caused for declined hygiene related mortality.

What are Neglected Tropical Diseases (NTD)?

- Diverse group of communicable diseases that prevail in tropical and subtropical conditions. Such as Malaria, TB, HIV, Hepatitis, lymphatic filariasis etc.
- Mostly affect populations living in poverty, without adequate sanitation and in close contact with infectious vectors and livestock.

6.9. MISSION INDRADHANUSH

Why in news?

- PMO (Prime Minister Office) had advance the deadline of **Mission Indradhanush** from 2020 to 2018.
- PMO will review the mission through multi-modal platform **PRAGATI (Pro-Active Governance and Timely Implementation)** platform.

Mission Indradhanush

- It is a strategic endeavour under Universal Immunisation Programme 1985.
- It targets to immunize **all children below two years of age either unvaccinated, or are partially vaccinated** as well as **all pregnant women**.
- Immunisation against **seven vaccine preventable diseases** namely; Diphtheria, Pertussis, Tetanus, Childhood Tuberculosis, Polio, Hepatitis B and Measles.
- Moreover, Vaccines for Japanese Encephalitis, Haemophilus influenza type B, inactivated polio vaccine, Rotavirus vaccine and Measles Rubella vaccine are also being provided in selected states.
- Mission is technically supported by WHO, UNICEF, Rotary International and other donor partners.

What is PRAGATI (Pro-Active Governance and Timely Implementation)?

- It is an integrating and interactive platform aimed at addressing common man's grievances, and simultaneously monitoring and reviewing important programmes.
- It use the Digital data management, video-conferencing and geo-spatial technology.
- It is a three-tier system (PMO, Union Government Secretaries, and Chief Secretaries of the States).

Universal Immunisation Programme 1985.

- The UIP provide free of cost vaccines to all children during the first year of life.
- To protect them against **12 life threatening diseases namely;** tuberculosis, diphtheria, pertussis (whooping cough), tetanus, poliomyelitis, measles, Hepatitis B, Diarrhoea, Japanese Encephalitis, rubella, Rotavirus and **Pneumonia** (added in May 2017).

Pneumonia vaccine

- India accounts for nearly 20% of global pneumonia deaths.
- Pneumococcal conjugate vaccine (PCV) will give protection against 13 types of pneumococcal bacteria.

6.10. VISION ZERO CONFERENCE: OCCUPATIONAL, SAFETY AND HEALTH

Why in news?

- Government of India, Ministry of Labour and Employment with the collaboration of Germany social security organised **the world first Global conference** on 15-17 March 2017 on theme of '*Vision Zero conference on Occupational safety and health*'.

What is Vision Zero?

- It is an emerging effective tool for improving the occupational safety and health of the worker by achieving the Zero-Accident at workplace.
- The tools involve the safety manual, network and alliance for Ground Level Corporation, protective equipment, industrial hygiene, and environment protection at workplace.

6.11. HUMAN DEVELOPMENT REPORT 2016

Why in news?

The latest Human Development Report, 2016 was released in March 2017 by United Nation Development Program (UNDP).

Background

- First Human Development report was published in 1990.
- This approach was developed by economist **Mahbub Ul Haq** and Nobel Laureate **Amartya Sen**.

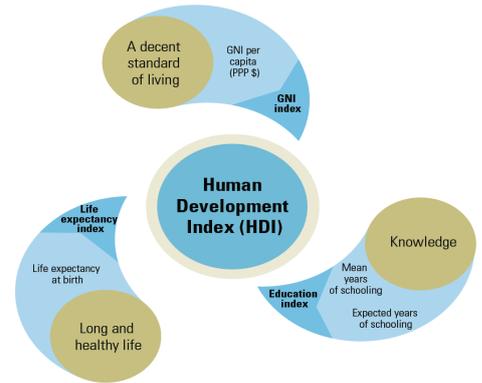
What is Human Development Report?

- It is an annual report released by UNDP.
- It provides an annual ranking of countries based on the Human Development Index.

- It introduced a new approach called **Human Development Approach** which is about expanding the richness of human life (**focus on their health, education, etc**) rather than simply the richness of the economy (GDP) in which human beings live.

Three dimensions of Human Development

- First is **Decent Standard of Living** which is calculated through the **Gross National Income Per Capita**.
- Second is **Long and healthy life** which is calculated through **Life Expectancy at Birth**.
- Third is **Access to Knowledge** which is calculated through **mean years of education among the adult population** and **expected years of schooling for children**.



