

1. Polity and Governance

Fundamental Duties

In News: The Supreme Court has issued notices to the Centre and states in a writ petition seeking the enforcement of the fundamental duties of citizens as enshrined in the Constitution of India.



More on the Topic:

- The petition, filed by advocate Durga Dutt, argues that citizens have a duty to uphold the ideals of the country and to contribute to its growth and betterment, and that not carrying out the fundamental duties of the citizen has a direct bearing on the fundamental rights guaranteed under **Articles 14 (Equality before Law), 19 (Protection of certain rights regarding freedom of speech) and 21 (Right to Life) of the Constitution of India.**

How were the fundamental duties incorporated in the Constitution?

- The fundamental duties were incorporated in **Part IV-A of the Constitution by The Constitution (42nd Amendment) Act, 1976**, during Emergency.
- **Article 51(A) describes 11 fundamental duties**; 10 came with the 42nd Amendment; the 11th was added by the 86th Amendment in 2002.
- These duties are **not enforceable by law**. However, a court may take them into account while adjudicating on a matter.
- They were made a part of the Constitution **to emphasise the obligation of the citizen in return for the fundamental rights that he or she enjoys.**
- The Russian Constitution has the concept of fundamental duties.

Supreme Court on Legal Enforceability of FDs:

- The Supreme Court's **Ranganath Mishra judgment 2003** held that fundamental duties should not only be enforced by legal sanctions but also by social sanctions.
- In **AIIMS Students Union v. AIIMS 2001**, it was held by the Supreme Court that fundamental duties are equally important like fundamental rights.
- Though fundamental duties are not enforceable like fundamental rights they cannot be overlooked as duties in Part IV A.
- They are prefixed by the same word fundamental which was prefixed by the founding fathers of the Constitution to 'right' in Part III.

The Verma Committee Observations:

- **The Verma Committee on Fundamental Duties of the Citizens (1999)** identified the existence of legal provisions for the implementation of some of the Fundamental Duties. The committee provided with the provisions like:
- No person can disrespect the National flag, Constitution of India and the National Anthem under the Prevention of Insults to National Honour Act, 1971.
- The Protection of Civil Rights Act (1955) provided for punishments in case of any offence related to caste and religion.

The fundamental duties of the Indian citizens:

- (a) to abide by **the Constitution and respect its ideals and institutions**, the National Flag and the National Anthem;
- (b) to cherish and follow **the noble ideals** which inspired our national struggle for freedom;
- (c) to uphold and protect the **sovereignty, unity and integrity of India**;
- (d) **to defend the country** and render national service when called upon to do so;
- (e) **to promote harmony and the spirit of common brotherhood** amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) **to value and preserve the rich heritage** of our composite culture;
- (g) **to protect and improve the natural environment** including forests, lakes, rivers and wild life, and to have compassion for living creatures;
- (h) **to develop the scientific temper**, humanism and the spirit of inquiry and reform;
- (i) **to safeguard public property and to abjure violence**;
- (j) to strive towards **excellence in all spheres of individual and collective activity** so that the nation constantly rises to higher levels of endeavour and achievement;
- (k) who is a parent or guardian to provide **opportunities for education to his child** or, as the case may be, ward between the age of six and fourteen years.”

Star campaigners

In News: With Covid-19 cases witnessing decline across the country, the Election Commission of India (ECI) decided to restore the number of star campaigners a party can field for campaigning amid the ongoing polls in five states.

More on the Topic:

- A star campaigner can be described as **persons who are nominated by parties to campaign in a given set of constituencies**.
- The Election Commission of India did not provide any definition related to star campaigners.
- Actors, celebrities and senior political party members are the usual persons who are nominated to be star campaigners.





- Star campaigners for a party **should not exceed 40** where it is a **recognized political party**.
- For parties that are deemed **unrecognized**, the **number of star campaigners should not be more than 20**.
- All expenses of the star campaigners will be borne by the respective political party.

2. Government Schemes

Rashtriya Uchchar Shiksha Abhiyan (RUSA)

In News: The Ministry of Education has approved the scheme of Rashtriya Uchchar Shiksha Abhiyan (RUSA) for continuation till 2026.

More on the Topic:

- RUSA is a **Centrally Sponsored Scheme (CSS)** for funding the state government universities and colleges to achieve the aims of equity, access and excellence.
- The new phase of RUSA targets to reach out the unserved, underserved areas, remote and rural areas, difficult geographies, aspirational districts, tier-2 cities, areas with low GER, to benefit the most disadvantaged areas and SEDGs (Socio-Economically Disadvantaged Groups).
- Under the new phase of the scheme, state governments will be supported for **gender inclusion, equity initiatives, ICT, enhancing employability through vocationalisation and skill upgradation**.

