

# Topics

- Nata Pratha
- NHRC
- One china Policy
- Next-generation sequencing (NGS)
- Gene deserts
- Promoter
- OPEC PLUS
- H5N2
- Mains



By saurabh Pandey



THE HINDU

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# Target Mains -2024/25 -

**Q "Custom can never overshadow constitution"  
Discuss**

प्रश्न "कस्टम कभी भी संविधान पर हावी नहीं हो सकता" चर्चा करें

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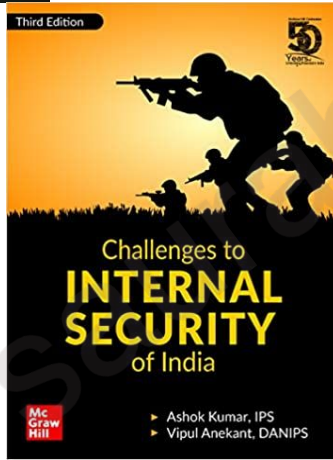
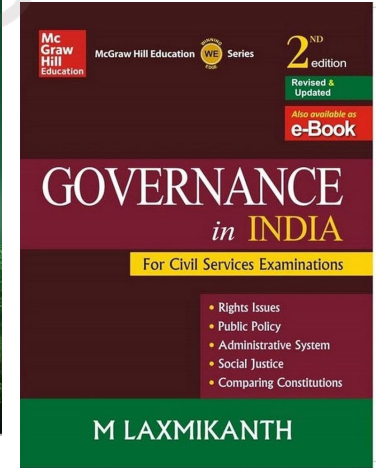
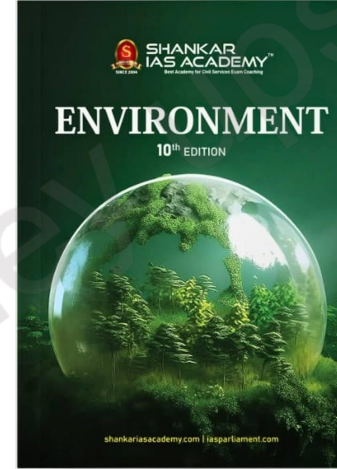
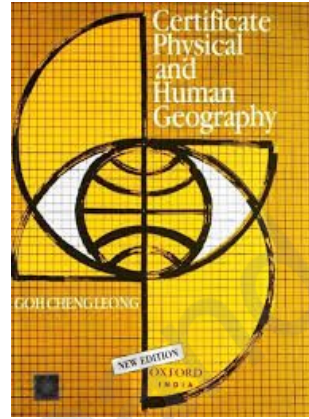
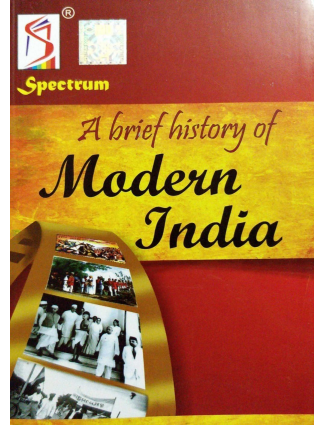
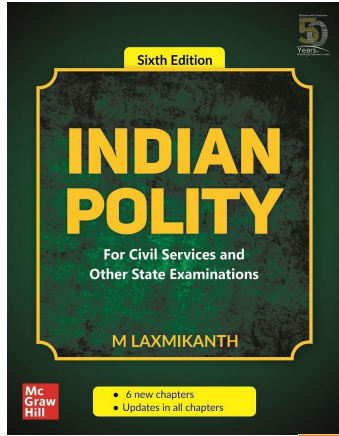
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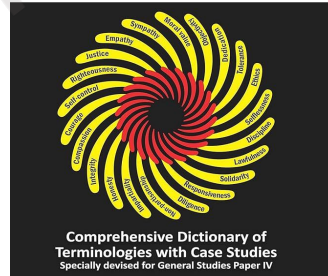


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# NHRC seeks report on *Nata Pratha* practice

**The Hindu Bureau**  
NEW DELHI

The National Human Rights Commission (NHRC) issued notice on Thursday to the Union Ministry of Women and Child Development and the States of Rajasthan, Madhya Pradesh, Uttar Pradesh, and Gujarat over a practice known as *Nata Pratha*. The girls in some communities of these States are sold either on stamp paper or otherwise in the name of illegal or child marriage, mostly by their own families.

Given the immoral consequences, the Commission has called for its eradication and abolition.

The States have been directed to submit a report on measures taken or proposed to be taken in this regard within eight weeks.

It suggested that individuals involved in forcing women into *Nata Pratha* must be prosecuted under laws relating to human trafficking.



# Nata Pratha

- A centuries-old custom “Nata Pratha” is still alive in several Indian states like Rajasthan, Gujarat and Madhya Pradesh. The custom allows men to live with as many women resulting in children being abandoned by their parents.
- Nata Pratha is practiced by the Bhil tribe, the one of the largest tribes in South Asia.
- Traditionally, both the man and the woman are supposed to be married or widowed, but the custom has evolved to include single people as well.