HDR report also includes four other indices

- **Inequality Adjusted HDI:** It adjusts the Human Development Index (HDI) for inequality.
- **Gender Development Index:** measures gender gaps disparities between women and men in three dimension of human development namely **health, knowledge and living standards**.
- **Gender Inequality Index:** It was introduced in **2010**. It is index for measurement of gender disparity using three dimensions
 - ✓ **Reproductive health for women:** It uses **maternal mortality rate** and **adolescent birth rate**.
 - ✓ **Empowerment:** It uses **proportion of parliamentary** seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education.
 - ✓ **Economic status:** It is measured by **labour force participation** rate of female and male populations aged 15 years and older.
- **Multidimensional Poverty Index:** It also measures deprivations across the three dimensions as used for HDI namely **health, knowledge and living standards**.

India related Facts

- HDI: With HDI value of **0.624**, India is ranked at **131st/188** countries. In 1990 India's HDI value was **0.428** (witness an increase of **45.8%** over 25 years). This improvement is **second** among BRICS countries after china (Improvement of 48%). Last year India was ranked at **130th position**.
- It is placed in "**medium human development**" category alongside countries such as **Congo, Namibia and Pakistan, Bangladesh, Myanmar, Kenya, etc**.
- Among the **SAARC countries**, India is behind **Sri Lanka (ranked 73rd)** and the **Maldives (ranked 105th)**, both of which figure in the "**high human development**" category.
- **Inequality:** When India's HDI is adjusted for inequality its value drops by 27%, from 0.624 to 0.454.
- **Health:** India's life expectancy at birth is **68.3 years**. For very high human development countries average life expectancy at birth is **79.4 years**.

6.12. NEED FOR NATIONAL POLICY ON THALASSEMIA

Why in News?

- On World Thalassaemia day (May 8) various researchers and health experts call for National Policy on Thalassaemia.
- India is the thalassaemia capital of the world with 40 million carriers and over 1,00,000 thalassaemia majors under blood transfusion every month.
- Thalassaemia is now considered as a **disability** under **Rights of Persons with Disabilities Act 2016**, rather than a health issue.
- National Health Policy 2017 has overlooked the rare and genetic disease which is huge burden on public exchequer.

What is Thalassaemia?

- It is a genetic blood disorder with no cure except bone marrow transplant (BMT).
- Characterised by abnormal production of haemoglobin in the body. The abnormality results in improper oxygen transport and destruction of red blood cells.
- Lead to iron overload, bone deformities and in severe cases can cause heart diseases.
- It require regular blood transfusions as an effective measure to prolong life.

6.13. NATIONAL ORAL HEALTH PROGRAMME

Why in News?

- Ministry of Health and Family Welfare celebrated **World Oral Health Day** on 20th March 2017.

National Oral Health Programme

- It is a comprehensive oral health programme which comes under National Health Mission.
- It envisages an affordable, accessible and equitable oral health care delivery by 2020.

What is Oral Health?

- World Health Assembly in 2005 included Oral Health with other non-communicable diseases (NCDs).
- It is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay etc.

6.14. PARTICULARLY VULNERABLE TRIBAL GROUPS

Why in News?

- A recent Anthropological Survey of India (AnSI) study 'PVTGs - Privileges and Predicaments' has revealed that no base line surveys have been conducted for more than half of the Particularly Vulnerable Tribal Groups (PVTGs) in India.

Anthropological Survey of India (1945)

- It is involved in **anthropological studies** like studying the tribes, collecting samples of tribal art, study and preserve the human skeletal remains etc.
- It operates under the Ministry of Culture.

Findings of the report

- State governments should conduct such surveys to have data on demographic and socio-economic status of the PVTGs and remove repetition and overlaps in data.
 - E.g. Mankidia and the Birhor in Odisha refer to the same group and are mentioned twice.
 - Some PVTGs are distributed in more than one State and are recognized multiple times like Bihors spread in 4 States.
- The **highest number of PVTGs** are found in Odisha (13) followed by Andhra Pradesh (12)).
- All the four tribal groups in Andaman and one in Nicobar Islands are PVTGs.
- There are **regional and State-specific variations in welfare schemes for PVTGs**.
- There is a **huge variation in population of PVTGs** –
 - **Senteneles** (Andaman) have the smallest population.
 - In the mainland, **Toto of West Bengal and Toda of Tamil Nadu** have less than 2000 persons.
 - **Saharia of MP and Rajasthan** are the largest with population more than 4 lakhs.

PVTGs

- In 1973, the **Dhebar Commission** created Primitive Tribal Groups (PTGs) as a separate category, who are less developed among the tribal groups. They were later renamed as PVTG.
- States/UTs submit proposals to the **Central Ministry of Tribal Welfare for identification of PVTGs**.
- **Some basic characteristics of PVTGs are:**
 - Mostly homogenous
 - A small population
 - Relatively physically isolated
 - Primitive Social institutions
 - Absence of written language
 - Relatively simple technology and a slower rate of change
- **Scheme for Development of Primitive Vulnerable Tribal Groups (2008)**
 - It identifies 75 PVTGs as the most vulnerable among the Scheduled Tribes.
 - A long term Conservation-cum-Development plan for five years for each PVTG to be established by States. The Scheme is funded entirely by the Central government.