Objectives:

- Improve the **overall quality of state institutions** by conforming to the prescribed norms and standards.
- **Adoption of accreditation** (certification of competency) as a mandatory quality assurance framework.
- **Promoting autonomy** in state universities and improving governance in institutions.
- Ensure **reforms in the affiliation, academic and examination system**.
- Ensure **adequate availability of quality faculty** in all higher educational institutions and ensure capacity building at all levels of employment.
- Create an enabling atmosphere for **research** in the higher education system.
- **Correct regional imbalances** in access to higher education by setting up institutions in unserved and underserved areas.
- **Improve equity** in higher education by providing adequate opportunities to the disadvantaged.

Asia's biggest Bio-CNG plant 'Gobar-Dhan' in MP's Indore

In News: Prime Minister has virtually inaugurated Asia's biggest Bio-CNG plant, Gobar-Dhan, in Madhya Pradesh's Indore.

More on the Topic:



- The Bio-CNG plant has been set up based on the concept of waste-to-wealth innovation in India's cleanest city.
- The bio-CNG plant has a total capacity of 550 MT. It will produce CNG with 96 per cent pure methane gas.
- Government is planning to build in 75 major municipal bodies in the next 2 years.
- Galvanising Organic Bio-Agro Resources Dhan (GOBAR-DHAN) scheme focuses on managing and converting cattle dung and solid waste in farms to compost, biogas and bio-CNG.
- The scheme was launched by Ministry of Drinking Water & Sanitation (Now Ministry of Jal Shakti) in 2018 as part of the SBM (Gramin).

Kisan Drones

In News: Prime Minister flagged off 100 Kisan drones as a part of the “Drone Kisan Yatra”.

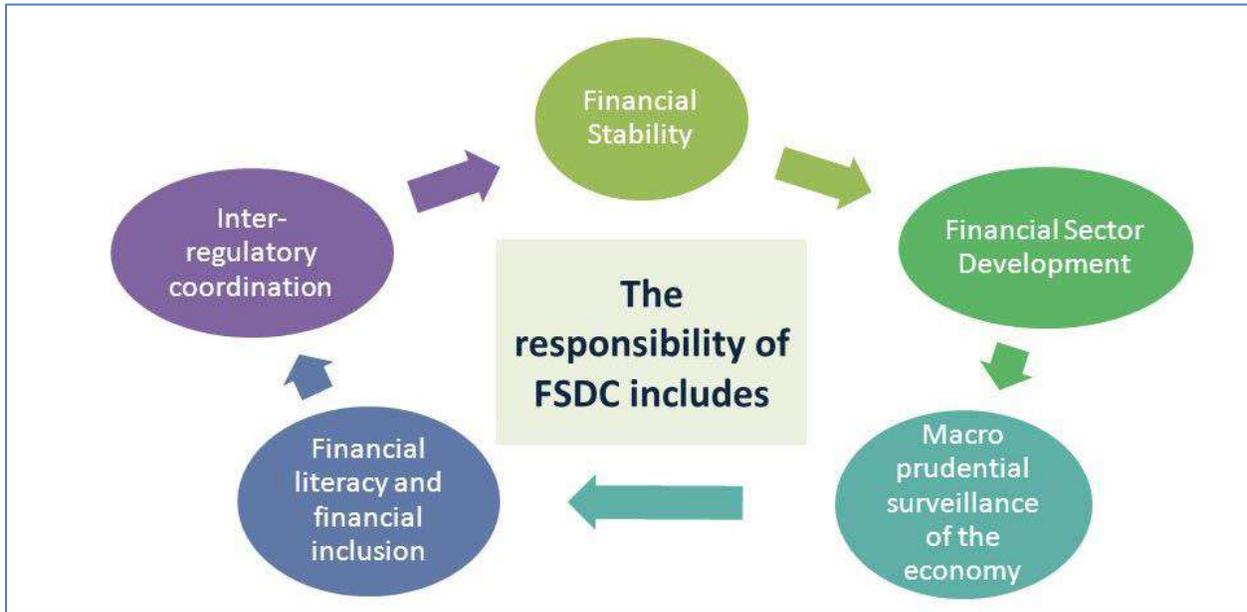
More on the Topic:

- The Drone Kisan Yatra was launched with the aim to promote chemical-free farming in India.
- Kisan drones will be used for **crop assessment, digitization of land records, and spraying of insecticides and nutrients.**
- Inclusive drone development is one of the four priorities of the government moving forward.
- Under the “SWAMITVA scheme”, land records are being documented through drone technology. Also medicines, vaccines are being supplied to various parts of the country and it is also being used for sprinkling pesticides etc on crops.
- The development of these drones on a large scale is expected to bring new employment opportunities for the youth. The government recently banned the import of drones to encourage their manufacturing in India.



3. Indian Economy

Financial Development Council



In News: The high-level FSDC headed by Finance Minister Nirmala Sitharaman deliberated on the challenges emanating from global and domestic developments and asked the regulators to maintain constant vigil on the financial sector.

