



News Analysis (07 Sep, 2020)

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Retiring Old Thermal Power Plants

Why in News

According to a report by research organisation **Climate Research Horizon**, **shutting down thermal power plants older than 20 years can save the government Rs. 53,000 crore over five years.**

The thermal power plants were analysed in **11 States** (Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal), which account for **nearly 50% of Power Distribution Companies (discom) dues.**

Key Points

- **Findings from the Report:**

- **Shutting down old coal-based power plants and freezing those under construction** can save over **Rs. 1.45 lakh crore** at a time when **electricity demand** has been **hit due to Covid-19.**

The savings will accrue from **avoiding retrofitting old plants** to reduce the toxicity from their emissions.

- **Replacing electricity from older coal plants with cheaper renewable sources** will reduce the gap between cost of supply and revenue generation for discoms.
 - With lack of power demand due to Covid-19, and difficulties in revenue collection, discoms' overdues to power generators have increased to Rs. 1,14,733 crore.
 - The Centre is in the **process of disbursing Rs. 1,00,000 crore** by way of relief to discoms to enable them to pay their dues to generators. This is expected to be a **temporary fix**, given the lack of progress by discoms in reducing the gap between cost of supply and revenue raised.
- Further, surplus electricity generation capacity has seen many **power plants struggle with low Plant Load Factors** (PLF or capacity utilisation), a situation that most experts predict will persist for the foreseeable future.

- **Power Generation Scenario:**

India mainly uses three types of **thermal power plants**- Coal, Gas and Liquid-fuel based. The electricity generated by these plants adds up to **62.2%** of the total power generation in the country.

Fuel	MW	% of Total
Total Thermal	2,31,456	62.2%
Coal	1,99,595	53.7%
Lignite	6,360	1.7%
Gas	24,992	6.7%
Diesel	510	0.1%
Hydro (Renewable)	45,699	12.3%
Nuclear	6,780	1.8%
RES* (MNRE)	88,042	23.7%
Total	371,977	

- **Problems Faced by Discoms:**

- 75-80% of a discoms' costs are in power purchase and many are locked into expensive agreements (**Power Purchase Agreements -PPAs**) for decades.
 - PPAs in India are **not flexible**. They lack the option for exiting the contract.
 - Also renegotiating them in case of demand collapse is not easy because of lack of provisions for a review of terms and conditions.
 - Discoms purchase power from generation companies through **Power Purchase Agreements (PPAs)**, and then supply it to their consumers (in their area of distribution).
- This has been **affecting the ability of discoms to buy power for supply**, and the **ability to invest in improving the distribution infrastructure**. Consequently, this impacts the quality of electricity that consumers receive.

- **Issues Complicating the Problem:**

- **Lockdown Effect:** The nationwide lockdown has resulted in peak electricity demand coming down, with commercial and industrial power demand taking a hit after many factories shut down.
- **Power theft** is also a challenge.
- **Cross Subsidisation** - Discoms charge “commercial and industrial (C&I) consumers” very high tariffs.
 - This is to compensate for subsidies provided to residential and agricultural consumers, for whom tariffs are kept artificially low for political reasons.
 - High tariffs combined with unreliable supply have rendered Indian industry uncompetitive in global markets.

However, to counter this, industries were forced to build capacity for **captive electricity generation** (i.e a small and private owned power plant within industrial units or clusters) – which accounted for as much as 17% of all discom sales in 2017.

- **Ineffective Government Schemes-** The **Ujwal Discom Assurance Yojana (UDAY)** that was launched in 2015 to fix the financial problems of the sector has not yielded expected benefits.

Government Initiatives

- **Shut down old power plants:** The **2020-21 Budget speech** advised utilities to close thermal power plants which are in violation of **National Clean Air Programme** (NCAP) norms.
- **Economic Stimulus:** Part of the Rs. **90,000-crore economic stimulus package** announced by the Ministry of Finance is assigned for liquidity injection into power distribution companies.
 - The move is aimed at helping the discoms clear their dues with GENCOS (or electricity generation companies), who in turn can clear their outstanding dues with suppliers, such as coal miners, easing some of the working capital woes of Coal India Ltd. and contract miners.
 - This is subject to the condition that the Centre will act as guarantor for loans given by the state-owned power finance companies to the discoms.