6.15. COMMUNITY RADIO

Why in News?

- Recently, Ministry of I&B **increased the subsidy for setting up Community Radio Station** from 50% to 90% in the North Eastern States and 75% in other states subject to a maximum limit of Rs 7.5 lakh.

Community Radio

- It is a type of broadcasting service which **caters to the community interests** rather than focus on commercial interests. E.g. Focus on eradicating social evils in the community etc.
- Usually it is run by members of the same community that it serves.

- Universities & NGOs have been permitted to set up Community Radio (CR) stations in India.

Need

- The Constitution provides the citizens of the country with the **Right to Information as per Article 19 (1)(a)**. The community radio is tool to augment this.
- The need to **promote last mile connectivity for government awareness programmes** dictates the need to set more Community Radio stations.

TRAI recommendation on Community Radio (2013-14)

- **Content:**
 - Allow re-broadcast news from All India Radio.
 - Allow translation of news into local language without distorting the content.
- **License Renewal:**
 - Incumbent stations can be given 5 year renewal.
 - Further extension would be subject to self-evaluation reports.
- **Regulation:** An e-governance enabled single window mechanism for applicants to overcome cumbersome and bureaucratic processes.

Significance

- The most significant advantage of community radio station is that it is **run by local communities in native languages**. This helps in getting a **better informed citizenry**.
- Community radios broadcast mostly to low-income audiences and their content is development oriented. This acts a tool of empowerment of socio-economically backward class.

Guidelines on Community Radio (2006)

- It gave a Community Radio license for five years.
- There was no mention of a mechanism for extension/renewal of licenses of existing radio stations.

6.16. PARTHA MUKHOPADHYAY WORKING GROUP ON MIGRATION

Why in news?

- The Working Group on Migration (headed by Partha Mukhopadhyay) set-up by the Ministry of Housing and Urban Poverty Alleviation (HUPA) in 2015, submitted its report to the government by recommending various policy matters for social welfare measures and administrative actions for the development of migrants.

Recommendation of the working Group

- Caste based enumeration of migrants should be adopted, so that they can avail the attendant benefits in the States to which migration takes place. For example, a migrant of Scheduled Tribe community of Arunachal Pradesh can avail the intended benefits in Punjab and Haryana by interstate operability of PDS
- States should move away from the requirement of domicile status to prevent any discrimination in work and employment for the migrants.
- The vast network of the Post Offices, banking system and Payment Banks, need to be strengthened in order to reduce the cost of transfer of money and to avoid informal remittances channels.
- Furthermore, underutilised **Construction Workers Welfare Cess Fund** should be used to promote rental housing, working Women Hostels for the benefits of migrants.

Construction Worker Welfare Cess Fund

- This fund is maintained by Construction Workers welfare Boards under Construction Workers Welfare Cess Act, 1996, for which a welfare board was created by Central and state government concern.
- The major source of the fund to the Board is collection of cess @ one percent of the cost of construction incurred by the employer under the act.
- The construction workers are basically unskilled, migrant, socially backward, uneducated with low bargaining power. Moreover, their work has inherent risk of life and health. Thus the fund is for the various welfare measure of workers.

6.17. SODHGANGA

Why in News?

- University Grants Commission **mandated** that the institutions concerned shall submit an **electronic copy** of the M.Phil. dissertation /Ph. D. thesis to the **Information and library Network (INFLIBNET)**.

What is Sodhganga?

- It is a scheme to develop national repository of theses and dissertations of various universities in India.
- It envisions the digital study material for higher education.

Information and library Network (INFLIBNET)

- INFLIBNET Centre is Gandhinagar-based (Gujarat), **autonomous** Inter-University Centre of the University Grants Commission (UGC) of India.
- INFLIBNET is involved in **modernizing university libraries** in India and connecting them as well as information centres in the country through a nation-wide high speed data network.

Some other Digital Platform for Education

- SWAYAM
 - ✓ a Web portal where Massive Open On-line Courses (MOOCs) will be available on all kinds of subjects.
- E-PATHSHALA
 - ✓ Provides access to textbooks and other resources developed by the NCERT.
- SARANSH
 - ✓ Equip schools and parents to review student's performance in various subjects.
- ShaGun
 - ✓ Dedicated web portal, aims to capture and showcase innovations and progress in Elementary Education sector and monitoring of the flagship scheme - Sarva Shiksha Abhiyan (SSA).

6.18. INDIA CHANGES THE DEFINITION OF BLINDNESS

Why in news?

- In April 2017, Union Health Ministry through a notification changed the definition of 'blindness' tuning it with the globally accepted definition of the blindness, as recommended by the World Health Organisation.

