DAILY CURRENT AFFAIRS

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Article 299 of the Constitution

Syllabus: GS2/Indian Polity

In News

- The **Supreme Court** has held that the government, when entering into a **contract under the President's name, cannot claim immunity** from the legal provisions of that contract **under Article 299 of the Constitution.**

What is Article 299 of the Indian Constitution?

- **Article 298** grants the Centre and the state governments the **power to carry on trade** or business, acquire, hold, and dispose of property, and make contracts for any purpose, while **Article 299 delineates** the manner in which these contracts will be concluded.
    - Article 299 provides that "all contracts made in the exercise of the executive power of the Union or of a State shall be expressed to be **made by the President or by the Governor of the State"** and that all such contracts and "assurances of property made in the exercise of that power shall be executed" on behalf of the President or the Governor by persons in a manner as directed and authorised by them.

    - Further, the phrase 'expressed to be made and executed' under **Article 299 (1)** means that there **must be a deed or contract in writing** and that it should be executed by a person duly **authorised by the President of the Governor** on their behalf.

Essential Requirements for Government Contracts under Article 299:

- 1966 ruling in **'K.P. Chowdhry v. State of Madhya Pradesh. And Others',** laid down essential requirements for government contracts under Article 299.
- **Three conditions** to be met before a binding contract against the government could arise, namely:
    - the contract must be expressed to be made by the Governor or the Governor-General;
    - it must be executed in writing, and
    - the execution should be by such persons and in such a manner as the Governor or the Governor-General might direct or authorise.

Objective of the Article

- The objective behind Article 299(1), as per the 1954 top court ruling in **'Chatturbhuj Vithaldas Jasani v. Moreshwar Parashram & Ors',** is that there must be a **definite procedure** according to which contracts must be made by agents acting on the government's behalf; otherwise, **public funds may be depleted by unauthorized or illegitimate contracts.**
- It implies that contracts **not adhering** to the manner given in Article 299(1) **cannot be enforced by any contracting party.**
- However, Article 299 (2) says that essentially, neither the **President nor the Governor can be personally held liable for such contracts.**

The Recent Issue

- Glock Asia Pacific entered into a **contract with the Ministry of Home Affairs** for the supply of 31,756 Glock pistols.
- There was a dispute between the two parties and Glock then issued a notice invoking arbitration, nominating a **retired Delhi High Court judge as the sole arbitrator.**
- When the government was called to accept this, it said that the arbitrator's nomination violated one of the tender conditions that said **an officer in the Law Ministry,** appointed by the MHA Secretary, **would be the arbitrator** in case of a dispute.
- Thus, **Glock challenged this clause** in the agreement, which allowed a government officer to resolve the difference between the two parties as an arbitrator, as **one party here was the MHA itself.**

Supreme Court's Take on the Matter

- **Deciding the case in Glock's favour,** the court observed that the arbitration clause allowed a "**serving employee of the Union of India**, a party to the

contract, to nominate a serving employee of the Union of India as the Sole Arbitrator" which is in **conflict with Section 12(5) of the Arbitration and Conciliation Act, 1996.**

- **Section 12(5) of the Arbitration and Conciliation Act, 1996,** says that notwithstanding any prior agreement, any person whose relationship with the parties or counsel of the dispute falls under any of the categories in the **Seventh Schedule** will be **ineligible to be appointed as an arbitrator.**
    - The Seventh Schedule includes **relationships** where the arbitrator is an employee, consultant, advisor, or has a**ny other past or present business relationship with a party.**
- The court also appointed former **SC judge Justice Indu Malhotra** "as the Sole Arbitrator to adjudicate upon the disputes" in the case.
- Thus, the **court rejected the Centre's reliance on Article 299**, saying, "**Article 299 only lays down the formality** that is necessary to bind the government with contractual liability" and not "the substantial law relating to the contractual liability of the Government", which is to be found in the general laws of the land.

Source: IE

World Energy Investment 2023

Syllabus: GS 3/Energy

In News

- Recently, the International Energy Agency released a 'World Energy Investment 2023 report.

About Report

- It provides a full update on the investment picture in 2022 and an initial reading of the emerging picture for 2023.
- It provides a **global benchmark** for tracking capital flows in the energy sector and examines how investors are assessing risks and opportunities across all areas of fuel and electricity supply, critical minerals, efficiency, research and development, and energy finance.