Solutions

- **Cost Effective Solar Plants:** The average cost of coal-fired projects is **Rs.4 per unit** and generally sees an upward escalation whereas new solar power plants are being bid out at less than **Rs.3 per unit**.
- **Encourage Private Sector:** New private competition can bring new capital and more innovation.

New coal-fired power plants are still being financed so that the private sector is not building any coal-based power plants at all; only the public sector power companies are doing so. These PSU thermal plants are financed by public sector banks and largely on tax payers' money.
- **UDAY 2.0:** Government's announcement of the launch of UDAY 2.0 which seeks installation of smart prepaid metres, prompt payment by discoms, making coal available for short term and reviving gas-based plants is a step in the right direction.
- **Flexible Contracts:** Long-term supply contracts need flexibility for public utilities to adapt to unforeseen situations such as a Covid collapse in demand.

Way Forward

- There is an urgent need to address the issues of burgeoning outstanding dues of discoms towards power generators and stressed projects that are being dragged under insolvency proceedings.
- **Formulation of pragmatic power tariff policy** is the need of the hour because without a financially viable power sector, socio-economic growth of India will suffer.
- The Indian government has vowed to provide 24X7 power supply to every village and every house in India. The fulfilment of this dream will rest upon a sustainable power sector. Therefore, the government should proactively address the concerns of these power distribution companies.

Source TH

Development Bank for Infrastructure Funding

Why in News

The government is planning to set up a new **Development Finance Institution (DFI)** essentially to fill the gap in long-term finance for infrastructure sectors.

Key Points

- **Proposed DFI:**

It will be used to finance both social and economic infrastructure projects identified under the **National Infrastructure Pipeline (NIP)**.

- In April 2020, the Government released the **final report on NIP for 2019-25**, which had drawn up projects totalling investments of Rs. 111 lakh crore across roads, railways, energy and urban sectors.
- The task force on NIP was headed by **Atanu Chakraborty** (economic affairs secretary).
- NIP will enable a forward outlook on infrastructure projects which will create jobs, improve ease of living, and provide equitable access to infrastructure for all, thereby making growth more inclusive.

- **Role of Government in DFI:**

- The DFI can have two types of character:
 - Either it should be **promoted by the government**.
 - Or it should be given a **private sector character** with the government restricting its holding to 49%.
- There are clear **advantages if the DFI is fully held by the government**, the most important being **fund-raising**.
 - The securities from the DFI could be made **Statutory Liquidity Ratio (SLR)** eligible. This will encourage banks to subscribe to the securities issued by DFI and fulfil their SLR obligations.
 - The **Reserve Bank of India (RBI)** requires banks to set aside 18% of their net demand and time liabilities towards SLR.
 - However, the issue involved in this is that the senior management of the DFI may be **hounded by investigative agencies** such as the Central Bureau of Investigation (CBI), and be **subject to the scrutiny** of the Comptroller and Auditor General (CAG) and the Central Vigilance Commission (CVC).
- A **DFI with a private sector character** will require the government to believe and trust the private sector.
 - This will require the government to maintain some distance from the private sector DFI institution and let it implement and execute projects aimed at improving the quality of life of all citizens.
 - The institution can also work without fear of the CBI, CVC or the CAG.

- **Issues in Infrastructure Funding:**

- **Funding Gap:** Banks are unable to provide long-term finance to infrastructure projects.
 - Infrastructure financing is currently dominated by bank lending, with **outstanding credit to the infrastructure sector touching 15% until FY16.**
 - However, due to rising **non-performing assets** in the banking sector driven by declining asset quality in the infrastructure sector, the share **has declined to 12% in FY19.**
- **Asset/Liability Management Mismatch:** In India, most lenders borrow funds with maturity under 5 years. The reason is primarily the absence of a deep bond market to borrow from. As a result, they lend to a project with a maturity of, say 20 years, with funds of 2-year maturity. This leads to a mismatch in the maturities of assets and liabilities for the lender.