More on the Topic:

- It is a non-statutory apex council under the **Ministry of Finance** constituted by the Executive Order in 2010.
- **The Raghuram Rajan committee (2008) on financial sector reforms** first proposed the creation of FSDC.
- It is **chaired by the Finance Minister** and its members include the heads of all Financial Sector Regulators (RBI, SEBI, PFRDA & IRDA), Finance Secretary, Secretary of Department of Economic Affairs (DEA), Secretary of Department of Financial Services (DFS), and Chief Economic Adviser.
- In 2018, the government reconstituted FSDC to include the Minister of State responsible for the Department of Economic Affairs (DEA), Secretary of Department of Electronics and Information Technology, Chairperson of the Insolvency and Bankruptcy Board of India (IBBI) and the Revenue Secretary.
- **FSDC sub-committee is headed by the Governor of RBI.**
- The Council can invite experts to its meeting if required.
- Without prejudice to the autonomy of regulators, **the Council monitors macro-prudential supervision of the economy**, including functioning of large financial conglomerates, and addresses inter-regulatory coordination and financial sector development issues.

- It also focuses on **financial literacy and financial inclusion.**

Non Fungible Tokens

In News: Non fungible tokens (NFTs) are gaining popularity.

More on the Topic:

- The sales of NFTs surged \$25 billion in 2021 as the crypto asset exploded in popularity.
- Anything that can be converted into a digital form can be an NFT. Everything from drawings, photos, videos, GIF, music, in-game items, selfies, and even a tweet can be turned into an NFT, which can then be traded online using cryptocurrency.
- What makes NFTs unique from other digital forms is that **it is backed by Blockchain technology.**
- Blockchain is a **distributed ledger** where all transactions are recorded. It is like bank passbook, except all your transactions are transparent and can be seen by anyone and cannot be changed or modified once recorded.



How is an NFT different from cryptocurrency?

- NFTs and cryptocurrencies are very different from each other. While both are built on Blockchain, that is where the similarity ends.
- Cryptocurrency is a currency and is fungible, meaning that it is interchangeable. For instance, if you hold one crypto token, say one Bitcoin, the next Bitcoin that you hold will also be of the same value. But NFTs are non-fungible, that means the value of one NFT is not equal to another.
- Every art is different from other, making it non fungible, and unique. Anyone who holds a cryptocurrency wallet can buy an NFT.

Concerns:

- In the recent past, **several incidents of NFT scams have been reported** including the emergence of fake marketplaces, unverified sellers often impersonating real artists and selling copies of their artworks for half price.
- In order to validate transactions, crypto mining is done, which **requires high powered computers that run at a very high capacity, affecting the environment ultimately.**

Government Steps to Balance Prices of Pulses

In News: The wholesale price of tur dal declined by nearly 3 per cent in the last one year on the back of measures taken by it to boost domestic supply and stabilise rates.



More on the Topic:

- The government has taken several **proactive and pre-emptive measures** to augment domestic availability and stabilise prices of essential food commodities.
- Advisories were issued to states/UTs **to monitor prices of essential food commodities** and to ensure disclosure of pulses stocks held by millers, importers and traders under the Essential Commodities Act, 1955.
- **Imposition of stock limit** on all pulses except moong was notified mid of last year.
- To improve availability and stabilise prices of pulses, the government has allowed **import of tur, urad and moong under 'free category'**.
- This policy has been supported with facilitation measures and close monitoring of its implementation by the departments/organisations concerned.

Pulses Production In India:

- India is the biggest producer and consumer of pulses in the world and it has almost achieved self-sufficiency in pulses.
- India accounted for **62% of world's total pulses production in 2019-20**.
- In the last five-six years, India has increased pulses production from 140 lakh tonnes to more than 240 lakh tonnes.

Concerns:

- Low yield ratio of Pulse production
- Pulses are grown in Low irrigated and drought prone areas.
- India's Cereals centre policies emphasize rice and wheat while dis-incentivizing the production of pulses.
- The big traders and wholesalers indulge in hoarding and black marketing
- which adversely affects the retail prices of pulses.

Nepal will be the first foreign country to adopt India's UPI system

In News: The National Payments Corporation of India (NPCI) announced that the neighboring country of Nepal will be the first foreign country to adopt India's UPI system.

More on the Topic:

- Unified Payments Interface (UPI) is an **advanced version of Immediate Payment Service (IMPS)- round-the-clock funds transfer service** to make cashless payments faster, easier and smoother.
- UPI is a system that powers **multiple bank accounts into a single mobile application** (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
- UPI is **currently the biggest among the National Payments Corporation of India (NPCI)** operated systems including National Automated Clearing House (NACH), Immediate Payment Service (IMPS), Aadhaar enabled Payment System (AePS), Bharat Bill Payment System (BBPS), RuPay etc.
- The top UPI apps today include PhonePe, Paytm, Google Pay, Amazon Pay and BHIM, the latter being the Government offering.
- As part of an agreement, **India's UPI will be linked to Singapore's PayNow.**
- NPCI launched UPI with 21 member banks in 2016.