Notable Findings

- It shows that **investment in clean energy has increased** in recent years, with the transition mainly fuelled by **Electric Vehicles (EVs) and renewable power.**
    - annual investments in **green energy** have outpaced those in **fossil fuels** during this period, recording a growth of **24% against 15%.**
    - However, investments are concentrated in advanced economies and China.

- **Impact of the geopolitical events and pandemic:** Economic recovery from the COVID-19 pandemic coupled with global efforts in tackling energy scarcity have significantly propelled investments in the renewable energy sector.
    - The report also highlights the **influence of recent geopolitical** events on the energy market.
        - Specifically, it points out that **Russia's invasion of Ukraine** has led to substantial instability in the fossil fuel markets.
    - Interestingly, this **volatility has inadvertently accelerated** the deployment of various renewable energy technologies, despite triggering an immediate scramble for oil and gas resources.

Chart 1: Global energy investment in clean energy and fossil fuels, 2015-2023 (estimated) in billion $

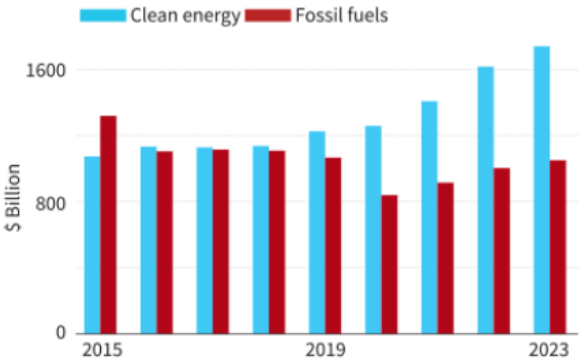


Chart 2: The annual clean energy investment, 2015-2023 (estimated) in billion $

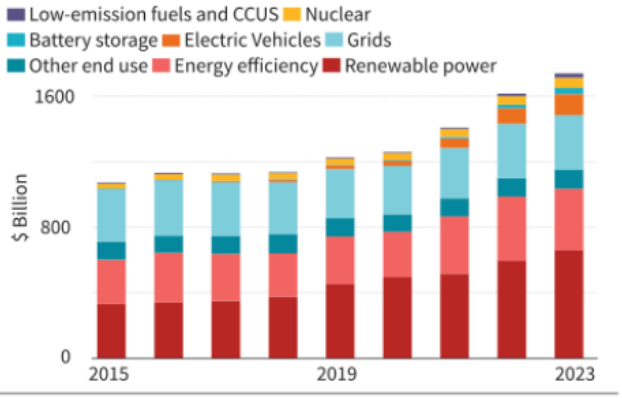


Chart 3: The increase/decrease in annual clean energy investment across select countries and regions, 2019-2023 (estimated) in billion $

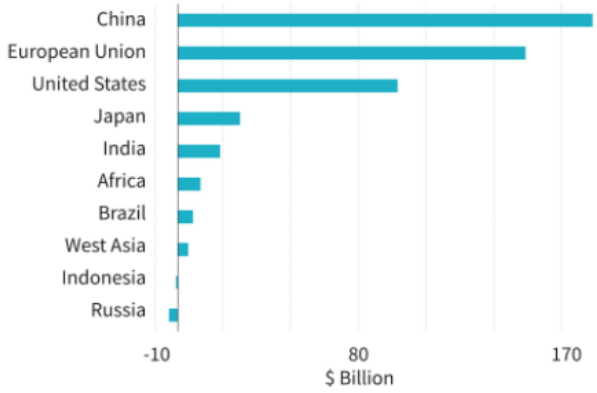
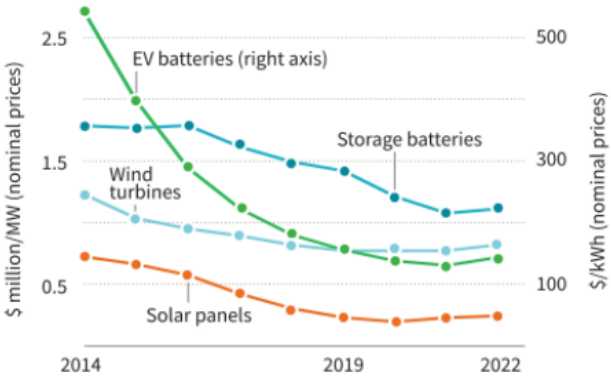