More on the news

- Previous definition of Blindness
 - ✓ According to **National Programme for Control of Blindness (NPCB) 1976**, a person unable to count fingers from a distance of **six metres** is categorised as blind.
- New Definition of Blindness
 - ✓ According to the World Health Organisation, a person who is unable to count fingers from a distance of **three metres** would be considered blind.
- Moreover, the name of the scheme, 'National Programme for Control of Blindness' has been changed to 'The **National Programme for Control of Blindness and Visual Impairment**'.

National Programme for Control of Blindness and Visual Impairment

- Centrally Sponsored scheme with the goal to reduce the prevalence of blindness from 1.4% to 0.3% of total population by 2020.
- It envisions developing and strengthening the programme for "Eye Health" and prevention of visual impairment; through provision of comprehensive eye care services and quality service delivery.
- Strengthening and up-gradation of infrastructure for eye health care.
- To enhance community awareness on eye care and lay stress on preventive measures.

6.19. NEGLECTED TROPICAL DISEASES

- In April 2017, WHO released its fourth report on neglected tropical disease and progress made for achieving the roadmap target for 2020.
- Providing safe water, sanitation and hygiene (known as WASH) is a key component of the NTD strategy which has proved to be caused for declined hygiene related mortality.

What are Neglected Tropical Diseases (NTD)?

- Diverse group of communicable diseases that prevail in tropical and subtropical conditions. Such as Malaria, TB, HIV, Hepatitis, lymphatic filariasis etc.
- Mostly affect populations living in poverty, without adequate sanitation and in close contact with infectious vectors and livestock.

6.20. WOMEN IN POLITICS MAP

- **Women in Politics Map** was launched recently by **Inter-Parliamentary Union and UN Women**.
- India has been ranked 148 in this map. India has **18.5% representation of women in Cabinet** and is greater than the Asian average.
- The top 5 countries in terms of women in Parliament are – **Rwanda, Bolivia, Cuba, Iceland and Nicaragua**.
- **About Commission on Status for Women**
 - It is the **principal global intergovernmental body** exclusively dedicated to the promotion of gender equality and the empowerment of women.
 - It is a **functional commission of the Economic and Social Council (ECOSOC)** and was established in 1946.
 - It also monitors and reviews progress and problems in the implementation of the **Beijing Declaration and Platform for Action** and the follow-up to the 2030 Agenda for Sustainable Development to accelerate the realization of gender equality and the women empowerment.

Inter-Parliamentary Union

- It was established in 1889.
- It is an international organization of Parliaments.
- It acts as a platform for **world-wide parliamentary dialogue** and works for peace and co-operation among people and for the firm establishment of **representative democracy**.
- Its headquarters is in **Geneva**.
- India is also its member state.

UN Women

- It was **created by UNGA in 2010**. It is headquartered in New York.
- It merges and builds on the important work of four previously distinct parts of the UN system, which focused exclusively on **gender equality and women's empowerment**:
 - Division for the Advancement of Women (DAW)
 - International Research and Training Institute for the Advancement of Women (INSTRAW)
 - Office of the Special Adviser on Gender Issues and Advancement of Women (OSAGI)
 - United Nations Development Fund for Women (UNIFEM)
- The Commission consists of one representative from each of the **45 Member States elected by the Economic and Social Council on the basis of equitable geographical distribution**:
 - 13 members from Africa
 - 11 from Asia
 - 9 from Latin America and Caribbean
 - 8 from Western Europe and other States
 - 4 from Eastern Europe

6.21. SWACHH SURVEKSHAN 2017: INDORE CLEANEST CITY

Why in News?

- On May 4, 2017, Ministry of Urban Development has released the finding of Swachh Survekshan 2017.

Highlights

- The Swachh Survekshan 2017 was conducted by **Quality Council of India** in 434 cities and towns to monitor the progress of the Swachh Bharat Mission.
- Indore has been declared the cleanest city in India and Bhopal ranked second.
- Gujarat has the highest number with 12 of its cities among the top 50 clean cities followed by Madhya Pradesh with 11 cities.

Quality Council of India

- It was set up jointly by the Government of India and ASSOCHAM, Confederation of Indian Industry (CII) and FICCI
- Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, is the nodal ministry for QCI.
- Provide right and unbiased information on quality related standards
- Represent India's Interest in International forums.

Swachh Survekshan-2017 - Aimed at capturing the outcomes of efforts towards:

- Open Defecation Free
- Door-to-door collection of garbage
- Processing and disposal of Municipal Solid Waste.

6.22. TRANSGENDER ATHLETICS

- Kerala became the **first state to organize a state level transgender athletics meet in Thiruvananthapuram**.
- There were six disciplines — 100, 200 and 400m sprints and 4x100m relay, shot put and long jump.

- **Other steps by Kerala government on transgender**
 - Kerala was the first state to formulate a transgender policy aimed at ending the discriminatory treatment and bringing transgenders to the mainstream.
 - It also introduced a separate column called intersex in the birth and death registration form.