About NPCI:

- NPCI, an umbrella organisation for operating retail payments and settlement systems in India, is an **initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA)** under the provisions of the Payment and Settlement Systems Act, 2007.
- It is a **"Not for Profit" Company** with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems.

Public Sector Bank Funds

In News: The government is likely to infuse ₹15,000 crore into state-run banks in the second half of March to help the lenders meet tighter capital-reserve requirements.

More on the Topic:

- The government had initially budgeted ₹20,000 crore for bank recapitalization for the year but cut it to ₹15,000 crore in the revised estimates in an acknowledgement of the improving health of PSBs.
- The number of weak banks has drastically reduced as better recognition and provisioning for bad debt and adequate capital support from the government has helped banks to improve financials, with most now showing a rise in profitability.



- Even the number of banks under the Reserve Bank of India's prompt corrective action (PCA) framework, under which the regulator imposes curbs on lending, has now come down to just one.

Bank Recapitalisation:

- Through BR more capital would be infused in state-run banks so that they meet the capital adequacy norms.
- Indian public sector banks are emphasized to maintain a **Capital Adequacy Ratio (CAR) of 12%**.
- **CAR is the ratio of a bank's capital in relation to its risk weighted assets and current liabilities.**
- The government, using different instruments, infuses capital into banks facing shortage of capital. As the government is the biggest shareholder in public sector banks, the responsibility of bolstering banks' capital reserves lies with the government.
- The government infuses capital in banks by either **buying new shares or by issuing bonds.**
- The RBI guidelines indicates that Basel norms has to be followed by banks to maintain certain amounts of capital reserves.
- The Basel norms is **an effort to coordinate banking regulations across the globe**, with the goal of strengthening the international banking system.
- It is the set of the agreement by the **Basel committee of Banking Supervision which focuses on the risks to banks and the financial system.**

Ayush Start up Challenge

In News: The All India Institute of Ayurveda (AIIA) in association with Startup India has launched the 'Ayush Start-up Challenge' to encourage start-ups and individuals working on innovations in the field of Ayurveda and alternative healing.

More on the Topic:

- There are three entry categories for participating start-ups – Ayush Food Innovations, Ayush Bio-instrumentation (Hardware solutions) and Ayush IT Solutions (Software solutions). The winner in each category will receive a cash prize of Rs 1 lakh and the runner-up will get Rs 50,000.
- The market size of the AYUSH sector has grown by 17 % in 2014-20.
- In terms of global share, India has grown faster in the AYUSH market as compared to the world and accounts for about 2.8 % of the market.
- The Ayush market is currently estimated to be around USD 10 bn and it is projected to see a 50 % increase over the course of the next five years.



4.Environment and Ecology

Annual Frontiers report



In News: The United Nations Environment Programme (UNEP) has released its annual Frontiers report.

More on the Topic:

- The Report identifies and offers solutions to three environmental issues that needs immediate attention of the governments and the public at large.
- The three issues addressed are **urban noise pollution, wildfires and phenological shifts.**
- **Urban Noise Pollution:** The noise pollution due to road traffic, railways, or leisure activities, impair human health and well-being.
- It can result in severe heart diseases and metabolic disorders with the very young, and mostly affect the elderly and marginalised communities near busy roads.
- **Wild Fire:** More dangerous fire-weather conditions are likely to increase due to rising concentrations of **atmospheric greenhouse gasses and the attendant escalation of wildfire risk factors.**



- Climate change can prompt extreme wildfires, generating lightning that can ignite other fires, far beyond the fire front and creating a so-called hazardous feedback loop.
- Such extreme events are disastrous for human health and the environment.
- **Phenological Shifts:** Climate change disrupts natural rhythms of plants and animals set by temperature, day length or rainfall. This leads to mismatches, such as when plants shift life cycle stages faster than herbivores.
- Phenology is the timing of recurring life cycle stages, driven by environmental forces, and how species interacting within an ecosystem respond to changing conditions.

Way Ahead provided by the Report:

- Adoption of indigenous fire management techniques.
- Engaging vulnerable groups and designing a preventive method approach to wild fire.
- Enhance fire-fighting capabilities and strengthen community resilience-building programmes
- Focus on long-range weather forecasting.
- Focus on remote-sensing capabilities such as satellites, ground-based radar, lightning detection as well as data handling.

Green Hydrogen Green Ammonia Policy

In News: The Central Government has notified the green hydrogen and green ammonia policy aimed at boosting the domestic production of green hydrogen to 5 million tonnes by 2030 and making India an export hub for the clean fuel.