Chart 4: The average prices for selected technologies in $ per kilowatt hour (nominal prices) and $ million per megawatt



- **Investments in fossil fuels** have been stagnant, and money flows into clean energy have considerably grown in recent years.
- In 2023, low-emission power sources are expected to attract nearly **90% of the total investment in electricity generation.**

    - Among these, solar energy shines brightest. Investment in solar energy is projected to exceed $1 billion per day in 2023, totaling $380 billion for the year.
- **India** continues to exhibit robust investment in solar energy. Brazil's deployment of renewable energy is on a consistent upward trajectory, while investor interest is escalating in parts of West Asia, specifically Saudi Arabia, the UAE, and Oman.

Issues

- Despite various developments, hurdles remain for many countries.
- Investment in many countries is being held back by factors including higher interest rates, unclear policy frameworks and market designs, weak grid infrastructure, financially strained utilities, and a high cost of capital.

Suggestions

- The biggest shortfalls in clean energy investment are in emerging and developing economies.
- Much more needs to be done by the international community, especially to drive investment in lower-income economies, where the private sector has been reluctant to venture.

The International Energy Agency (IEA)

- It is an autonomous organization that was set up in response to the 1973-74 oil crisis. The oil crisis was the result of an embargo imposed on the US and other developed countries by OPEC in retaliation for the US decision to support Israel during the Arab-Israel war.
- It is made up of 30 member countries (OECD countries) and is an important part of the global dialogue on energy, providing research, data/statistics, analysis, and recommendations on the global energy sector.
- It works to ensure reliable, affordable, and clean energy for its member countries and beyond.

Source: TH

XPoSat

Syllabus: GS3/ Science & Technology

In News

- India is planning to launch X-Ray Polarimeter Satellite (XPoSat) later this year.

XPoSat mission

- **About:**
    - It is **India's first**, and only **the world's second polarimetry mission.**
        - The other such major mission is **NASA's Imaging X-ray Polarimetry Explorer (IXPE)** that was launched in 2021.

    - The Indian Space Research Organisation is collaborating with the Raman Research Institute (RRI), Bengaluru, an autonomous research institute, to build the X-Ray Polarimeter Satellite (XPoSat).
- **Purpose:**
    - It is meant to **study various dynamics** of bright astronomical X-ray sources in extreme conditions.
- **XPoSat's payloads:**
    - The spacecraft will carry two scientific payloads in a low earth orbit.
    - **POLIX:**
        - The primary payload **POLIX (Polarimeter Instrument in X-rays)** will **measure the polarimetry parameters** (degree and angle of polarisation).
            - The payload is being developed by RRI in collaboration with ISRO's U R Rao Satellite Centre (URSC) in Bengaluru.
            - POLIX is expected to observe about 40 bright astronomical sources of different categories during the planned lifetime of XPoSat mission of about 5 years.
            - This is the first payload in the medium X-ray energy band dedicated for polarimetry measurements.
    - **XSPECT:**
        - The XSPECT (X-ray Spectroscopy and Timing) payload will give spectroscopic information (on how light is absorbed and emitted by objects).
        - It would observe several types of sources, such as X-ray pulsars, blackhole binaries, low-magnetic field neutron star, etc.

Significance

- These polarimetry missions will help observe polarized X-rays from neutron stars and supermassive black holes.
- By measuring the polarisation of these X-rays, we can study where the light came from and understand the geometry and inner workings of the light source

How are X-Rays witnessed in space?

- X-rays have **much higher energy** and **much shorter wavelengths**, between 0.03 and 3 nanometers, so small that some x-rays are no bigger than a single atom of many elements.
    - The **physical temperature of an object** determines the wavelength of the radiation it emits. The **hotter the object, the shorter the wavelength** of peak emission.
- X-rays come from objects that are **millions of degrees Celsius** — such as **pulsars, galactic supernova remnants, and black holes**.
- Like all forms of light, X-rays consist of moving electric and magnetic waves. Usually, peaks and valleys of these waves move in random directions.
- **Polarised light** is more organised with two types of waves vibrating in the same direction
- The **field of polarimetry** studies the measurement of the angle of rotation of the plane of polarised light (that is, a beam of light in which the vibrations of the

electromagnetic waves are confined to one plane) that results upon its passage through certain transparent materials.