Asset/liability management is one of the **main tools for evaluating financial risk** and for periodic testing and preparation of financial policies.

Development Finance Institutions

- **DFIs provide long-term credit** for capital-intensive investments spread over a long period and yielding low rates of return, such as urban infrastructure, mining and heavy industry, and irrigation systems.
- DFIs often **lend at low and stable rates of interest** to promote long-term investments with considerable social benefits.
- DFIs are also known as **Development banks.** They are **different from commercial banks** which mobilise short- to medium-term deposits and lend for similar maturities to avoid a maturity mismatch-a potential cause for a bank's liquidity and solvency.

DFIs in India

- Soon after independence, the institutional framework for development banking began- IFCI (1948), IDBI (1964), IIBI (1972), **NABARD** and EXIM Bank (1982), SIDBI (1990), etc.
- However, in the past few years, DFIs such as ICICI, IDBI and IDFC have transformed into universal banks as they **did not have the advantage of low-cost funding for long term projects.**
- Currently, **DFIs are sector-specific**, such as Rural Electrification Corp. Ltd (REC) for the power sector, National Bank for Agriculture and Rural Development (NABARD) for the agriculture sector, and Indian Railway Finance Corp. to fund rail infrastructure among others.

Way Forward

- If India has to grow 8-10% continuously, credit growth for infrastructure must be 12-14%. Since, infrastructure projects require long-term funds, and given the scale of investment required, a large DFI is a good idea.
- Compared with banks, a DFI provides long-term finance for social and economic infrastructure. However, DFIs involve higher risk than what the ordinary financial system may be willing to bear.

Source: IE

Tension Between Russia-Germany

Why in News

Recently, tensions between Russia and Germany have deepened over the **alleged poisoning of Russian opposition figure Alexei Navalny**.

Germany has **threatened sanctions against Russia** which, in turn, has **accused Germany of delaying the investigation** on the matter.

Key Points

- Alexei Navalny is Russia's **opposition leader and anti-corruption campaigner** who was evacuated to Germany after falling ill.
- Germany claims that the opposition leader has been **poisoned using the Soviet-era nerve agent Novichok**.
 - It is **one of the strongest accusations yet from Germany** on the basis that the deadly substance has been used by the Russian authorities, in the past as well.
- Germany, which **currently holds the rotating presidency of the European Union** (EU), will discuss possible sanctions against Russia if it fails to provide an explanation.
 - The EU can discuss sanctions on **Nord Stream 2**, which is a **critical energy export project** for the Russian government.

Novichok

- It means "**newcomer**" in Russian and applies to a **group of advanced nerve agents developed by the Soviet Union in the 1970s and 1980s**, under a programme codenamed **Foliant**.
 - Nerve agents act by **blocking messages from the nerves to the muscles**, causing a collapse of many bodily functions.
 - The main nerve agents are the **chemicals sarin (GB), soman (GD), tabun (GA) and VX**. **Sarin was used by Syrian air force** in chemical attacks on a village in Syria's western Hama region in 2017.
 - Nerve agents are **man-made and have been manufactured for use in chemical warfare**.
- These nerve agents were **designed to escape detection** and are **extremely toxic**.

Nord Stream 2

- **About:**
 - It is a **nearly constructed 1,200-kilometre pipeline from Russia to Germany via the Baltic Sea**.
 - It will **run alongside the already constructed Nord Stream** and will **double the amount of gas** being funnelled through the Baltics to 110 billion cubic meters per year.