- **The National Human Rights Commission (NHRC) called for eradication of 'nata pratha' and issued notice to the Centre and the governments of Rajasthan, Madhya Pradesh, Uttar Pradesh and Gujarat over the evil tradition.**
- **Under 'nata pratha', girls in some communities are allegedly 'sold', either on a stamp paper or otherwise in the name of marriage having no legal sanctity in parts of Rajasthan and the adjoining areas in Madhya Pradesh, Uttar Pradesh and Gujarat.**



## About the Organisation

- The National Human Rights Commission (NHRC) of India was established on 12 October, 1993. The statute under which it is established is the Protection of Human Rights Act (PHRA), 1993 as amended by the Protection of Human Rights (Amendment) Act, 2006.
- It is in conformity with the Paris Principles, adopted at the first international workshop on national institutions for the promotion and protection of human rights held in Paris in October 1991, and endorsed by the General Assembly of the United Nations by its Regulations 48/134 of 20 December, 1993.

- **The NHRC is an embodiment of India's concern for the promotion and protection of human rights.**
- **Section 2(1)(d) of the PHRA defines Human Rights as the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India.**

## 2.3 Composition of NHRC

NHRC is an autonomous institution consisting of:

1.
  - (a) A Chairperson who has been a Chief Justice of the Supreme Court;
  - (b) One Member who is or has been a Judge of the Supreme Court;
  - (c) One Member who is or has been the Chief Justice of a High Court;
  - (d) Two Members to be appointed from amongst persons having knowledge of, or practical experience in matters relating to Human Rights;
2. The Chairperson of the National Commission for Minorities, National Commission for the Scheduled Castes, National Commission for the Scheduled Tribes and National Commission for Women are deemed Members of the Commission.





## China protests PM's comment on closer ties with Taiwan

China on Thursday protested over Prime Minister Narendra Modi's comment that he looked forward to having closer ties with Taiwan and insisted that New Delhi should resist the Taiwan authorities' "political calculations". China views Taiwan as a rebel province that must be reunified with the mainland. "First of all, there is no such thing as 'president' of the Taiwan region," Chinese Foreign Ministry spokesperson Mao Ning told a media briefing in Beijing. "On the one-China principle, India has made serious political commitments and is supposed to recognise, be alarmed about and resist the Taiwan authorities' political calculations, and refrain from doing things that violate the one-China principle," Ms. Mao said. PTI

# One china policy



- It is the diplomatic acknowledgement of China's position that there is only one Chinese government.
- The policy can be traced back to 1949 and the end of the Chinese civil war.
- The defeated Nationalists, also known as the Kuomintang, retreated to Taiwan and made it their seat of government while the victorious Communists began ruling the mainland as the People's Republic of China. Both sides said they represented all of China.
- Since then China's ruling Communist Party has threatened to use force if Taiwan ever formally declares independence, but it has also pursued a softer diplomatic track with the island in recent years



| U.S. One China Policy   | PRC One-China Principle  |
|---|--|
| <ul style="list-style-type: none"><li>• <i>Guided by the Taiwan Relations Act, three US-PRC Joint Communiques, and Six Assurances to Taiwan</i></li></ul> | <ul style="list-style-type: none"><li>• <i>Based on the PRC's misrepresentation of various nations' one China policies and UNGAR 2758</i></li></ul>          |
| <ul style="list-style-type: none"><li>• <i>Acknowledges, but does not endorse PRC's position that Taiwan is part of China</i></li></ul>                   | <ul style="list-style-type: none"><li>• <i>Asserts that "Taiwan is part of China" and that this is an "indisputable fact"</i></li></ul>                      |
| <ul style="list-style-type: none"><li>• <i>Rests upon the expectation that Taiwan's future will be determined by peaceful means</i></li></ul>             | <ul style="list-style-type: none"><li>• <i>Provides that "non-peaceful means shall be used" if possibilities of peaceful unification exhausted</i></li></ul> |
| <ul style="list-style-type: none"><li>• <i>Does not recognize PRC sovereignty over Taiwan</i></li></ul>   | <ul style="list-style-type: none"><li>• <i>Asserts that Taiwan is part of the sovereign territory of China</i></li></ul>                                     |

## India's stance on 'One China' policy



India has also stuck by the 'One China' policy. However, for India the 'One China' Policy doesn't just govern Taiwan but also Tibet; India doesn't recognise Taiwan or any Tibetan authority as independent of China.

The meetings between leaders of India and China routinely reaffirmed the 'One China' policy.

However, India stopped doing so in 2010 after then Chinese premier Wen Jiabao's visit. India was miffed after China issued 'stapled visas' instead of normal visas for residents of Jammu and Kashmir travelling to China.