More on the Topic:

- The new policy offers **25 years of free power transmission** for any new renewable energy plants set up to supply power for green hydrogen production before July 2025.
- The move is likely going to make it **more economical for key users of hydrogen and ammonia such as the oil refining, fertiliser and steel sectors** to produce green hydrogen for their own use.
- These sectors currently use **grey hydrogen or grey ammonia** produced using natural gas or naphtha.
- The government is set to provide **a single portal for all clearances** required for setting up green hydrogen production as well as a facility for producers to bank any surplus renewable energy generated with discoms for upto 30 days and use it as required.
- The power ministry has also said that energy plants set up to produce green hydrogen/ammonia would be given **connectivity to the grid on a priority basis**.
- **Power distribution companies may also procure renewable energy to supply green hydrogen producers** but will be required to do so at a concessional rate.
- Such procurement would also **count towards a state's Renewable Purchase Obligation (RPO)** under which it is required to procure a certain proportion of its requirements from renewable energy sources.
- **Port authorities will also provide land at applicable charges** to green hydrogen and green ammonia producers to set up bunkers near ports for storage prior to export.



- The government is set to come out with mandates requiring that the oil refining, fertiliser and steel sectors procure green hydrogen and green ammonia for a **certain proportion of their requirements.**

About Green Hydrogen and Green Ammonia:

- Green hydrogen is **hydrogen gas produced through electrolysis of water.** It is an energy intensive process for splitting water into hydrogen and oxygen using renewable power to achieve this.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free

Japanese Encephalitis

In News: The National Institute of Animal Biotechnology (NIAB), Hyderabad has developed an immunosensor to detect Non-Structural 1 (NS1) secretory protein which is a suitable biomarker for Japanese Encephalitis Virus (JEV) found circulating in the blood.

More on the Topic:

- Detection of the NS1 instead of antibody has an added advantage since the antigen is present from day 1 of the infection and hence facilitates early detection. On the other hand, antibodies appear only after Day 4/5 of the infection.
- The disease caused by a flavivirus. The virus affects the membranes around the brain.
- Japanese encephalitis virus (JEV) is also a major cause of **Acute Encephalitis Syndrome (AES) in India.**
- The disease is transmitted to humans through infected **Culex mosquitos' species.**
- There is no antiviral treatment for patients with JE. Treatment, available, is supportive to relieve symptoms and stabilise the patient.
- Safe and effective JE vaccines are available to prevent the disease.
- JE vaccination is also included under the Universal Immunisation Program of the Government of India.

Purple Revolution



In News: The government of India is planning to commence ‘**purple revolution**’ in Ramban district by encouraging lavender cultivation under the CSIR-IIIM’s Aroma Mission through Ministry of Science and Technology

More on the Topic:

- Regarding the purple revolution, awareness programs should be organised to showcase the lucrative aspects of lavender cultivation so that start-ups under Aroma Mission would be encouraged.
- This would also enhance the image of Doda District that is the birthplace of Purple Revolution.

About Purple Revolution:

- Under the Purple Revolution mission, **farmers were given free lavender saplings** for the first time in Doda district of Jammu and Kashmir.
- This revolution was started for **supporting agro economy based on domestic aromatic crop** by moving from imported aromatic oils to homegrown varieties.

About Aroma Mission:

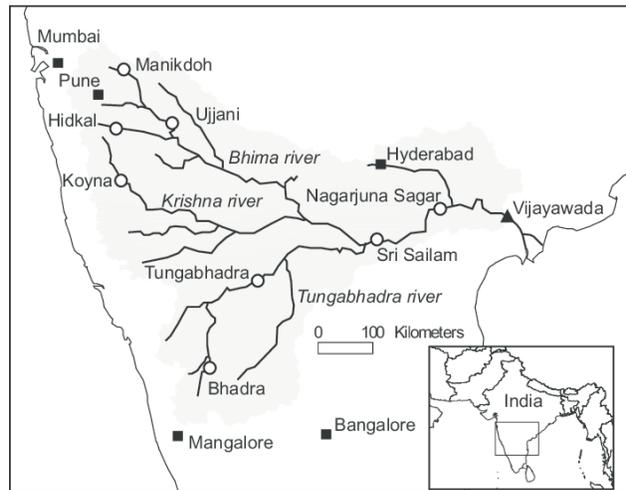
- CSIR-IIIM’s Aroma Mission is **providing means of livelihood to budding farmers and Agri-Technocrats** and promoting the spirit of entrepreneurship giving a boost to Start-Up India campaign.
- The objective of the mission is **to bring transformative change in aroma sector** through desired interventions in areas of agriculture, processing and product development for the growth of aroma industry and rural employment.
- The mission promotes cultivation of aromatic crops for essential oils which are in great demand by aroma industry.

