## Topics - MINDS MAPS included (Daily current affairs 4th December 2024

- Gussadi dance.
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- Tropical Cyclone Dynamics
- The Daniel Johnson Dam
- New Collective Quantified Goal (NCQG)- COP 29
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- Pardon Power: A Historical and Contemporary
   Overview
- Oilfields (Regulation and Development) Amendment Bill
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Target Mains -2025/26 -

Q Uniformity in way of life is detrimental to evolution of culture . Discuss

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BY SAURABH PANDEY SIR

## FOR UPSC 2025/26

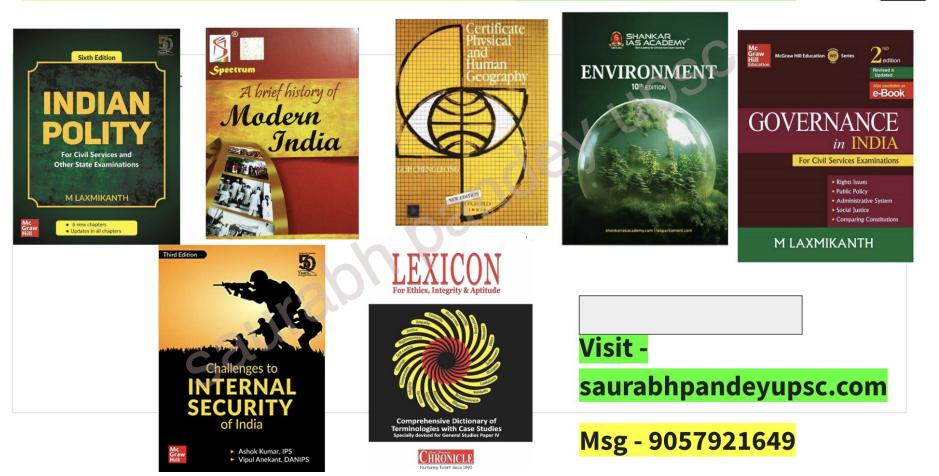
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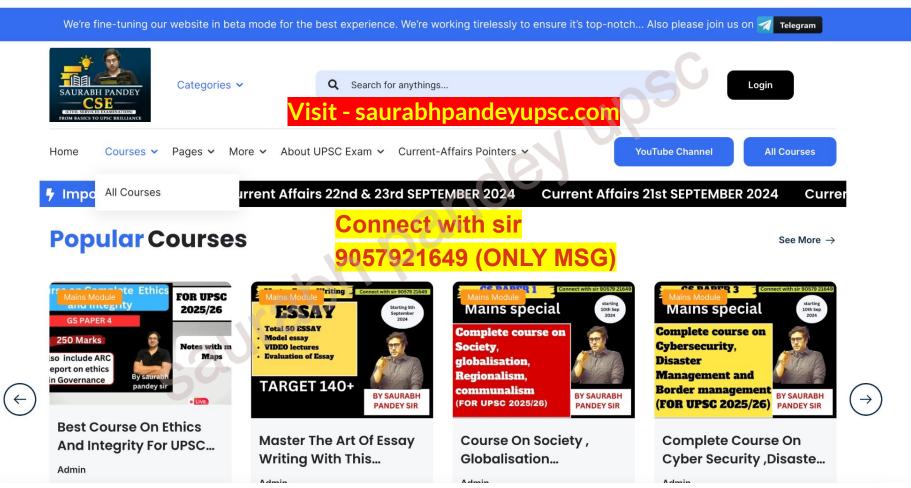


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#### Vibrant moves



RABH PANE

**Claiming success:** Artistes from the Gond tribe perform the Gussadi dance during the 'Praja Palana Vijayotsava', to commemorate the completion of one year of the Congress government in Telangana on Tuesday. NAGARA GOPAL

## $\textbf{Topic} \rightarrow \textbf{Gussadi dance}$



The Gussadi dance is a folk dance that is a significant part of the cultural heritage of the Gond tribe, a Dravidian ethno-linguistic group in India:

### Origin

The Gussadi dance is a part of the Dandari dance form and is traditionally performed during the Diwali festival. The Rajagond tribe of Adilabad district of Telangana perform the Gussadi dance.

Just 2 The dance is performed in colorful attire, enhancing the visual appeal and cultural significance of the performance.

Accompanied by traditional instruments, the music plays a crucial role in setting the rhythm and mood for the dance.

Gussadi Dance contributes to the preservation of local traditions and promotes cultural tourism in the region



## ecDNA challenges law of genetics, groundbreaking new studies find

In normal human cells, the DNA is enclosed in 23 pairs of chromosomes. Some natural processes can damage DNA; cells can also make mistakes in DNA when making copies to imbue in new cells. Such processes could cause a small part of the DNA to break away and float freely inside the nucleus. This is ecDNA

#### Manjeera Gowravaram

nce brushed aside as a curiosity, extrachromosomal DNA (ecDNA) is now taking centerstage in the complex field of cancer biology. Scientists first discovered it as a small fragment of genetic material in cancer cells 50 years ago. Because it was present in only 1.4% of tumours, they didn't consider it to be important

But more sophisticated genomic techniques later revealed their mistake: one study published in 2017 revealed ecDNA is present in nearly 40% of cancer cell lines and in up to 90% of patient-derived brain tumour samples, revealing its pivotal role in cancer biology.

On November 6, three papers were published in the journal Nature by a team called eDvNAmiC - an international collaboration led by Stanford University professor Paul Mischel. The studies explore how ecDNA is formed and contributes to the progression of cancer and drug resistance.

Importantly, the findings also challenge a fundamental law of genetics.

#### What is ecDNA?

In normal human cells, the nucleus contains 23 pairs of chromosomes that enclose the DNA. There are some natural processes that can damage DNA. For example, in chromothripsis, which occurs in some cancers, the chromosomes are broken and rearranged. Cells can also make mistakes in the DNA when making copies of it to imbue in new cells. Such processes could cause a small part of the DNA to break away from the main chromosome and form a circular structure that floats freely inside the nucleus. This is ecDNA.

One of the three studies was led by eDyNAmiC members Mariam Jamal-Haniani and Charles Swanton, both professors at University College London. They analysed the mutation patterns in tumours before and after the formation of ecDNA. They identified various environmental factors, including smoking, exposure to certain substances. and genetic mutations, to be triggers of DNA damage that could lead to the formation of ecDNA. In the same study, the researchers attempted a comprehensive analysis of samples from nearly 15,000 cancer patients from the U.K.'s 100,000 Genomes Project, covering 39 tumour types. They validated their findings using a method called fluorescence in-situ hybridisation (or FISH), which specifically looks for certain cancer-related genes in tissue samples.

They found that ecDNA was present in



Rresearchers analysed samples from nearly 15,000 cancer patients from the U.K.'s 100,000 Genomes Projects. GETTY IMAGES/ISTOCKPHOTO

about 17% of tumour samples but more so in liposarcomas, brain tumours, and breast cancers. They also reported that the prevalence of ecDNA rose after treatments like chemotherapy and correlated with metastasis and worse patient outcomes.