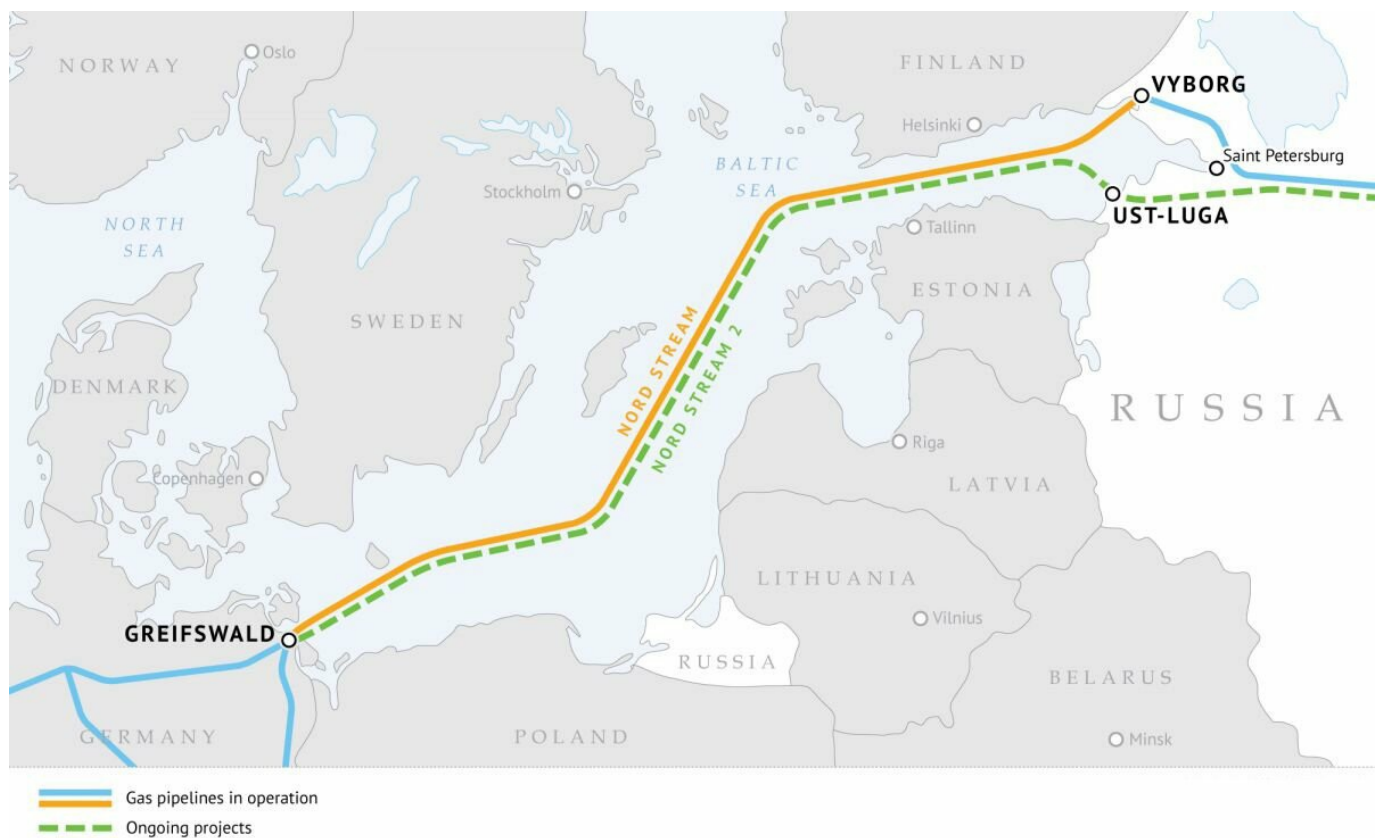
- **Benefits:**

- It is intended to **provide Europe with a sustainable gas supply** while **providing Russia with more direct access to the European gas market**.
- Its proposed route **enters the territorial waters and Exclusive Economic Zone (EEZ) of three other countries: Finland, Sweden and Denmark**. National governments and local authorities **will benefit economically** from investment and employment in the pipeline.

- **Security Concerns and Criticism:**

The project has been **criticized by the USA and Germany's Eastern neighbours** like Poland, Czech Republic etc. citing **Russian dependence as a threat** to the common market and the EU's strategic interests.

The pipeline will **enable Russia to increase its military presence in the Baltic Sea** and also to **transmit military information** on the movements of naval vessels.