Krishna Water Dispute

In News: The Supreme Court asked if the States of Telangana, Andhra Pradesh and Karnataka could amicably settle their quarrel over the allocation of the Krishna river water.

More on the Topic:

- In 1969, the Krishna Water Disputes Tribunal (KWDT) was set up under the Inter-State River Water Dispute Act, 1956, and presented its report in 1973.
- At the same time, it was stipulated that the KWDT order may be reviewed or revised by a competent authority or tribunal any time after 31st May, 2000.
- The second KWDT was instituted in 2004. It delivered its report in 2010, which made allocations of the Krishna water at 65 % dependability and for surplus flows as follows: 81 TMC for Maharashtra, 177 TMC for Karnataka, and 190 TMC for Andhra Pradesh.
- After the KWDT's 2010 report Andhra Pradesh challenged it through a Special Leave Petition before the Supreme Court in 2011.
- In 2013, the KWDT issued a 'further report', which was again challenged by Andhra Pradesh in the Supreme Court in 2014.
- After the creation of Telangana, Andhra Pradesh has asked that Telangana be included as a separate party at the KWDT and that the allocation of Krishna waters be reworked among four states, instead of three.
- Krishna River:
- The Krishna River is named after Mahabaleswar, which is located near Jor village in Maharashtra.
- It is the **second biggest river in peninsular India after the Godavari River.**
- Drainage: It runs from four states Maharashtra (303 km), North Karnataka (480 km) and the rest of its 1300 km journey in Telangana and Andhra Pradesh.



Way Ahead:

- There is a need for establishment of permanent tribunal with appellate jurisdiction of the Supreme Court over the tribunal's decision.
- Policy makers should rethink **the strategy about water management**, not just within states, but at the national level keeping the water scenario in the next 30 years.
- There is need to amendment Article 262 and amendment to Inter-State Water Disputes Act.
- **Article 262 of the Constitution** provides for the adjudication of inter-state water disputes.

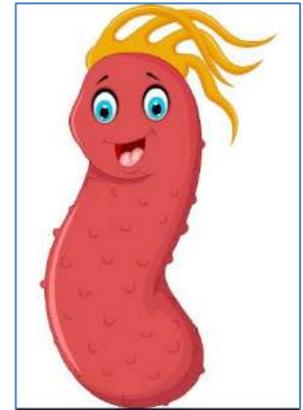
- Under this, Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution and control of waters of any inter-state river and river valley.
- **The Inter-State Water Disputes Act empowers** the Central government to set up an ad hoc tribunal for the adjudication of a dispute between two or more states in relation to the waters of an inter-state river or river valley.

Trafficking of Sea Cucumber

In News: Demand for sea cucumbers turns India-Sri Lanka waters into trafficking hotspot.

More on the Topic:

- Despite their name, sea cucumbers are not vegetables. They are **echinoderms**, from the same phylum of marine animals that includes starfish and sea urchins, and live on the sandy bottoms of oceans.
- They perform **the important ecological function of nutrient cycling**.
- Sea cucumbers are considered a delicacy, eaten both fresh or dried, and used in traditional Chinese medicine.
- The trade of sea cucumbers has grown significantly in recent years as the demand for sea cucumbers has increased.
- This has led to sea cucumber populations becoming overexploited across much of their historical ranges.
- India banned the sea cucumber fishery in 2001, while Sri Lanka tried to restrict the trade through a system of permits issued for collection, processing, transporting and exporting.
- This disparity has allowed Indian fishers to exploit Sri Lanka's legalised sea cucumber trade.
- Sea cucumbers are included in the Schedule 1 of Wildlife Protection Act of 1972.





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International Relations

Munich Security Conference

In News: The External Affairs Minister (EAM) S Jaishankar has participated in the Munich Security conference.

More on the Topic:

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- MSC is, world's leading forum, an annual conference on international security policy that takes place in Munich, Germany since 1963.
- The conference's goal is **to address current major security concerns and evaluate major security difficulties**, all while sticking to the concept of networked security.
- The discussions of ideas on the future of transatlantic relations, as well as European and global security in the twenty-first century, are a focal feature of the conference.
- Senior politicians, diplomats, military and security experts from NATO and the European Union, as well as other countries such as India, China, Japan, Iran and Russia, are invited to discuss current issues in defence and security policies at this conference, which is themed peace through dialogue.
- It is **not a government-sponsored event**. It is just used for debate; there is no authorization for binding intergovernmental decisions.

India and France sign roadmap on blue economy

In News: India and France committed to adopt a roadmap on the blue economy and ocean governance to enhance partnership for the exploitation and preservation of marine resources through economic, infrastructure and scientific cooperation.