#### ecDNA and cancer growth

ecDNA present in tumours often contains multiple copies of oncogenes - mutated genes capable of causing cancer - that are required to activate tumour growth. But these oncogenes are not present in chromosomes, where scientists used to believe they lived. A study published in 2021, led by

another Stanford University professor. Howard Chang, showed that while chromosomal DNA is fixed within specific regions in the cell, ecDNA moves freely and can interact with other ecDNA to form hubs - concentrated zones where oncogenes are expressed more.

Cells transcribe DNA to mRNA to use the latter to manufacture proteins. The 2021 study also found that when cells transcribe ecDNA to mRNA, the process causes specific oncogenes to become four-times more common in the cell than if the DNA came from the chromosomes. This anomaly has the potential to accelerate the evolution of tumours and help the cancer resist drugs.

#### An inheritance of loss

Another finding reported in the new studies involves a fundamental shift in scientists' understanding of genetics.

ecDNA was present in about 17% of tumour samples but more so in liposarcomas, brain tumours, and breast cancers. Prevalence of ecDNA rose after chemotherapy and correlated with metastasis and worse patient outcomes

Typically, when cells divide, they duplicate the chromosomes and distribute them equally among their daughter cells. In this process, researchers have known the genes on the same chromosome are inherited together while those on different chromosomes are distributed independently of one another. This basic genetic principle is called Mendel's third law of independent assortment (named after Gregor Mendel). But in the second of the three studies, a team led by Mischel and Chang used single-cell sequencing, imaging, and modelling to report that ecDNA is passed on in clusters to the daughter cells during cell division - a violation of the third law. This clustering gives some cancer cells an advantage because it allows them to enhance gene interactions, support cancer growth, and preserve favourable genetic combinations over multiple life-cycles. The researchers have called this the "jackpot effect."

This discovery has profound implications. It overturns the idea that gene inheritance is entirely random when the genes are not linked by DNA strands. The researchers also reported that the

transcription process - from DNA to RNA - facilitates the coordinated segregation of ecDNA during cell division.

#### A new vulnerability in cancer cells

But for the new threats posed by ecDNA. the third study uncovered a potential weakness in tumours that depend on ecDNA. The unusual structure of the ecDNA and its interactions with other DNA elements increase the activity of specific genes. This can lead to a conflict between the cellular machinery involved in making RNA and the activity of cancer cells that leads to DNA damage. Cells respond to this conflict by the heavy use of a protein called CHK1, which helps fix DNA and allows the cell to keep growing. When the researchers used a drug called BBI-2779 that blocks CHK1, they found the drug selectively killed cancer cells with ecDNA, significantly

reducing the number of tumours in mice

with stomach cancer. A San Diego-based biotechnology company co-founded by Mischel and Chang, called Boundless Bio, is currently working to translate these discoveries for clinical use. The company's stated aim is to give patients new treatment options that target vulnerabilities created by ecDNA. This is particularly crucial for patients with ecDNA-driven cancers, such as glioblastoma and ovarian and lung cancers, where current treatments often fall short.

(Manjeera Gowravaram has a PhD in RNA biochemistry and works as a freelance science writer. gmanjeera@gmail.com)



An international collaboration by a team called eDvNAmiCled has discovered how ecDNA contributes to the progression of cancer and drug resistance. The findings contradict Mendel's third law of independent assortment

eDyNAmiC members analysed

mutations in tumours and identified environmental factors, including smoking, exposure to certain substances, and genetic mutations, to be triggers that could lead to the formation of ecDNA

ecDNA in tumours often contains copies of oncogenes that are required to activate tumour growth. But these are not present in chromosomes where scientists used to believe they lived

Researchers have found a drug called BBI-2779 that selectively kills cancer cells with ecDNA. A company is now working towards clinical use. This is crucial for patients with ecDNA-driven

cancers, such as glioblastoma, ovarian, and lung cancers

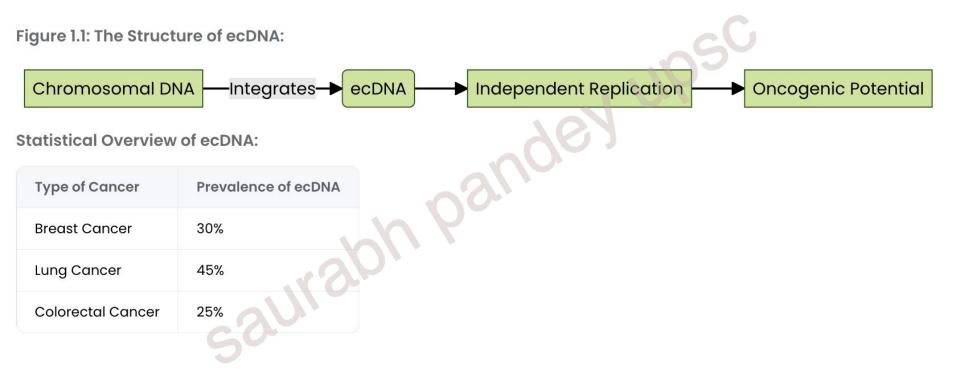
#### SAURABH PANDEY CSE PROVINCE TO UNCERTAINTY

## **Topic** $\rightarrow$ **Introduction to Extrachromosomal DNA (ecDNA)**

**Extrachromosomal DNA (ecDNA)** represents a unique class of genetic material that exists outside the conventional chromosomal structures found in the nucleus. Its significance has surged to prominence in recent years, particularly in the context of cancer research.

**Definition:** ecDNA comprises circular DNA molecules that are not integrated into the chromosomal DNA. This distinctive structure allows them to replicate independently. **Historical Perspective:** Once considered a mere curiosity, ecDNA is now recognized as a pivotal factor in tumorigenesis and drug resistance, altering the landscape of genetic research.





#### The Role of ecDNA in Cancer

SAURABH PANDEY CEE

The contributions of ecDNA to cancer are profound and multifaceted, reshaping our understanding of oncogenesis.

**Mechanisms of Action:** ecDNA can harbor oncogenes that drive tumor growth and proliferation. These circular DNA structures can amplify genetic material, leading to increased expression of cancer-promoting genes.

**Impact on Cancer Progression**: Studies indicate that the presence of ecDNA is linked with aggressive forms of cancer, contributing to increased metastasis and resistance to conventional therapies.

#### **Recent Breakthroughs in ecDNA Research**

zaul



Recent studies have unveiled groundbreaking insights into the role of ecDNA in cancer, challenging long-held beliefs about genetic stability and inheritance.

**Pivotal Studies:** Research conducted by Stanford University has demonstrated how ecDNA drives the evolution of cancer cells, enabling them to adapt to therapeutic pressures.

**Implications for Future Research:** The findings underscore the need for innovative approaches in cancer treatment, focusing on targeting ecDNA to disrupt its role in tumor progression.



#### **Therapeutic Potential of Targeting ecDNA**

saura

The therapeutic landscape is evolving with the realization that targeting ecDNA could offer new avenues for cancer treatment.

**Current Therapies:** Initial studies suggest that therapies aimed at disrupting ecDNA replication may enhance the efficacy of existing treatments.