Source: TH

Aviation Sector & Climate Change

Syllabus: GS3/ Environment, Conservation, Indian Economy

In News

- France recently announced a ban on domestic flights on short routes that can be easily covered by train in less than two-and-a-half hours.
    - The decision was undertaken in an attempt to minimize carbon emissions from the aviation sector.

More about the News

- France became the **first country in the world** to impose a ban on short-haul domestic flights. The country brought in a new law, effective from May 23, that **bars air travel to destinations** that can be covered by up to two-and-a-half hour journey by train.
- On average, the plane emits 77 times more CO2 per passenger than the train on these routes, even though the train is cheaper and the time lost is limited to 40 minutes.
- In a recent report, a clean transport campaign group in Europe called Transport and Environment estimated that private jets were 5 to 14 times more polluting, per passenger, than commercial planes, and 50 times more polluting than trains.

Carbon emissions by the Aviation Sector

- Air transport, globally, accounts for just about **2 percent of global carbon dioxide emissions** every year, and less than **two per cent of greenhouse gas emissions.**
- Also, airplanes produce **non-CO2 emissions as well**, and their impact on global warming is equally significant. According to the **UN Climate Change**, if the **non-CO2 emissions**, like water vapour, are also accounted for, the airline industry would be responsible for causing almost five per cent of historical global warming.
- The European Commission predicts that by the **middle of the 21st century**, demand for flying could increase aviation's greenhouse gas emissions by upwards of **300% over 2005 levels if no drastic measures are taken to reduce them.**

How emissions from the Aviation Sector impacts Climate Change?

- **Climatic Impact:** The climate effects of aircraft are not just a result of CO2, but also include effects associated with **NOX emissions, contrail formation, and the potential influence of contrails on cirrus clouds**.

- **GHG emissions:** The burning of fossil fuels in aircraft engines produces carbon dioxide, water vapour, nitrogen oxides, and other greenhouse gases that contribute to climate change.
    - Recent research suggests that aviation CO2 emissions should be multiplied by **1.9 times to take account of the added impact** of these other gasses at altitude.

Climate change impact on aviation

- The main expected impacts of climate change on aviation result from changes in temperature, precipitation, storms, sea level, wind and occurrence of hazardous weather phenomena, changes in the jet stream have impact on the air transport and airport operations.
- Those impacts may include reduced aircraft performance, changes in the structure of demand, potential damage to airport infrastructure, airport capacity loss, flight schedules disruptions and impacts on air traffic safety.

Steps taken to restrict emissions from aviation sector

- **Global Initiatives:**
    - **Carbon Offsetting and Reduction Scheme for International Aviation, or CORSIA:** In 2016, the **International Civil Aviation Organisation (ICAO)** put in place an offset mechanism to ensure that any increase in emissions over 2020 levels is compensated for by the airline industry through **investment in carbon saving projects elsewhere.**
        - It only seeks to offset emissions that are over and above 2020 levels. It does not deal with total emissions.
        - The offset plan is supposed to run from 2021 to 2035.
    - **Long-Term Aspirational Goals (LTAG):** The 41st ICAO Assembly adopted a long-term global aspirational goal (LTAG) for international aviation of net-zero carbon emissions by 2050 in support of the UNFCCC Paris Agreement's temperature goal.
    - The LTAG **does not attribute specific obligations or commitments** in the form of emissions reduction goals to individual States. Instead, it recognizes that each State's special circumstances and respective capabilities (e.g., the level of development, maturity of aviation markets, sustainable growth of its international aviation, just transition, and national priorities of air transport development) will inform the ability of each State to contribute to the LTAG within its own national timeframe.
- **Indian Initiatives:**
    - **Sustainable Aviation Fuel (SAF):** In a significant development towards decarbonizing of the aviation sector, India’s first commercial passenger flight using indigenously produced **Sustainable Aviation Fuel (SAF) blend** was successfully flown recently.