More on the Topic:





- India and France has vowed to strengthen international law of the sea and adapt to new challenges. The Blue economy would be realised through four pillars.
- **Institutional pillar: forging a common vision of ocean governance based on the rule of law**
- As part of this, India and France plan to organise an annual bilateral dialogue on the blue economy and ocean governance.
- **Economic pillar: making the blue economy a source of sustainable growth**
- India and France will prioritize the blue economy in the expansion of their economic exchanges. They will facilitate contacts between economic actors, business leaders, and maritime clusters in the two countries, as well as cross-border investments and visa issuance to blue economy entrepreneurs.
- **Infrastructure pillar: Cooperating on sustainable and resilient coastal and waterways infrastructure**
- India is looking to develop its ports, with a focus on environmentally friendly infrastructure, such as eco-fishing ports. In this regard, both sides will encourage knowledge and methodology sharing
- **Scientific and academic pillar: Better knowledge of the ocean to innovate and protect**
- Research in marine science and technology is indispensable for monitoring, protecting, and sustainably using marine living and non-living resources and biodiversity of the seas and the ocean, both sides will enhance their scientific cooperation as well as exchanges of students and researchers.

About Blue Economy:

- Blue economy' is the **integration of ocean economy development with values of social inclusion and environmental sustainability, along with dynamic and innovative business models.**
- For India, however, blue economy extends beyond being merely an economic and environmental proposition. It presents India with an unprecedented opportunity to meet its national objectives, strengthen connectivity with neighbours, and exert influence in the surrounding regions.

Science and Technology

Indian Neutrino Observatory Project

In News: The Tamil Nadu government has approached the Supreme Court disallowing the construction of the proposed Indian Neutrino Observatory in Theni district of Tamilnadu.

More on the Topic:

- Tamil Nadu argued that the proposed particle physics project will affect local biodiversity and tiger species at the Periyar Tiger Reserve and the Mathikettan Shola National Park in the Western Ghats.

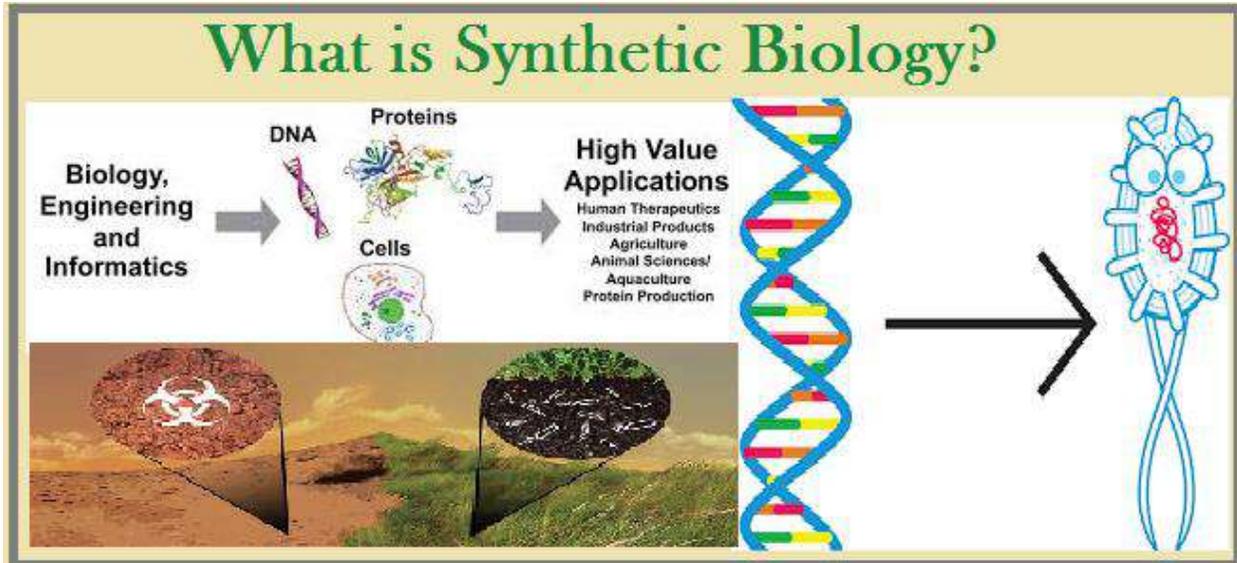


- The Indian Neutrino Observatory (INO) is a **proposed particle physics research mega project**. The objective of the project was to study neutrinos in a 1,200-metre deep cave.

About Neutrinos:

- A neutrino is a **fundamental elementary particle**, and atmospheric neutrinos can be studied when solar radiation hits the earth's atmosphere.
- They are **very hard to detect** as they hardly interact with other forms of matter due to their lack of electrical charge.
- However, they seem to play **an important role in the universe of elementary physics**, which physicists have been trying to understand for a few decades now.
- They are produced in **high-energy processes such as within stars and in supernovae**. On earth, they are produced by **particle accelerators and nuclear power plants**.
- Neutrino detectors are **often built underground to isolate them from cosmic rays** from space and any other sources of background radiation.
- Because **neutrinos are so small, they barely interact with matter**, passing through most atoms, and thus most matter, without interaction.
- So far, neutrino physics has been mostly limited to outer space sources, observing neutrinos from farther-away stars and galaxies.
- There are about 20 or so neutrino detectors, telescopes, and experiments around the world.