**Challenges and Opportunities:** Despite the promise, hurdles remain regarding the delivery of targeted therapies and the potential for off-target effects

#### **QUESTION CORNER**

## When a storm passes over land



Q: What is landfall? A: Once it's fully formed, a tropical cyclone (in the northern

hemisphere) has a complex 3D structure. Two important parts of it are the eye and the eyewall. The eye is the centre around which the cyclone rotates. It consists of cold air descending from the cyclone's top with warm air rising in a spiral around it. The eyewall consists of high thunderstorms that bring rain, lightning, and powerful winds.

As long as the cyclone moves over water, it can draw more moisture from below to produce new clouds and rain events around it. But when the storm crosses over onto land, its moisture supply declines drastically, and the cyclone weakens.

Landfall is the moment in a tropical cyclone's life when its eye moves over land. Stormy weather brought by a cyclone is stronger around the eye, and landfall events can be deadly because they expose human settlements on land to strong winds and heavy rain. Their effects can be compounded by storm



Tidal waves triggered by Cyclone Fengal lashed the R.K. Beach in Visakhapatnam on November 30. DEEPAK K.R.

surges that flood coastal areas and prevent inland areas from draining normally.

If the air over land is drier, among other factors, a cyclone weakens quickly after landfall. Depending on environmental conditions, it may dissipate completely, or it could pass over land and re-emerge on the other side. In 2021, Cyclone Gulab made landfall over coastal Andhra Pradesh, weakened as it moved across peninsular India, and re-emerged four days later as Cyclone Shaheen in the Arabian Sea.

- The Hindu Bureau

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## $\textbf{Topic} \rightarrow \textbf{Tropical Cyclone Dynamics}$

## SAURABH PANDEY

### Tropical Cyclone Structure

A fully formed tropical cyclone exhibits a complex 3D structure, including an eye and an eyewall.

#### Section 2 Sectio

The  $e_ye$  is the center of the cyclone, characterized by descending cold air and rising warm air in a spiral pattern.

#### Eyewall Characteristics

The eyewall contains intense thunderstorms that produce rain, lightning, and powerful winds.



#### Moisture Supply

Cyclones draw moisture from water, aiding in cloud and rain generation; this supply diminishes when they move over land.

### 🚰 Definition of Landfall



Landfall occurs when the cyclone's eye moves over land, leading to stronger stormy weather and potential hazards.

### 👠 Impact of Landfall

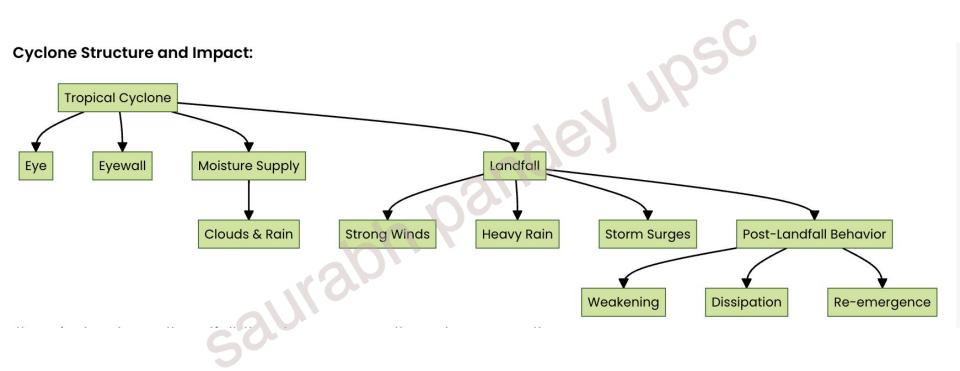
Landfall can be deadly due to strong winds, heavy rain, and storm surges that flood coastal areas.

#### Cyclone Behavior Post-Landfall

After landfall, a cyclone may weaken quickly, dissipate, or re-emerge on the other side of land, as seen with Cyclone Gulab and Cyclone Shaheen in 2021.

Summary: Landfall is a critical moment in a tropical cyclone's life, marked by the cyclone's eye moving over land, leading to potential hazards due to strong winds and heavy rain.











This aerial view shows a school bus atop the Daniel-Johnson Dam in Quebec, Canada, on July 26. Hydroelectricity production in Canada is plummeting as extreme weather linked to climate change, including sudden swings between drought and flood, has limited output and threatened the structures of the dams themselves. A world leader in hydropower, Canada has also been forced to cut exports to the U.S., which have reached their lowest levels in 14 years. AFP

## $\textbf{Topic} \rightarrow \textbf{The Daniel}$ - Johnson Dam



Location: The Daniel-Johnson Dam is situated in Quebec, Canada.
Purpose: It serves primarily for hydroelectric power generation.

Structure: The dam is a large concrete structure that creates a reservoir.

The Construction: It was completed in 1968 and is one of the largest dams in the world.

S Environmental Impact: The dam has significant effects on local ecosystems and water management.



Recreation: The reservoir created by the dam is used for recreational activities such as boating and fishing.

Capacity: The dam has a substantial power generation capacity, contributing to the region's electricity supply.

Summary: The Daniel-Johnson Dam in Quebec is a major hydroelectric facility completed in 1968, known for its large structure and significant environmental impact

#### Reflections on Baku's 'NCQG outcome'

 he urgency of climate change has never been more evident. The Intergovernmental Panel on Climate Change (IPCC) has highlighted the need for significantly stronger commitments to limit global warming to 1.5°C above pre-industrial levels. Current policies, if continued globally, are expected to lead to a temperature rise of up to 3.1°C. The increasingly visible impacts of climate change across geographies, apart from the growing body of scientific evidence, serve as a constant reminder of the need to accelerate climate action. Cleaner fuels and technological solutions are emerging across sectors and could be increasingly accessed and deployed with adequate focus on the means of implementation.

**Ritu Mathur** 

Director, Energy

Assessment and

Modelling, TERI

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It appears to

the principles

burden sharing

justice, having

failed to have

recognised the

global south

of the

financial needs

of equitable

and climate

have bypassed

Against this backdrop with COP 29 (in Baku, Azerbaijan, in November 2024) branded as the Sanchit Saran "Finance COP", the hope was to see an ambitious Agarwal outcome (specifically related to the NCQG or New Collective Quantified Goal) which strongly Associate Fellow. supported this understanding. Energy Assessment and Modelling, TERI

Financing needs of the developing world Finance is a critical component in accelerating the adoption of cleaner alternatives, especially in developing countries. While some of the renewable technologies pay off in the long run due to lower fuel and operational costs, the upfront costs of some of these technologies are much higher than the current options requiring government support to ensure affordability at the consumer end. Other green technologies may still be evolving and are associated with risks of failure that front-runners may need to bear. Given the pressure on government resources that need to be prioritised towards development activities. additional finance must be up-scaled urgently within this decade if transformational changes are to be expected in the adoption of clean and efficient alternatives in developing countries, as access to modern energy and infrastructure improves.