Source: TH

FCRA Clearance of 6 NGOs Suspended

Why in News

Recently, the Union **Ministry of Home Affairs** has suspended licenses under **the Foreign Contribution Regulation Act (FCRA), 2010** of the six **Non Governmental Organisations (NGOs)**.

Suspension of FCRA license means that the **NGO can no longer receive fresh foreign funds** from donors pending a probe by the Home Ministry.

Key Points

- Of the six NGOs, four are Christian associations, **Ecreosoculis North Western Gossner Evangelical** in Jharkhand, the **Evangelical Churches Association (ECA)** in Manipur, **Northern Evangelical Lutheran Church** in Jharkhand and **New Life Fellowship Association (NLFA)** in Mumbai.
- The two other organisations whose licenses were suspended are the **Rajnandgaon Leprosy Hospital and Clinics, Chhattisgarh** and the **Don Bosco Tribal Development Society, Tamil Nadu**.
- The **reasons for the suspension have not been specified** by the government.
- Earlier, in 2017, USA- based Christian donor, **Compassion International**, was forced to stop operations in India after the Home Ministry found that it funded NGOs that encouraged religious conversions.

Foreign Contribution (Regulation) Act (FCRA), 2010

- Foreign funding of voluntary organizations in India is regulated under FCRA act which is implemented by the **Ministry of Home Affairs**.
- The Act ensures that the **recipients of foreign contributions adhere** to the stated purpose for which such contribution has been obtained.
- Under the Act, organisations are required to register themselves **every five years**.

Non Governmental Organisations

- Worldwide, the term ‘NGO’ is used to describe a body that **is neither part of a government nor a conventional for-profit business organisation**.
- NGOs are groups of ordinary citizens that are involved in a wide range of activities that may have **charitable, social, political, religious or other interests**.
- NGOs are helpful in implementing **government schemes at the grassroots**.
- In India, **NGOs can be registered** under a plethora of Acts such as the **Indian Societies Registration Act, 1860, Religious Endowments Act, 1863, Indian Trusts Act, etc**.
- India has possibly **the largest number of active NGOs** in the world, a study commissioned by the government put the number of NGOs in 2009 at 33 lakh.
That was one **NGO for less than 400 Indians**, and many times the number of primary schools and primary health centres.
- Ministries such as Health and Family Welfare, Human Resource Department, etc provide funding to a handful of NGOs.
- NGOs also receive funds from abroad, if they are registered with the Home Ministry under the **Foreign Contribution (Regulation) Act (FCRA)**.

Without this, no NGO can receive cash or anything of value **higher than Rs 25,000**.

Controversies Related to FCRA

- The FCRA regulates the receipt of funding from sources outside of India to NGOs working in India. **It prohibits the receipt of foreign contribution “for any activities detrimental to the national interest”**.

- The Act also held that the government can refuse permission if it believes that the donation to the NGO will adversely affect “**public interest**” or the “**economic interest of the state**”.
However, there is **no clear guidance** on what constitutes “public interest”.
- The FCRA restrictions have serious consequences on both the **rights to free speech** and **freedom of association** under Articles **19(1)(a)** and **19(1)(c)** of the Constitution.
- The right to free speech is affected in **two ways**:
 - By allowing only some political groups to receive foreign donations and disallowing some others, can induce biases in favour of the government.
 - NGOs need to tread carefully when they criticise the regime, knowing that too much criticism could cost their survival.
 - FCRA norms can reduce critical voices by declaring them to be against the public interest. This chilling effect on free speech can lead to self-censorship.
 - Similar to this on unclear guidelines on public interest, in **Shreya Singhal v. Union of India (2015)**, the Supreme Court (SC) struck down Section 66A of the Information Technology Act. The SC held that the Act could be used in a manner that has a chilling effect on free speech.
- Besides, given that the right to freedom of association is part of the **Universal Declaration of Human Rights** (Article 20), a violation of this right also constitutes a human rights violation.
- In April 2016, the **UN Special Rapporteur on the Rights to Freedom of Peaceful Assembly and of Association** undertook a legal analysis of the FCRA, 2010.
 - It stated that restrictions in the name of “public interest” and “economic interest” as invoked under the FCRA failed the test of “legitimate restrictions”.
 - The terms were too vague and gave the state excessive discretionary powers to apply the provision in an arbitrary manner.
- In this context, though it is **necessary to regulate corrupt NGOs**, there needs to be **clarity on terms like public interest**.