        - It is a significant milestone in the country's efforts towards Net Zero emissions by 2070. India committed to net zero by 2070 at the 26th Conference of Parties (COP26) to the United Nations Framework Convention on Climate Change.
    - **National Civil Aviation Policy (NCAP) 2016: The Policy** committed to inclusive and sustainable growth of the civil aviation sector in the country while mitigating its negative impacts on environment at the same time.
    - **Green Airports:** Green airport is an airport that complies with the latest sustainability criteria, reduces the effects of airport activities on the environment, and mitigates the impact of climate change on related facilities and operations.
    - **India's Participation in CORSIA & LTAF**: India will start participating in the International Civil Aviation Organisation's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and the **Long-Term Aspirational Goals (LTAG) from 2027.**

Conclusion

- Reducing aviation emissions through other means has not proved to be easy. Unlike road or rail travel, aviation **does not have viable technology alternatives for shifting to cleaner fuels.**
- Biofuels have been tried and so have hydrogen fuel cells. Solar powered planes have also made trips. But use of these alternative fuels for flying large commercial airliners is still some distance away.

Source: BS

Facts In News

PARAS Telescope

Syllabus: GS 3/Science and Technology

In News

Recently, the Scientist team discovered a new exoplanet with a mass 13 times that of Jupiter using the indigenously built **PARAS telescope.**

About the discovery

- It is a new **Jupiter-size exoplanet** with the **highest density** known till this date and a mass **13 times than that of Jupiter**
- The newly discovered exoplanet was found around the star called **TOI4603 or HD 245134.**
    - NASA's Transiting Exoplanet Survey Satellite initially declared TOI4603 as a possible candidate to host a secondary body of unknown nature.

About PARAS telescope

- PRL Advanced Radial-velocity Abu-sky Search spectrograph (PARAS) was commissioned at the **Mount Abu 1.2 m telescope** in India in **2012**.
- Data obtained as part of the post-commissioning tests with PARAS show velocity precision better than 2 m/s over a period of several months to years on bright RV standard stars.
- **Features**
    - It is **capable of single-shot** spectral coverage of 3800–9500 Å at a resolution of ~67000.
    - The **total efficiency, i**ncluding spectrograph, fiber transmission, focal ratio degradation (FRD), and telescope (with 81% reflectivity) is ~7% in the same wavelength region on a clear night with good seeing conditions.
    - The **stable point-spread function (PSF**), **environmental control, the** existence of a simultaneous calibration fiber, and availability of observing time make PARAS attractive for a variety of exoplanetary and stellar astrophysics projects.

Do you Know?

- An exoplanet is any planet beyond solar system. Most orbit other stars, but free-floating exoplanets, called rogue planets, orbit the galactic center and are untethered to any star.
- Massive giant exoplanets are those having a mass greater than four times that of Jupiter.

Source:TH

Chytridiomycosis

Syllabus: GS3/Biodiversity and Conservation

In News

- A new study has now developed a **method to detect all known strains** of this disease, caused by the **amphibian chytrid fungus.**

About Chytridiomycosis

- **Fungal Disease:** Amphibian chytridiomycosis is an **infectious fungal disease** that can be **fatal to amphibians.**
    - Chytridiomycosis is a **skin disease in amphibian**s caused by **either of two species of amphibian chytrid fungus**. They are called **Batrachochytrium dendrobatidis and Batrachochytrium salamandrivorans.**
- **Origin:** Chytrid originated in **Asia.** It's believed that global travel and trade in amphibians led to the disease being unwittingly spread to other continents.

- **First pandemic:** As the disease spread globally beginning in the **1970s,** many populations declined greatly and species became extinct. This pandemic served as a first precedent for the threat of infectious diseases directly on biodiversity.
- **Affecting Frog Species:** It has been ravaging frog populations around the world, **wiping out 90 species.**
    - Chytrid infects frogs by **reproducing in their skin**. The single-celled fungus enters a skin cell, multiplies, then breaks back out onto the surface of the animal.
    - This damage to the skin affects the **frog's ability to balance water and salt levels,** and eventually leads to death if infection levels are high enough.
- **Why is it the deadliest?** The **extreme rate of mortality,** and the high number of species affected, makes chytrid unequivocally the **deadliest animal disease known to date.**
    - Frogs in regions such as **Australia and the Americas** did not have the evolutionary history with chytrid that could grant them resistance. So, when they were exposed to this new pathogen, the results were devastating.
    - In the 1980s, amphibian biologists began to notice sharp population declines, and in 1998, the chytrid fungal pathogen was finally recognised as the culprit.
- **Recent Study:** Recently published in the journal Transboundary and Emerging Diseases, a multinational study has now **developed a method to detect all known strains** of this disease.
    - This breakthrough will **advance the ability to detect and research this disease,** working towards a widely available cure.

Source: TH