India's expenditure on green energy schemes encompass a wide range of initiatives aimed at expanding renewable energy infrastructure, promoting energy efficiency and clean fuel and technology innovations as part of its commitment to global climate goals. MNRE received its highest ever allocation of ₹19,100 crore in the Budget 2024-25, apart from about ₹40 crore being allocated for enhancing energy efficiency. In the transport sector, a subsidy of ₹5,790 crore has been provided to electric vehicle manufacturers under phase-II of Faster Adoption and

Manufacturing of (Hybrid) Electric vehicles (FAME) scheme.

Another aspect of finance required for the transition relates to the source and type of finance. There are growing concerns regarding fiscal debt, which forms the basis of the ask, for part of the financial support from developed countries to be in the form of public grants rather than loans

The pace and the scale of transitions are also affected by the higher cost of capital in developing countries. Financial flows from developed countries must ideally aim to strengthen fiscal capacities and enable the unlocking of financial markets in developing countries to support and accelerate their climate action. The use of debt instruments to access finance does not work well for developing countries since their high debt burdens limit their

ability to successfully incentivise domestic private capital for climate action. It is well recognised that developing countries attract much higher lending rates as compared to developed countries and much of the global financial flows are restricted within the Organisation for Economic Co-operation and Development (OECD) countries. Therefore, ensuring the flow of climate finance to developing countries at affordable lending rates is important.

#### Role of the NCQG

At Cancun, in 2010, developed countries had pledged to provide \$100 billion annually upto 2020. Further, at COP21 in Paris, the parties decided to establish an NCQG prior to 2025, with the Cancun commitment as the base point. The rationale for establishing the NCQG was pressing. The existing climate pledges have generally been criticised for their lack of specificity and accountability.

Therefore, the NCOG was intended to create a framework for shared climate goals, to establish clear and quantified objectives that nations could aim to achieve, with transparency and accountability at the forefront. At COP26 at Glasgow in 2021, an ad hoc work programme for NCOG discussions was established to run from 2022-24, culminating towards the discussions at COP29.

The Second Needs Determination Report by the Standing Committee on Finance under the United Nations Framework Convention on Climate Change (UNFCCC) estimated that

between \$5 trillion to \$7 trillion would be needed by 2030 to meet half the needs of 98 countries. Developing countries had put forward a conservative ask of \$1.3 trillion annually at COP 29 (largely from public sources to enable leveraging the rest through private finance). However, the developed world has in the NCQG agreed to provide an abysmal figure of \$300 billion annually till 2035. This quantum is

not only miniscule but hardly represents any major change in real flows - probably a target that could be achieved even with current or ( @P 29 minimally additional efforts, if we account for inflation. Further, the mobilisation of funds is expected through all sources of finance including private capital. Undoubtedly,

therefore, there is disappointment with the NCQG outcome, both on the quantum and structure of finance since it does not support the narrative of transformative action. While the decision to triple the flow of public resources through various operating entities of the Financial Mechanism, the Adaptation Fund, the Least Developed Countries Fund, and the Special Climate Change Fund from the 2023 level by 2035 is a positive aspect, it could also see rather slow progress in the next few years (and not aligned to the narrative of the urgency in climate action).

#### The road ahead

COP29 saw the finance commitment step up from the earlier commitment of \$100 billion a year to \$300 billion a year. While this is a step in the correct direction, it is clearly not as ambitious as expected given that climate change is clearly recognised as one of the greatest threats and challenges of our time. Overall, the NCOG outcome is rather disappointing and does not seem to have aligned well with the very core of why the goal was set up in the first place. It clearly bypasses the principles of equitable burden sharing and climate justice as it fails to recognise the financial needs of the global south.

The way forward is to keep the talks ongoing. Climate change has no geographical boundaries. Thus, it is imperative that the international community cooperates towards the global good, keeping climate justice at the core and respecting the principles of the Common but Differentiated Responsibilities and Respective Capabilities (CBDR and RC), Developing countries must stick together and ensure that any transition is just and fair in the real sense.

#### Local action amidst global inertia

fter hours of intense negotiations, the 29th Conference of the Parties (COP29) to the UN Framework Convention on Climate Change (UNFCCC) ended with a climate finance goal where developed countries are to provide \$300 billion annually by 2035. However, this is far from what the developing countries need, and once again brings global climate gridlock into the spotlight.

#### Reaching a consensus

The notion that developed countries should finance climate action in developing nations while also ramping up their own mitigation efforts (such as taking the lead in phasing out fossil fuels and reaching net zero emissions faster) is accepted in principle, but has proven contentious to implement across COPs. The developed world continues to use fossil fuels to meet most of its demands and has no plans of reaching net zero before mid-century. The deadlock has remained a recurring theme at climate negotiations, and COP29 was unsurprisingly no exception. The powerful fossil fuel lobby, especially the oil and gas lobby; the developed world's heavy reliance on fossil fuels; the re-election of climate change deniers; and the differential impacts of climate change across the globe (with the developing world more likely to be impacted than others) are all challenges that hinder reaching a consensus.

Global negotiations are not useless. On the contrary, they are extremely important, even if the victories are few and far between. For instance, the Montreal Protocol, which came into force in 1989, has successfully helped protect the ozone layer and eliminate certain chemicals used in refrigeration (chlorofluorocarbons), a significant contributor to the depletion of the ozone laver. Similarly, the Kyoto Protocol, the first global accord on reducing



of Science. Technology and research-based think



Jai Asundi

Policy, a

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Executive director at the Center for Study of Science. Technology and Policy

While global

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greenhouse gas emissions, which came into force in 2005; the 2015 Paris Agreement, a consensus on limiting global warming to below 2°C with revised national targets every five years; and the 2021 Glasgow Climate Pact, which introduced a loss and damage fund and in which nations declared their respective net-zero dates, are some COPs to celebrate. However, unlike the

melting of glaciers, the pace of action has been slow. Studies indicate that the 1.5°C target will be breached within a few years, with one study even suggesting that it has already been

exceeded. Scientific evidence warns that crossing this threshold will lead to severe consequences in terms of natural disasters and heat stress, which are already apparent across the world. In some instances, the changes expected are unknown and could be catastrophic. Further, studies also point to the fact that the earth's climate will continue to evolve even after global net zero is reached, but the longer we take to get there, the more significant the impact of climate change will be.

#### India's efforts

Whether the goal is to limit global temperature rise to 1.5-2°C or condemn political aggressors for starting wars, the rate at which action is needed is exponential. but the rate at which it is realistically possible is incremental at best. How then do we reconcile these different scales (exponential versus incremental rates) of action? Our answer is to focus efforts on national and sub-national-level action. In India. several policies and finance have already been put in place towards clean energy transition, assuming that international climate finance contribution will be minimal. Being a developing country with several challenges, India has largely followed the co-benefits approach in addressing climate

change. For instance, the PM Surya Ghar Muft Bijli Yojana provides households with subsidies to install rooftop solar panels, thereby also addressing energy poverty and access. The PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) initiative aims to promote the adoption of zero-emission vehicles, including

two-wheelers. three-wheelers, ambulances, and trucks, offering purchase subsidies and supporting essential charging infrastructure to accelerate the transition to clean air

and clean transportation. The Perform, Achieve, and Trade (PAT) scheme, soon to be replaced by the Indian Carbon Market, helps mobilise investments needed to improve energy efficiency and emissions reduction in industries. It is important to note that India has been working hard on reducing its emissions intensity (CO2 per unit of GDP) as per its commitment to the Paris Agreement, Further, in addition to strategies for emissions mitigation, State Action Plans on Climate Change support adaptation strategies tailored to specific vulnerabilities of States, with a focus on agriculture, forestry, water resources, and disaster risk reduction.