Source: TH

Basic Structure Doctrine: Kesavananda Bharati Case

Why in News

Main petitioner, **Kesavananda Bharati**, of *Kesavananda Bharati Sripadagalvaru and Ors v State of Kerala Case*, 1973 (known for the **basic structure doctrine of the Supreme Court**), passed away.

Key Points

- **Kesavananda Bharati:**

- He **challenged the Kerala land reforms legislation in 1970**, which imposed restrictions on the management of religious property.
- The case was **challenged under Article 26**, concerning the right to manage religiously owned property without government interference.
- A **13-judge Bench** was set up by the Supreme Court, the biggest so far, to hear the case.
- **Question underlying the case also included:** Was the power of Parliament to amend the Constitution unlimited? In other words, could Parliament alter, amend, abrogate any part of the Constitution even to the extent of taking away all fundamental rights?

- **Background:**

- The Supreme Court conceded absolute power to Parliament in amending the Constitution, as was seen in the verdicts in *Shankari Prasad case (1951)* and *Sajjan Singh case (1965)*.
 - In **both the cases** the court had ruled that the term “**law**” in **Article 13** must be taken to mean rules or regulations made in exercise of ordinary legislative power and not amendments to the Constitution made in exercise of constituent power under **Article 368**.
 - This means **Parliament had the power to amend any part of the Constitution** including Fundamental rights.
 - But **Article 13(2)** reads - "The State shall not make any law which takes away or abridges the right conferred by this Part (i.e. Part-III) and any law made in contravention of this clause shall, to the extent of contravention, be void."
- However, in the *Golaknath case (1967)*, the Supreme Court held that **Parliament could not amend Fundamental Rights**, and power to amend the Constitution would be only with a Constituent Assembly.
 - The Court held that an **amendment under Article 368 is "law" within the meaning of Article 13** of the Constitution and therefore, if an amendment "takes away or abridges" a Fundamental Right conferred by Part III, it is void.
- To dis-effect the judgments of the Supreme Court in the *Golaknath case (1967)*, *RC Cooper case (1970)*, and *Madhavrao Scindia case (1970)*, the then government enacted major amendments to the Constitution. Most notably:
 - **24th Constitutional (Amendment) Act, 1971-** Parliament had also given itself the power to amend any part of the Constitution.
 - **25th Constitutional (Amendment) Act, 1972-** The right to property had been removed as a fundamental right.

- **Verdict in the Kesavananda Bharati Case:**

- The landmark judgement was delivered on 24th April 1973 by a **thin majority of 7:6** wherein the majority held that **any provision of the Indian Constitution can be amended by the Parliament** in order to fulfil its socio-economic obligations that were guaranteed to the citizens as given in the Preamble, provided that such amendment **did not change the Constitution's basic structure**.
- The minority, however, in their dissenting opinion, were wary of giving the Parliament unlimited amending power.
- The court held that the **24th Constitutional Amendment was entirely valid**. But it found the **second part of the 25th Constitutional Amendment to be ultra vires**.
The Supreme Court declared the **Article 31C** as unconstitutional and invalid on the ground that judicial review is basic structure and hence cannot be taken away.
- Despite the ruling that Parliament cannot breach fundamental rights, the court upheld the amendment that removed the fundamental right to property.
The court ruled that in spirit, the amendment would not violate the “basic structure” of the Constitution.