It has been made mandatory for all government buildings to have separate washrooms for the third sex.

6.23. MISCELLANEOUS TITBITS

- **Gunotsav programme is an effort of Assam government** to track the performance of every child in elementary level, assess their individual learning gap and devise remedial measures to be taken for their improvement.
- Iceland's parliament has presented a bill that would require **public and private businesses** to prove they offer **equal pay to employees** (both male and female). This would be the first such requirement proposed globally. Iceland's is already ranked 1 in the Global Gender Gap Index.
- An international centre for **Foot and Mouth Disease** was recently inaugurated in **Bhubneshwar**. This would act as a research centre for SAARC countries as well.
- National Institute of Immunology has developed **Mycobacterium Indicus Pranii (MIP)**, an indigenous vaccine for **leprosy**.
- **Electronic vaccine intelligence network (eVIN)** project of Ministry of Health and Family Welfare is an indigenously developed technology system in India that digitises vaccine stocks and monitors the temperature of the cold chain through a smartphone application. The technological innovation is implemented by the **United Nations Development Programme (UNDP)**.
- The **2016 India Exclusion Report** released by Center of Equity Studies reviews exclusion with respect to four public goods: pensions for the elderly, digital access, agricultural land, and legal justice for undertrials.

ALL INDIA TEST SERIES

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7. CULTURE

7.1. RELIGION/PHILOSOPHY

7.1.1. SAINT TYAGRAJA

Why in news?

- Recently the 250th birth anniversary of Saint Tyagraja was celebrated.

About Saint Tyagraja

- Saint Tyagraja is one of the principal composers of the Carnatic trinity along with along with Muthuswami Dikshitar and Syama Sastri.
- He is referred to as Thyagabrahmam.
- Tyagaraja was born on 14th May 1767 in the village of Thiruvayaru in the Thanjavur district of Tamil Nadu.
- With the influence of Ramayana, he became an ardent devotee of Lord Rama. He composed about 24000 songs in his life devoted to Lord Ram.
- Tyagaraja Aradhana, a music festival conducted in honour of Tyagraja is organized in Thiruvaiyaru between the months of January and February every year.

7.1.2. BASAVA JAYANTI

Why in news?

- **Basavanna Jayanti or Basava Jayanti** which marks the 884th birth anniversary of 12th century social reformer **Basaveshwara** was recently celebrated in Karnataka.

About Basaveshwara

- He is considered to be the founder of **Lingayatism or Lingayat Sect or Veerashaivism**.
- He was responsible for sweeping social changes in Karnataka during 12th century.
- He stood for the upliftment of the downtrodden and fought the evils that had crept into the Brahmanic Vedic tradition.
- He scripted his practical experiences in a novel form of literature called –**Vachana (poetry)**. The main aim of Vachana (poetry) movement propagated welfare for all.
- He heralded the establishment of '**Kalyana Rajya**' (**Welfare state**)
- He gave two important and innovative concepts called "Sthavara "and "Jangama", the meaning of which is "Static" and "Dynamic" which are the main foundation stones of the revolutionary ideology of Basavanna.

7.1.3. INTERNATIONAL BUDDHIST CONFERENCE

- Recently, **International Buddhist Conference** was organized by **Ministry of Culture and Nava Nalanda Mahavihara** (deemed university) **at Rajgir**. There were two highlights of the inaugural session –
 - Release of the reprint of the Pali Tripitaka in Devanagiri script
 - Opening of the Department of the Buddhist science for the first time in Asia.
- **About Tripitakas**
 - It is also called Pali canon.
 - It was composed in Pali of the Theravada branch of Buddhism.
 - There are three pitakas –
 - ✓ **Vinaya Pitaka ("Basket of Discipline")** – It provides for the regulation of monastic life.
 - ✓ **Sutta Pitaka ("Basket of Discourse"/ Sutra Pitaka)** – This is the largest Pitaka and **covers sermons and doctrinal and ethical discourses** attributed to the Buddha or, in a few cases, to his disciples.
 - ✓ **Abhidhamma Pitaka ("Basket of Special/Further Doctrine")** – It covers short writings containing everything from songs and poetry to stories of the Buddha and his previous lives.

7.1.4. THAKURANI JATRA FESTIVAL

What is it?

- The month long festivities of the Thakurani Jatra festival recently concluded in the city of Behrampur.

About the Festival

- Thakurani Jatra festival is a **biennial festival** celebrated in the **city of Behrampur (the silk city), Odisha**.
- Also known as **Ghata Yatra**, it is the chief festival of Southern Odisha.
- The festival marks the worship of Maa Buddhi Thakurani who is considered the **istadevi** and **Surakshya Kabacha (protector)** of the city of Behrampur.
- Originally the Deras, a weaver community, worshiped the goddess.