While global consensus and funding remain elusive, local and national actions are making tangible progress. The hullabaloo around COPs from "non-parties" is less crucial than the need to drive action on the ground. India deserves praise for already taking steps in the right direction. Moving forward, sustained efforts in emissions mitigation, mindful consumption aligned with Mission LiFE, a greater emphasis on developing resilient infrastructure and communities, and implementing effective heat action plans to address extreme heat will be essential.

## Topic $\rightarrow$ New Collective Quantified Goal (NCQG)- COP 29



### Key Points of the New Collective Quantified Goal (NCQG)

Adoption at COP29: The NCQG was officially adopted under the UNFCCC framework.

Minimum Financing Target: Aims for a core financing goal of \$300 billion per year by 2035.

Additional Funding Goal: Seeks to raise up to \$1.3 trillion per year by 2035, mainly from private sector contributions.

 $\gamma$  Focus on Developing Nations: Prioritizes channeling funds to meet the needs and priorities of developing countries.

S Mixed Financing Sources: Encourages financial contributions from both public an private sectors.

Torward-looking approach.

Solution of the second second

Summary: The NCQG is a strategic climate finance initiative targeting \$300 billion in core financing and up to \$1.3 trillion in additional funding by 2035, with a focus on aiding developing countries.

the developed world has in the NCQG agreed to provide an abysmal annually till 2035. This quantum is not only miniscule but hardly represents any major change in real flows — probably a target that could be achieved even with current or minimally additional efforts, if we account for inflation. Further, the mobilisation of funds is expected through all sources of finance including private capital.

#### India and the Outcome of COP29 in Baku: A Comprehensive Analysis

Introduction

The COP29 summit held in Baku has emerged as a significant event on the global climate change agenda. This year's discussions have spotlighted India's pivotal role in shaping climate policy, alongside the commitments made to combat climate change. As nations rallied to address the pressing environmental challenges, India stood at the crossroads of opportunity and obligation.

#### Why is COP29 important?

COP29 provided a platform for nations to collaboratively tackle climate change, with particular emphasis on financing, adaptation, and mitigation strategies.

#### India's strategic position:

As one of the largest developing nations, India's input and response to the outcomes of COP29 carry substantial weight.

#### Key Outcomes of COP29



The Baku summit yielded several landmark agreements aimed at enhancing global climate efforts.

#### \$300 billion annual climate finance deal:

A commitment from developed nations to provide \$300 billion annually to support climate initiatives in developing countries.

#### Enhanced transparency and accountability measures:

New protocols were established to ensure countries are held accountable for their emissions reductions and climate actions.

#### Focus on loss and damage:

The discussions included provisions for addressing loss and damage caused by climate impacts, a critical issue for vulnerable nations.

#### Strengthening adaptation efforts:

Emphasis was placed on enhancing adaptive capacity for nations most affected by climate change.

The agreements reached could serve as a foundation for more ambitious climate actions moving forward

#### India's Response to COP29 Outcomes



India's response to the agreements has been a blend of optimism and caution.

#### **Official statements:**

Indian representatives voiced the need for developed nations to fulfill their financial commitments, emphasizing that \$300 billion is merely a starting point, not a solution.

#### Concerns about equity:

India highlighted the importance of equity in climate financing, advocating for a fair distribution of resources to support developing countries.

#### Advocacy for climate justice:

India has been vocal about climate justice, arguing that the historical emissions of developed countries necessitate greater responsibility in financing and support

#### **Reactions from Other Stakeholders**



The outcomes of COP29 have elicited varied reactions from different stakeholders, shaping the narrative of global climate politics.

#### **Developed countries:**

While some developed nations welcomed the agreements, others faced criticism for not committing enough resources, leading to a perceived lack of sincerity in addressing climate change.

### **Civil society:**

Environmental groups expressed skepticism, labeling the \$300 billion deal as insufficient, arguing it falls short of what is needed to effectively combat climate change.

#### **Coalition of developing nations:**

Many developing nations echoed India's sentiments, stressing the need for more robust commitments from wealthier nations

#### Future Implications of COP29 for India and the World



The agreements reached at COP29 have significant implications for both India and the global community.

#### Impact on India's climate policies:

The outcomes may influence India's future climate strategies, especially regarding renewable energy and sustainable development initiatives.

#### **Global climate action:**

The success of the Baku agreements could set a precedent for future climate negotiations, emphasizing the necessity for cooperation and shared responsibility.

#### Need for continuous dialogue:

Ongoing discussions and partnerships will be crucial for addressing the complexities of climate change and ensuring that all nations can meet their commitments.



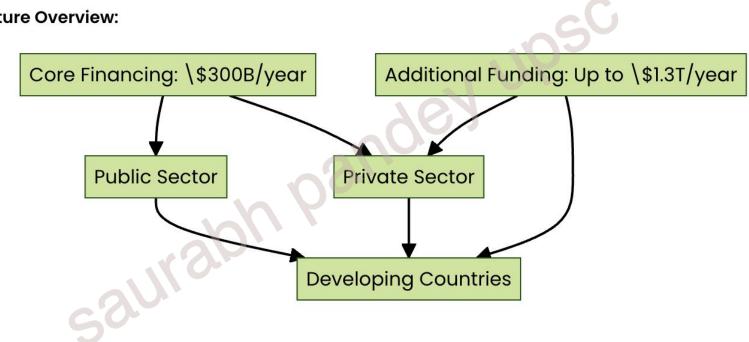
#### Conclusion

The outcomes of COP29 in Baku represent a critical juncture in global climate discourse. India's active involvement not only underscores its commitment to addressing climate change but also highlights the need for equitable and just solutions.

As nations move forward, the agreements made at COP29 can serve as a springboard for more ambitious actions that prioritize sustainability and resilience in the face of climate challenges

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Funding Structure Overview:



## **Topic** $\rightarrow$ **India's Effort to tackle climate change**

#### 🚬 India's National Focus

National and Sub-national Actions: Prioritizing domestic efforts. Limited International Finance: Expectation of minimal external funding

### 🔆 PM Surya Ghar Muft Bijli Yojana

Subsidies for Solar Panels: Encouraging rooftop solar installations. Dual Benefits: Addresses energy poverty and promotes clean energy

#### 🚗 PM E-DRIVE Initiative

Zero-emission Vehicles: Promotes adoption through subsidies. Infrastructure Support: Enhances cleaner transportation system



## Perform, Achieve, and Trade (PAT) Scheme

Energy Efficiency: Mobilizes investments for industrial improvements. Transition to Carbon Market: Evolving towards a national carbon market

#### State Action Plans on Climate Change

Adaptation Strategies: Tailored for agriculture, forestry, and disaster risk. Specific Vulnerabilities: Focus on regional challenges

#### Sustained Efforts Needed

Emissions Mitigation: Ongoing focus on reducing emissions. Resilient Infrastructure: Building robust systems for future challenges. Effective Heat Action Plans: Essential for continued progress.