Synthetic Biology



In News: A draft foresight paper on synthetic biology released by the Department of Biotechnology.

More on the Topic:

- This document will later help in **creating a national policy**. It looks at not only how synthetic biology has to be governed but also the very definition.
- Synthetic biology refers to **the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems**.
- Synthetic biology enables scientists to design and synthesise new sequences of DNA from scratch.

About Synthetic Biology Applications:

- Synthetic biology has applications in various fields from **developing synthetic organisms for vaccination** to creating natural products in a lab such as vanillin, the organic compound extracted from vanilla seeds, which can now be grown in yeasts with additional plant genomes.
- In the pharmaceutical industry, synthetic biology can be used to make **natural compounds such as artemisinin used for the treatment of malaria and Car T cell therapy** for cancer treatment.
- It is starting to be used in the fashion industry as well; some companies are exploring the possibility of **dyeing jeans without producing hazardous waste**. It can also be used in to deliver **fixed nitrogen to plants** instead of using fertilisers, engineering microbes to create food additives or brew proteins.

The Concerns Associated with Synthetic Biology:

- The rise of synthetic biology has spurred biosecurity concerns that synthetic or redesigned organisms could be engineered for **bioterrorism**.
- Environmental hazards may be a aftermath of synthetic biology. These include **toxicity to animals and plants**

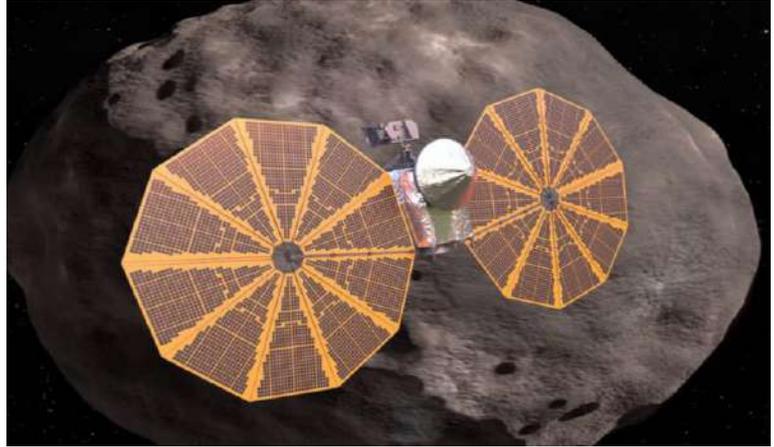
- There can be **adverse effects on biodiversity and ecosystem services**. For example, a toxin engineered into a plant to resist specific insect pests may also affect other invertebrates.
- There are also **ethical concerns about creation of human eugenics** (creation of human being with desired characteristics.)
- In addition, synthetic biology could lead to **land-use changes**, such as non-food synthetic organisms displacing other agricultural uses or wild land.

NASA Lucy Mission

In News: Lucy mission will visit asteroid Eurybates.

More on the Topic:

- ‘Lucy’ Mission is NASA’s first mission to explore the Jupiter Trojan asteroids.
- It is a solar-powered mission.
- It is estimated to be over 12 years long, during which the spacecraft will visit eight asteroids covering a distance of about 6.3 billion km to deepen the understanding of the “young solar system”.
- The mission is designed to understand the composition of the diverse asteroids that are a part of the **Trojan asteroid swarms**, to determine the mass and densities of the materials and to look for and study the satellites and rings that may orbit the Trojan asteroids.
- The Trojan asteroids are believed to be formed from **the same material that led to the formation of planets** nearly 4 billion years ago when the solar system was formed.



6. Ancient and Modern India, Art and Culture

Jhalkari Bai

In News: Jhalkari Bhai was mentioned in comic book released by GOI.

More on the Topic:

- She was a woman soldier who played an important role in the Indian Rebellion of 1857.
- At the height of the Siege of Jhansi, she disguised herself as the queen and fought on her behalf, on the front, allowing the queen to escape safely out of the fort.

Angadias

In News: An FIR has been registered against three Mumbai Police officials last week for allegedly threatening Angadias and extorting money from them.

More on the Topic:

- The Angadia system is a century-old parallel banking system in the country where traders send cash generally from one state to another through a person called Angadia that stands for courier.
- It is by and large used in the jewellery business with Mumbai – Surat being the most popular route as they are two ends of the diamond trade.
- The cash involved is huge and it is the responsibility of the Angadia to transfer cash from one state to another for which they charge a nominal fee.
- Generally, it is the Gujarati, Marwari and Malbari community that are involved in the business.