- **Doctrine of the Basic Structure:**

- The **origins of the basic structure doctrine** are found in the **German Constitution** which, **after the Nazi regime**, was amended to protect some basic laws.
- Learning from that experience, the new German Constitution introduced substantive limits on Parliament's powers to amend certain parts of the Constitution which it considered ‘basic law’.
- **In India**, the basic structure doctrine has formed the **bedrock of judicial review** of all laws passed by Parliament.
- No law can impinge on the basic structure. What the basic structure is, however, has been a continuing deliberation.
- **Parliamentary democracy, fundamental rights, judicial review, secularism-** are all held by courts as basic structure, the list is not exhaustive.
- It is the Judiciary that is responsible to decide what constitutes the basic structure.

- **Implications of the Judgement:**

- Politically, as a result of the verdict, the judiciary faced its biggest litmus test against the executive. The government ignored the opinion and superseded three judges.
- Within less than two years of the restoration of Parliament's amending powers to near absolute terms, the **Forty-second amendment** was challenged before the Supreme Court by the owners of Minerva Mills (Bangalore) a sick industrial firm which was nationalised by the government in 1974. Basic structure doctrine was **reaffirmed in the Minerva Mills** and later in the **Waman Rao case, 1981**.

Source IE

Moplah Uprising

Why in News

Recently, the **Indian Council for Historical research (ICHR)** has constituted a three-member committee to review the entries in the book **Dictionary of Martyrs: India's Freedom Struggle 1857-1947**, which was released by the Prime Minister on 7th March 2019.

The book contains an account of the **martyrs** from India's **First War of Independence in 1857**, to India's Independence in **1947**. The project for its compilation was commissioned by the Ministry of Culture to ICHR to commemorate the 150th anniversary of the **uprising of 1857**.

Key Points

- **Background:** A review report submitted to the Indian Council of Historical Research (ICHR) by one of its members in 2016 had recommended the delisting 387 names including victims of **Wagon Tragedy** and **Malabar/Moplah Rebellion** leaders **Ali Musliyar** and **Variamkunnath Ahmad Haji** from the **Dictionary of Martyrs**.
 - The **year 2021** will mark the **100th year anniversary of the Malabar rebellion of 1921**.
 - There has been recent controversy on a film being released on this issue.
- **Issues involved:** The review report of 2016 noted that “almost all the Moplah outrages were **communal**. They were against the Hindu society and done out of sheer intolerance.”
 - The report also said that none of those who died in the Wagon Tragedy were freedom fighters of India as they hoisted the Khilafat flag and established Khilafat and Khilafat courts for a brief period.
 - Issue of forced conversion of Hindus into Islam by the leaders of the rebellion were also raised by many organizations.
 - However, many historians view this as a one of the **first cases of nationalist uprisings in Southern India**.

Malabar Rebellion or Moplah Uprising or Mapillah Revolt (1921)

- **Reasons:**
 - The trigger of the uprising came from the **Non-Cooperation Movement** launched by the Congress in 1920 along with the **Khilafat agitation**.
 - The **anti-British sentiment** fuelled by these agitations affected the **Muslim Mapillahs** (also known as **Moplahs**) of **south Malabar** region of **Kerala**.
 - **New Tenancy Laws:** After the death of Tipu Sultan in 1799 in the **Fourth Anglo-Mysore War**, Malabar had come under British authority as part of the **Madras Presidency**.
 - The British had introduced **new tenancy laws that tremendously favoured the landlords** known as *Janmis* and instituted a **far more exploitative system for peasants** than before.
 - The new laws **deprived the peasants of all guaranteed rights to the land**, share in the produce they earlier got and in effect rendered them landless.
- **The Communal Angle:** Most of the **landlords were Namboodiri Brahmins** while most of the tenants were **Mapillah Muslims**.
- **The Revolt:** Fuelled by the fiery speeches by Muslim religious leaders and anti-british sentiments, the Mopillahs launched a **violent rebellion**. Numerous **actions of violence were reported and series of persecutions** were committed both **against the British and the Hindu landlords**.

- **Support:** In the initial stages, the movement had the support of **Mahatma Gandhi** and other Indian nationalist leaders, but as it turned violent they distanced themselves from it.
- **Collapse:** By the end of 1921, the rebellion was crushed by the British who had raised a special battalion, the **Malabar Special Force** for the riot.
- **Wagon Tragedy:** In November 1921, 67 Moplah prisoners were killed when they were being transported in a closed freight wagon from Tirur to the Central Prison in Podanur. They died of suffocation. This event is called the Wagon Tragedy.