## The salience of the Places of Worship Act



Why was there communal violence in Sambhal, Uttar Pradesh? What were Justice Chandrachud's remarks in the Gyanvapi case in 2022 and why did it spark political controversy? What does the Places of Worship (Special Provisions) Act, 1991 stipulate?

#### EXPLAINER

#### Aaratrika Bhaumik

#### The story so far:

suit filed against the Shahi Jama Masiid in Sambhal district. Uttar Pradesh, in which the trial court issued an ex-parte order permitting a survey of the mosque. triggered violence on November 24, resulting in the death of four persons. The petitioners have alleged that the 16th-century mosque was built at the site of an ancient Hari Har Mandir which was purportedly demolished by Mughal ruler Babur in 1529. The incident is part of a pernicious trend of local courts in States like Rajasthan and Uttar Pradesh entertaining civil suits contesting the origins of mosques across the country. Experts have however flagged that such suits constitute a violation of the Places of Worship (Special Provisions) Act, 1991.

#### What does the 1991 Act stipulate?

The 1991 Act was introduced by the Congress government under Prime Minister PV. Narasimha Rao amid the communal turmoil that followed the demolition of the Babri Masjid in Ayodhya in 1992. Then Home Minister S.B. Chavan stated that the "enactment of this Bill will go a long way in helping restore communal amity and goodwill."

The law preserves the character of a place of worship as it existed on August 15, 1947, and prohibits courts from examining whether any place of worship has been altered since that date. Section 3 of the Act forbids the conversion – either in whole or in part – of a place of worship from one religious denomination to another, or even within different sects of the same religion. However, the Ram Janmabhoomi dispute in Ayodhya was explicitly exempted from the Act's purview, as the matter was already sub judice when the law was enacted.

A five-judge Constitution Bench in the 2019 Ayodhya title suit affirmed that the



Tense times: The main gate of the mosque at Sambhal in Uttar Pradesh on November 27. RV. MOORTHY

law was designed to protect the nation's secular fabric and imposes a positive obligation on the State to preserve the religious character of all places of worship as they stood on the day India attained independence. Although the disputed site was awarded to the child deity Ram Lalla, the top court barred the institution of similar suits concerning other religious places, in accordance with the provisions of the 1991 Act.

#### Why has it been challenged?

A slew of petitions have been filed in the apex court challenging the constitutionality of the law, including one by BJP leader and advocate Ashwini Kumar Upadhyay. The petitioners argue that by freezing the status of religious sites as they stood in 1947, the law effectively prevents Hindus from "reclaiming" their places of worship that were allegedly "invaded" by Muslim rulers and British colonialists. They further point out that destroyed temples retain their original character under Hindu personal laws and cannot be considered valid mosques under Islamic law without the establishment of a waof.

In September 2022, a Bench led by then Chief Justice of India (CJ) U.U. Lalit directed the government to file a response on its stand within two weeks. However, two years later, the Centre has still not submitted its affdavit.

Noted academician Prof. (Dr.) Faizan Mustafa told *The Hindu* that the inordinate delay in hearing the challenge has emboldened lower courts to disregard the provisions of the 1991 law. "An authoritative pronouncement from the top court is crucial to preserving the country's social fabric. The government is duty-bound to defend the constitutionality of parliamentary laws. Similarly, the court must expedite the hearing of the challenge with a presumption in favour of the Act's constitutionality. A heavy burden lies on the petitioners to prove its unconstitutionality," he said.

#### Why did Justice Chandrachud's remarks stir political row now?

In August 2021, five women associated with the Vishwa Vedic Sanatan Sangh filed a petition in a Varanasi civil court seeking year-round access to pray at a shrine located behind the western wall of the Gyanvapi mosque complex. They claimed the mosque housed several Hindu deities. On April 8, 2022, a Varanasi civil judge appointed an Advocate Commissioner to conduct a videographic survey to ascertain the alleged existence of these idols. The mosque committee challenged the order citing the 1991 Act. However, the High Court and later the Supreme Court refused to halt the survey.

In May 2022, during a hearing on the maintainability of the suit, Justice D.Y. Chandrachud remarked that the 1991 Act does not preclude inquiries into the status of a place of worship as of August 15, 1947, provided there is no intent to alter or convert its character. This interpretation marked a stark departure from the stance taken in the Ayodhya verdict, also purportedly authored by the former CJI. It also broadened the scope for district courts to entertain a host of similar petitions. This oral remark has also recently sparked a political storm, with Congress leader Jairam Ramesh claiming that it has since opened a Pandora's box. "Oral observations hold no binding authority as they are not formally recorded in the order. The legislative intent of the 1993 Act could not have been any clearer - it explicitly bars even the admission of such suits. Such claims may

only be considered if, on August 15, 1947,

instance, as both a temple and a mosque,"

the site was unquestionably used by

multiple religious communities, for

explained Dr. Mustafa.

#### THE GIST

The 1991 Act preserves the character of a place of worship as it existed on August 15, 1947, and prohibits courts from examining whether any place of worship has been altered since that date.

A slew of petitions have been filed in the apex court challenging the constitutionality of the law. The petitioners argue that by freezing the status of religious sites as they stood in 1947, the law effectively prevents Hindus from "reclaiming" their places of worship that were allegedly "invaded" by Musim nulers and British colonialists.

The Supreme Court is yet to decide the preliminary issue raised in several of these suits – whether the 1991 Act bars even the filing of pleas questioning the "original" status of a religious site or just the final alteration of its nature of worship.

## Topic $\rightarrow$ The Places of Worship (Special Provisions) Act, 1991

### Introduction

The Places of Worship (Special Provisions) Act, 1991, represents a pivotal piece of legislation in India aimed at preserving the sanctity of religious sites amidst India's complex socio-religious landscape.

Aims to maintain communal harmony by preventing the conversion of places of worship. Upholds the status of these sites as they existed on August 15, 1947.

#### **Historical Context**

The act was born out of the necessity to quell the rising tide of religious conflicts and disputes over sites of worship.

Historical grievances have often resulted in communal strife. The act seeks to establish a legal framework for the protection of religious sites.

#### Key Provisions of the Act

SAURABH PANDEY

This act comprises several essential provisions designed to safeguard places of worship from being altered or converted.

**Prohibition of Conversion:** No conversion of any place of worship is permitted after the specified date.

**Status Quo:** The act mandates that all places of worship must remain in the same condition as they were on August 15, 1947.

#### **Contemporary Relevance**

Recent discussions have revived attention on the act, with various stakeholders expressing their views.

**Political Reactions:** Political parties like the Congress stress the importance of implementing the act faithfully.

**Judicial Concerns:** Recent Supreme Court observations have stirred debates about the act's interpretation and its implications for religious harmony.

## Implications for Secularism in India

Saura



The act plays a crucial role in shaping India's secular identity by balancing religious rights with communal harmony.