7.2. ARCHITECTURE

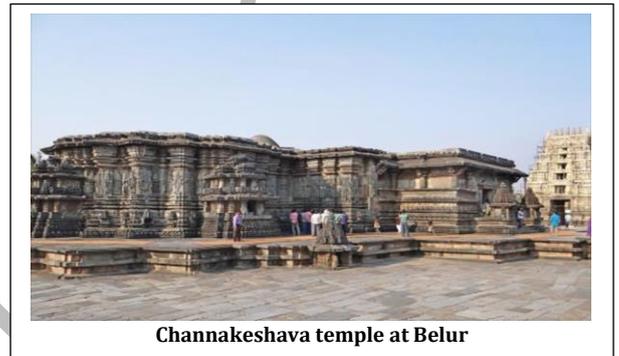
7.2.1. CHANNAKESHAHA TEMPLE

Why in news?

- The **Channakeshava temple** (also known as **Vijayanarayana Temple**) in Belur in Hasan district, **Karnataka** turned 900 this year.
- The temple has been built by King **Vishnuvardhana** of the **Hoysala dynasty** between 1106-1117 AD.

About Hoysala Architectural style

- The **Hoysala architectural style** is considered an intermediate between the **Indo-Aryan** and **Dravidian traditions**.
- They were influenced by the western **Chalukyan architecture** and employed their craftsmen as well.
- Some of the **distinctive styles** are:
 - ✓ The temples have a **star shaped base** with the main structure standing on a raised platform.
 - ✓ The **garbha griha** (sanctum sanctorum) houses a centrally placed **murti**(enshrined icon) on a **pitha** (pedestal).
 - ✓ There are **three shrines structured** around a central pillared hall, each with a tower.
 - ✓ Pillars with **horizontal mouldings**, produced by a mechanical process.
 - ✓ There are intricate **grille windows**, an abundance of **sculptural details**.
 - ✓ The **sikharas** unlike the northern style (parabolic) are constructed in well-defined horizontal tiers and together with **sanctum sanctorum** they form the vimana of temple.
 - ✓ In temple courtyard (**Prakram**) several **minor shrines** and **outbuildings** often abound.
 - ✓ The temple may be approached via entrances with gigantic **gopurams** (gigantic entrance towers) towering over each doorway.
- The temples are almost entirely covered with intricate sculptural carvings. This was mainly possible, for the temples were constructed out of a very fine grained soft **soap stone (chloritic schist)**.
- Other major temples of these styles are: **Hoysaleswara temple, Halebid, Karnataka** and **Kesava temple, Somnathapura, Mysore (Karnataka)**.



Channakeshava temple at Belur

7.2.2. ELEPHANTA CAVES

- India's first and longest ropeway to connect **Mumbai with Elephanta Island** in the Arabian Sea is being planned to be constructed by the **Mumbai Port Trust**.
- **About Elephanta island**
 - It was the Portuguese who dubbed the island Elephanta because of a large stone elephant near the shore.
 - It is locally called Gharpuri island.
 - Elephanta cave on it is a UNESCO world heritage site
 - ✓ It is a rock-cut architecture .
 - ✓ These caves were constructed in the mid-5th to 6th centuries AD.
 - ✓ The most important among the caves is the **great Cave 1 because of the Sadashiva** rock cut on entrance.
 - ✓ The sculpture **represents three aspects of Shiva - Creator, Preserver and Destroyer**, identified respectively with **Aghora or Bhairava** (left half), **Taptapurusha or Mahadeva** (central full face) and **Vamadeva or Uma** (right half).

7.2.3. RESTORING THE JEWELS OF DECCAN

Why in news?

The Aga Khan Trust for Culture's ongoing restoration of the Qutb Shahi necropolis in Hyderabad.

Who were the Qutb Shahis?

- Contemporaries of the Mughals, the Qutb Shahi dynasty was founded in 1512 by sultan Quli Qutb-ul-Mulk. Before founding his empire, he served in the Bahmani Sultanate.
- The fifth king, Quli Qutb Shah, established Hyderabad in 1591. He also built the Charminar.
- They ruled till 1686-87, when Aurangzeb conquered Golconda.

Aga Khan Trust for Culture (AKTC)

- The AKTC is a philanthropic foundation
- In 1997, it undertook garden restoration at Humayun's Tomb in New Delhi.

About Qutb Shahi necropolis in Hyderabad

- The 106-acre park consists of 75 monuments, including 40 mausoleums, 23 mosques, six baolis (step-wells), a hamam (Persian bath), pavilions and garden structures.
- They have Iranian influences as well as the elements of Vijayanagara architecture.
- The park has already been nominated for UNESCO World Heritage Site status.
- While the Mughals worked mostly with sandstone and marble, it uses granite that was available locally.

7.3. PROSPECTIVE UNESCO WORLD HERITAGE SITE

Why in news?