Khilafat Movement

- The Khilafat agitation was launched in India in **1919**.
- It was led by **Muhammad Ali and Shaukat Ali**.
- The demands of the movement were :
 - Control of **Turkish Caliphate** or Khalifa over islamic sacred places in the erstwhile Ottaman Empire.
 - The *Jazirat-ul-Arab* i.e. Arabia, Syria, Palestine, and Iraq remain sunder Muslim Sovereignty
 - Khalifa is left with sufficient territory to defend the Ismaic faith.
- The movement was supported by the **Indian National Congress**.
- Mahatma Gandhi wanted to align it to the Non-Cooperation Movement to unite Hindus and Muslims against the British rule.

Indian Council of Historical Research

- ICHR is an **autonomous organization**, established under Societies Registration Act,1860 in 1972.
- It is under the **Ministry of Education**.
- **Objectives**
 - To bring historians together for exchange of views.
 - To give a national direction to an objective and scientific writing of history.
 - To promote, accelerate and coordinate research in history and ensure its dissemination.
- The council also provides grants, assistance and fellowships for historical research.

Source: TH

Chandrayaan-1 Findings

Why in News

The recent images sent by Chandrayaan-1 suggest that the **moon may be rusting along the poles**.

Chandrayaan-1, India's **first mission to the moon**, was **launched by the Indian Space Research Organisation (ISRO) in 2008**.

Key Points

- **Finding:**
 - Data from the Mineralogy Mapper (M3), one of the instruments on Chandrayaan-1, indicates the **presence of hematite at the lunar poles.**
Hematite (Fe₂O₃) is a mineral which is a form of iron oxide, or rust, produced when iron is exposed to oxygen and water.
 - The sign of this finding is that even though the **surface of the moon** is known to have **iron-rich rocks**, it is **not known for the presence of water and oxygen**, which are the **two elements needed to interact with iron to create rust.**
Recently, the **National Aeronautics and Space Administration (NASA)** has found evidence of greater quantities of **metals such as iron** and titanium on the moon's subsurface.
- **Possible Reasons Behind Rusting along the Lunar Poles:**
 - As per scientists at NASA, **earth's oxygen** could be driving the **formation of hematite.** Earth's **magnetotail** (elongated region of the **magnetosphere** of the earth) ferries oxygen to the moon and also blocks 99% of solar wind during certain periods of the moon's orbit.
 - The **solar wind**, a stream of charged particles that flows out from the sun, **bombards earth and the moon with hydrogen.**
 - **Hydrogen makes it harder for hematite to form.** It is a reducer, meaning it adds electrons to the materials it interacts with. That's the opposite of what is needed to make hematite or iron to rust, which requires an oxidizer, which removes electrons.
 - Chandrayaan-1 Moon data **indicates that the moon's poles are home to water** that scientists are trying to decipher.
- **Chandrayaan-3:** It is likely to be launched in early **2021.**
 - It will be a **mission repeat of Chandrayaan-2** and will **include a Lander and Rover** similar to that of Chandrayaan-2, but will **not have an orbiter.**
Planned to **land on the South Pole of the Moon, Chandrayaan-2** was launched on 22th July in **2019.** However, the **lander Vikram hard-landed** on 7th September 2019, crashing India's dream to become the first nation to successfully touch down on the lunar surface in its maiden attempt.
 - With the **Artemis program**, **NASA** will land the first woman and next man on the moon by 2024.
India's **first ever human space mission Gaganyaan** aims to send a three-member crew to space for a period of five to seven days by 2022 when India completes 75 years of Independence.

Way Forward

The findings will reshape scientists' knowledge about the moon's polar regions. It also suggests that the Earth may have played an important role in the evolution of moon's surface. However, more data is needed to determine exactly how the water is interacting with rock.

Source: PIB