**Debates:** Ongoing discussions about the act's future highlight its significance in the secular framework.

**Challenges:** The act faces challenges from various factions seeking to reinterpret its provisions.

# What are the controversies around pardoning power?

What is the history of the pardoning power in the U.S.? What is the current controversy?

#### <u>Rangarajan. R</u>

#### The story so far:

S. President Joe Biden has granted an unconditional pardon to his son Hunter Biden who faced sentencing for federal tax and gun convictions.

#### Can the President pardon anyone?

The 'royal prerogative of mercy' is a historic prerogative of the British monarch to grant pardons to convicted persons. This was originally used by the monarch to withdraw or provide alternatives to death sentences. At present it is used to grant clemency for any sentence or penalty based on ministerial advice. According to the U.S. Constitution, the President can grant pardon except in cases of impeachment. The U.S. President has absolute power of pardon for federal criminal offences. Such a pardon may be issued prior to the start of a legal case as well as prior to or after a conviction for a crime.

Once accepted, the pardon grants relief from punishment and associated disqualifications but does not erase the conviction record.

#### What is the current controversy?

Right from the pardon to the leaders of the 'whiskey rebellion', who protested against a federal tax, granted by the first President George Washington in 1795 to President Bill Clinton's pardon of his half-brother Roger on the last day of his office in 2001, pardoning power has been mired in controversies. Donald Trump had pardoned his son-in-law's father in 2020. In the instant case, President loe Biden has granted pardon to his son for tax and gun offences for which he has been convicted, and for any potential federal crimes that Hunter Biden may have committed between 2014 and 2024. This is in contrast to the public promises

that Joe Biden had made earlier that he would not pardon his son. The reason stated by the President was that Hunter Biden was selectively and unfairly prosecuted, and was singled out only because he is his son. Hunter Biden was convicted by a jury of illegally buying and possessing a gun as a drug user. He then pleaded guilty in a tax evasion case.

#### What is the Indian system?

Article 72 and 161 of the Constitution provide powers to the President and Governor respectively to grant pardon, commutation, remission, respite or reprieve to a convict. These are sovereign powers which are to be exercised on the advice of the council of ministers. A pardon in the Indian context absolves the offender from conviction, punishment and all associated disqualifications. There have been various instances in India where the acceptance, rejection or delay in decisions of mercy petitions by ruling governments have been entangled in political controversies. The Supreme Court in the *Epuru Sudhakar* case (2006) has held that the exercise of pardoning power is subject to judicial review on the grounds of arbitrariness, mala fides or extraneous considerations.

#### What can be the way forward?

The pardoning power is a practice that has its origins during the time of absolute monarchy when there was no separation of powers between the executive and the judiciary.

Critics have argued that the pardoning power in modern times have been more often used for political considerations than to correct judicial errors.

In the U.K., the Criminal Cases Review Commission has been constituted to investigate alleged miscarriages of justice. It has diminished the use of the royal prerogative of mercy. This is a transparent and judicious manner of correcting judicial errors in a modern democracy, governed by the rule of law. However, till such time the pardoning power continues in the statute books, it must be exercised in a manner that does not reek of nepotism or arbitrariness. It is essential for retaining the trust of people, who are the source of all power in a democracy, in high constitutional offices.

Rangarajan R is a former IAS officer and author of 'Polity Simplified'. Views expressed are personal.

#### THE GIST

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## $\textbf{Topic} \rightarrow \textbf{Pardon Power: A Historical and Contemporary Overview}$



Whe British monarch holds a historic prerogative of mercy, traditionally used to alter death sentences.

The U.S. President is empowered by the Constitution to grant pardons for federal offenses, with the exception of impeachment cases.

A presidential pardon offers relief from punishment but does not expunge the conviction record.

The power of pardon has been a source of controversy throughout history, with significant cases involving presidents from George Washington to Bill Clinton and Donald Trump.

Recently, President Joe Biden pardoned his son, Hunter Biden, for tax and gun offenses, despite previous promises not to do so.

1 Hunter Biden was convicted of illegally purchasing a gun and pleaded guilty to tax evasion, with the pardon justified by claims of unfair prosecution.



The pardon power continues to be a contentious issue, highlighting political and personal implications within the U.S. justice system.

### Implications and Controversies

Political Implications: The use of pardon power often reflects political motivations and can influence public perception.

Legal and Personal Impact: While a pardon relieves punishment, it does not erase the conviction, affecting the individual's legal record and personal life.

## **Indian Pardoning Powers: An Overview**



The Indian system allows the President and Governor to grant pardons under Articles 72 and 161 of the Constitution.

These powers include granting pardon, commutation, remission, respite, or reprieve to convicts.

m The exercise of these powers is based on the advice of the council of ministers.

♦ A pardon absolves the offender from conviction, punishment, and associated disqualifications.

Political controversies often arise from the acceptance, rejection, or delay of mercy petitions by ruling governments.

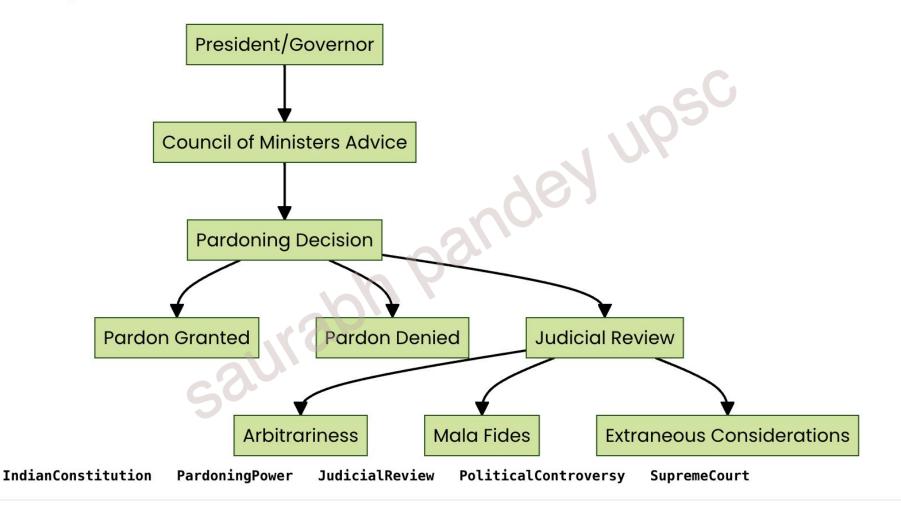
The Supreme Court ruled in the Epuru Sudhakar case (2006) that the pardoning power is subject to judicial review.

Judicial review can be invoked on grounds of arbitrariness, mala fides, or extraneous considerations.

Summary: The Indian system grants the President and Governor the power to pardon convicts, subject to political and judicial scrutiny



#### **Pardoning Power Process:**



# Rajya Sabha clears new Oilfields (Regulation & Development) law to grant petroleum lease

#### The Hindu Bureau NEW DELHI

The Rajya Sabha passed the Oilfields (Regulation and Development) Amendment Bill aimed at delinking petroleum operations, from mining operations, broadening the scope of "mineral oils", and introducing the concept of "petroleum lease", among its key provisions.