- The Buddhist Heritage sites at Salihundam (Srikakulam district) and Sankaram near Anakapalle in Visakhapatnam district, in addition to Lepakshi (Anantapur district) and the Nagarjunakonda International Museum (Guntur district) are likely to find a place in the list of Unesco World Heritage Sites.

About

- **Salihundam in Srikakulam district-**
 - Situated at south bank of River vamsadhara, stupas and shrines were built between 2nd to 12th century reflecting Theravada, Mahayana and Vajrayana phases.
 - Stone images of 'Marichi' (the Goddess of dawn) and 'Tara' (a Yogini of Buddhist era) were excavated along with a few gold coins of later Satavahana period.
- **Lepakshi Temple in Anantapur district**
 - It is the location of shrines dedicated to Shiva, Vishnu and Veerabhadra which were built during the Vijayanagara Kings' period (1336–1646)
 - The temples are the finest example of mural paintings on the walls of Shiva temple and Vijayanagar architectural style of the temple building
 - Large granite Nandi bull and a hanging pillar(it does not touch the ground) among all 70 pillars of Veerbhadra temple built by the brothers, Virupanna and Veeranna in 1583 who were initially in the service of the Vijayangar kings, is special feature.
- **Nagarjunakonda International Museum**
 - Situated on an island in Nagarjunasagar dam, named after great Buddhist scholar Acharya Nagarjuna. Nagarjunakonda "the place" was a great religious center promoting Brahmanical and Buddhist faiths,
 - It was an extensive Buddhist establishment nourishing several sects of Buddhism that culminated into the full-fledged Mahayana pantheon.
 - The museum established to collect, preserve and exhibit the antiquities retrieved from the excavations and is housed in a spacious structure similar to a Buddhist Vihara.

7.4. BANGANAPALLE MANGO

Why in news?

- **Registrar of Geographical Indications Registry (RGIR)** granted the Banganapalle Mango and **Bandar Laddu** the geographical indication (GI) tag, both belonging to Andhra Pradesh.

What is GI tag?

- The GI tag is an indication that is definite to a **specific geographical territory**. It is used for agricultural, natural and manufactured goods having special quality and established reputation.

- For a product to get the tag, it needs to be produced or processed or prepared in that region.
- The GI tag is governed by the **Geographical Indications of Goods (Registration and Protection Act), 1999**.
- This Act is administered by the Controller General of Patents, Designs and Trade Marks, who is also the Registrar of Geographical Indications.
- The registration of a GI is valid for 10 years after which it needs to be renewed.

7.5. CHAMPARAN SATYAGRAHA

Why in news?

- The Bihar government will launch year-long celebrations to mark the centenary of Mahatma Gandhi's Champaran satyagraha with a series of events.

Background

- The Champaran Satyagraha of 1917 was Mahatma Gandhi's **first Satyagraha in India**.
- He was approached by several leaders at the first meeting of the Congress in Lucknow in 1916 with a request to start a movement against the atrocities on farmers in Champaran.
- Gandhiji arrived in Champaran but was later ordered by the District magistrate **W B Heycock** to leave.
- Gandhi ji refused and persisted. He decided to commit Satyagraha.

Reason for satyagraha

- The peasants of Champaran and other areas of North Bihar were growing the Indigo crop under tinakathia system. Under the system peasants were bound to plant 3 out of 20 parts of his land with indigo.
- Farmers were also oppressed by the khurki system. Under **Khurki system**, the British planters used to pay money to the farmers (Raiyyat) by mortgaging their lands and houses and compelling them to sow indigo.

7.6. PAIKA REBELLION

Why in news?

- Government honored descendants of **16 families** associated with **Paika rebellion** of Odisha in **1817**.
- Occasion marks the completion of 200 years since this rebellion took place in April 2nd, 1817.

About Paika Rebellion (Also known as Paika Bidroh)

- Paiks were the traditional **landed militia** of Odisha, used to perform **policing functions**.
- Paiks owned **rent-free land** that had been given to them for their military service to Kingdom of Khurda.
- However problem started when British forcefully usurped their land rendering them landless.
- They were also subjected to repressive **land revenue policies** and humiliation by the British.
- At that critical juncture, **Bakshi Jagabandhu Bidyadhar**, the military chief of the King of Khurda, led army of **Paikas** forcing the **East India Company** forces to retreat.
- Though this rebellion predates the **first war of independence of 1857** but did not get similar recognition.

7.7. WOMEN'S INDIAN ASSOCIATION

Why in News?

- President Pranab Mukherjee recently inaugurated the centenary celebrations of Women's Indian Association at Adyar, Chennai.