The Opposition, during the discussions, said some provisions in the Bill are against the interest of the States, and demanded the benefit of the decrease in prices of crude oil be shared with consumers.

Oil Minister Hardeep Singh Puri said the Bill is



Hardeep Singh Puri

for granting leases on stable terms, strengthening petroleum operations through rules framed for grants of leases or licences, their extension or renewal, and sharing of production and processing facilities, including infrastructure and safety at oilfields.

It also provides for efficacious dispute resolution, decriminalising the provisions of the previous Act by introducing penalties and creating an environment for facilitating energy transition, the minister said.

"We need the oil and gas sector for 20 more years. We need to bring this legislation here to provide a win-win confidence not only to our own operators but also to foreign investors so that they can come and do business here with a view to benefit everyone," Mr. Puri said, replying to the debate on the Bill.

DMK MP N.R. Elango demanded the Bill be sent to a select committee as certain definitions are against the federal rights of States.

"The Bill seeks to expand the meaning of mineral oils. The word 'mine' is omitted from definitions. Mining lease is replaced with petroleum lease. There comes the problem," he said, adding the Bill's scope was expanded to give retrospective effect to such lease agreements.

Mr. Puri assured members the Bill was not about handing over the segment to the corporate sector. "The petroleum mining leasing will still have to be granted by State governments, no matter what changes have been brought about," Mr. Puri said, adding the Centre had nothing to hide, and the Bill is a win-win for the States.

The Opposition reminded the BJP that before 2014, the party had promised to cut the price of petrol to ₹50 per litre but the prices increased even when the crude prices were low. Trinamool Congress MP Dola Sen, AAP MP Sanjay Singh and other Opposition speakers raised this issue.

Mr. Singh alleged the Bill was meant to invite big corporates into the sector. Ms. Sen said the Centre was trying to divest the oil PSUs. CPI's P.P. Suneer said the BJP's priority was corporate comfort over the exploitation of India's precious natural resources.



## Introduction

saul

The Oilfields (Regulation and Development) Amendment Bill, 2024 marks a pivotal shift in India's energy landscape. With a focus on bolstering exploration and development of oil and gas resources, this bill aims to transform the regulatory environment, ensuring a more robust framework for the petroleum industry.

As India seeks to enhance its self-sufficiency in energy production, the implications of these amendments cannot be overstated.

## **Objectives of the Amendment**

The primary goals of the Oilfields Bill revolve around:

**Enhancing Exploration:** Streamlining regulations to encourage increased investment in oil exploration.

**Delinking Operations:** Separating petroleum operations from mining,

simplifying the regulatory process.

zaure

Boosting Investments: Creating a more inviting atmosphere for investors by

reducing bureaucratic hurdles.



### **Key Changes Implemented**

Key modifications introduced by the amendment include:

**Simplified Licensing Process:** A more straightforward licensing procedure to facilitate quicker approvals.

**Decreased Compliance Burden**: Reduced regulatory compliance requirements

to foster innovation and efficiency.

Promotion of Sustainable Practices: Encouraging environmentally friendly

practices within the oil sector.



### Impact on Exploration and the Industry

The repercussions of the amendment on oil exploration and the petroleum industry are profound:

**Increased Investment Opportunities:** The bill is expected to attract both domestic and foreign investments, invigorating the sector.

**Technological Advancements:** With reduced regulations, companies can adopt new technologies more readily, enhancing exploration efforts.

**Job Creation:** The growth in exploration and production activities will likely lead to job creation within the sector.

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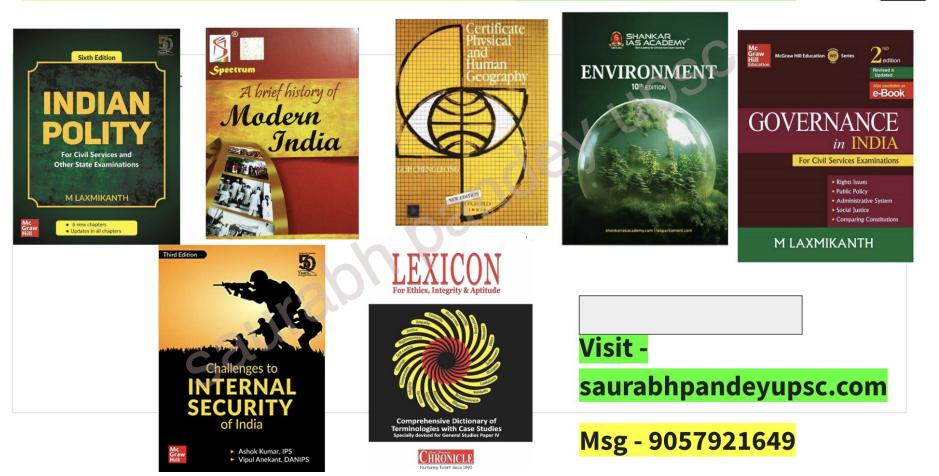
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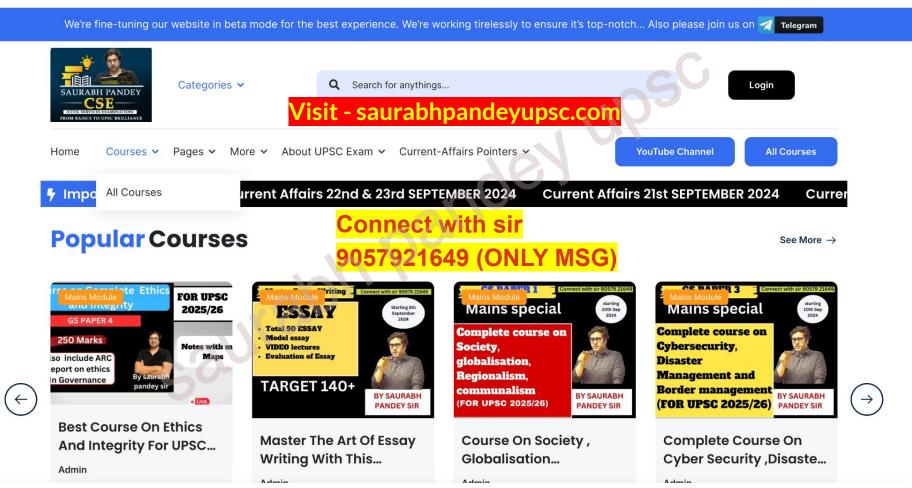


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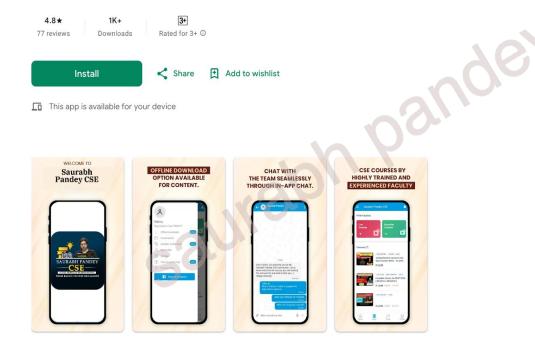
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