About Women Indian Association

- It was the **first organization to create an overall awakening among women**. Its functions were-
 - To train women to be responsible to give public services.
 - To bind women together for mutual service and the good of the country.
 - To influence government policy on women's suffrage and issues of educational and social reforms. E.g. It sent representation in Montagu reforms (1917) for women suffrage.
 - To promote compulsory primary education for girls and Hindu women's inheritance laws.
- Its role is recognized for enactment and implementation of –

- **Child Marriage Restraint Act/Sarda Act**- To raise the minimum age for marriage of women
- For **abolishing the Devadasi system** especially in Tamil Nadu.
- Its official monthly publication was **Stri-Dharma** published in English. It had news related to women and articles on women's condition.

About Annie Besant

- She was a member and later the head of Theosophical Society which later shifted its headquarters to Adyar, Chennai.
- Her propaganda in England for a self-government to Indians made way for formation of **Home Rule League in London**. Home rule was chosen instead of Swaraj because English people did understand that more. It had divisions in:
 - India- To educate Indians about implications of Home rule Movement
 - England- To educate British public about political conditions of India.
- **As a crusader of education**, she established **Central Hindu College at Banares in 1897**. She also opened schools and colleges for girls like Central Hindu Girls School at Banares, Madanapalli High school and College and Adayar National College.
- In 1911 she organized the **"order of the Rising Star"** for the protection of the good and destruction of evils.
- In 1912 Mrs. Besant organized a **band of public workers called "The Brothers of Service"** under Indian National congress to promote workers' union in the spiritual, educational and political fields.
- Through Home rule she wanted to help Indians to get **self- knowledge, self-respect and self-government**. According to home rule Indians would be free to determine their domestic issues.
- Her weekly newspapers were **Commonweal** (focusing on people's problems) and **New India**.
- In 1917, she started **Indian Boys Scout Association** for her movement.
- In 1917 only she became the **first woman president of the Indian National Congress** and also introduced the tri-colour flag for the Congress party.

7.8. TRIBES

7.8.1. KURUKH TRIBAL LANGUAGE

- Recently, Kurukh language was given official status in West Bengal.
- It is an **endangered tribal language**. Its script is Tolong Siki.
- It is **spoken by Oraon tribal community** living in the **Duars of the North Bengal**.
- While most of the tribal languages in the State have their origins in the Austro-Asiatic (Santhali, Munda and Ho) and Tibeto-Barman (Lepcha, Tamang and Bhutia) families, **Kurukh has its origins in the Dravidian family**. Only other tribal language to have origins in Dravidian family of language is Malto (spoken in Rajmahal hills of Jharkhand).
- Jharkhand has recognised Kurukh as a language, and students can write their school final examination in its script.
- Bakkhuhi is a magazine that has been recently printed in Kurukh.

7.8.2. MANKIDIA TRIBE

Why in news?

Odisha, the State's Forest and Environment Department has asked its personnel to learn a few tricks from the Mankidia tribe to contain the menace.

Mankidia tribe

- They are classified as Particularly Vulnerable Tribal Groups(PVTGs) in Odisha.
- They are semi nomadic and they used to hunt monkey for its meat.

7.9. ASSAM'S ANCIENT INK (MAHI)

- It is made up by natural substances, the technique involves extracting 'mahi' using cow urine from a cocktail of fruit pulp and tree bark such as haritaki, amla, bibhitakhi or bhomora, mango and jamun infused with the blood of eels or catfish. Rust from iron tools or nails were also added for an intense black hue colour.

- 'Mahi' was used in early and medieval Assam for writing on 'sancipat' (folios made of the bark of the sanc tree) manuscripts. Few of them was gifted by Kumar Bhaskar Barman, the then King of Pragjyotishpura (ancient Assam) to Harshavardhana, an emperor who ruled north India from 606 to 647 C.E., a testimony to the period of use.
- There is no loss of text due to its antifungal character and endurance because of its herbal ingredients in contrast to acidic iron gall ink which was used during same time in Europe.

7.10. SINDHI LANGUAGE

- **National Council for Promotion of Sindhi Language** released software tools and eBooks developed by **Centre for development of Advanced Computing** in order to adapt Sindhi language into digital form.
- The occasion marked the **50th year** since Sindhi language was included in the **Eighth schedule** of Indian Constitution by **21st amendment** of Constitution in **1966**.
- Such step has been taken for conservation and propagation of Sindhi language both in **Devnagiri** and **Arabic scripts**.

Eighth Schedule of Indian constitution

- It contains the **languages** recognized by the Constitution.
- There is **no established criteria** for the inclusion of languages.
- Originally it had **14 languages** but at present there are **22**.

National Council for Promotion of Sindhi Language

- It was established in 1994 as an **autonomous Body** under the Department of Higher Education (HRD Ministry) under the **Societies Act of 1860**. It is headquartered in **New Delhi**.
- Its **main objective** includes:
 - To promote, develop and propagate Sindhi Language
 - To advise Gol on issues related to Sindhi language.
 - To make sure that knowledge of Scientific and Technical Terminological development are available in Sindhi.

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