- **Though India doesn't have formal diplomatic ties with Taiwan, New Delhi has an office in Taipei for diplomatic functions called the India Taipei Association (ITA) headed by a senior diplomat and Taiwan has the Taipei Economic and Cultural Centre (TECC) in New Delhi. Both were established in 1995.**
- **One has seen slight changes to India's position on the policy since Narendra Modi's ascent to power.**
- **In 2014, when he was sworn in as prime minister, he had invited Taiwan's Ambassador Chung-Kwang Tien for the ceremony.**
- **After the Galwan clashes of 2020, India has been taking a tougher stance against China vis-à-vis Taiwan.**



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BY SAURABH  
PANDEY SIR

# Understanding cancer become a data problem?

Can the use of data analytical tools render the process of diagnosis at least, easier? Will that eventually result in lowering risks, discomfort and pain for patients, and kin? At the cusp of health care and technology, lie innovations and solutions that will aid patients and those who treat them.

Vikas Pawar

Looking back 10 years to before my father passed away after his diagnosis of brain cancer, what I remember the most is the intricate web of challenges we confronted during his illness. The World Health Organization (WHO) reports that approximately 33,000 new incidences of brain cancer happen each year in India alone, while Global Cancer Observatory 2020 estimates brain cancer as the 19th most common type of cancer. Behind these alarming numbers, lie many stories of pain and unrest. Every family deals with the pain and uncertainty of taking care of loved ones, who may never get better.

Move forward by 10 years, inadvertently drawn to cancer research by the profound personal experience, I now find myself associated with it - and what I have learned fills me with hope. There have been amazing breakthroughs made in oncology research worldwide, the kind that will mitigate some of the challenges I experienced first hand. Based on my experience in working in this field, I will try to explain how this critical field has evolved over the last decade. The current standard of care for diagnosing cancer often requires invasive and risky procedures such as surgeries to extract tissue samples for analysis. Believe it or not, the risks for patients from these procedures range from short-term paralysis to death. Can we make it easier for the patients and their families, at least as far as diagnosis goes? The answer is a resounding yes. And, the answer lies in our genes.

We have all read about genes, DNA, and RNA as part of our basic high-school science. Technically, they are the fundamental building blocks of life, shaping our traits and our health. In the context of this discussion, science today links people's genes to their susceptibility to diseases like cancer. Let me give you a simple example. Imagine that you have a recipe for a sweet dish written down, and you want to make a bowl of it. However, when you're writing out the recipe, you accidentally change one of the ingredients. Instead of listing "sugar," you write "salt." This small change alters the taste and texture of the dish, making it turn out very differently than you intended. Similarly in our bodies, our DNA is like the recipe for making and maintaining us. If there's a mistake in the DNA code, called a mutation, it can change how our cells behave. Just like the wrong ingredient can change how our recipe turns out, a DNA mutation can change how our cells grow and function, sometimes leading to cancer.

Therefore, what we most primarily understand is what are the mutations in the genes causing cancer. Research suggests that there are close to 3,000 such cancer-causing genes. With each gene containing thousands of DNA codes, and each code potentially holding vital information about cancer development, the sheer volume of data analysis for a human can become quite overwhelming. And seemingly impossible.

But, enter Next-Generation Sequencing (NGS). Cutting-edge technology that is potentially transforming our ability to



Scientists with test tubes containing stem cells at the GlaxoSmithKline research centre in Stevenage, U.K. REUTERS

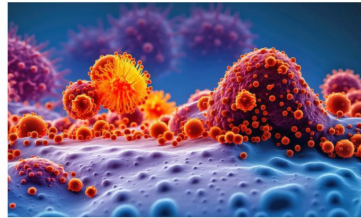
decipher the genetic code with speed and precision. To provide context, the Human Genome Project officially began in 1990 and was completed in 2003, taking about 13 years to finish, at a cost of about \$3 billion. Today's technology lets us accomplish the same process in possibly less than a week, and costs a little under \$1,000!

Getting back to cancer diagnostics, thanks to advancements in NGS, we have the concept of a liquid biopsy, a revolutionary technique that offers a less invasive alternative to surgery. To explain the concept, think of a detective investigating a case. To piece together the crime scene, the detective collects different types of evidence: fingerprints on a doorknob, footprints, and three left



If there's a mistake in the DNA code, or a mutation, it can change how cells behave. A DNA mutation can change how cells grow and function, sometimes leading to cancer

behind on the carpet. Similarly, in a liquid biopsy, clinicians act as detectives. Instead of invasive procedures like surgery, they collect a small sample of patient's blood, which is like the evidence at a crime scene. Within this blood sample, they look for genetic patterns that indicate the presence of cancer cells.



The current standard of care for diagnosing cancer often requires invasive and risky procedures such as surgeries to extract tissue samples for analysis. GETTY IMAGES

These genetic biomarkers are like the fingerprints and footprints found at a crime scene, providing crucial clues about the patient's health. It provides answers to questions: Is there a malignancy? And if so, what precisely is the type of malignancy?

Of course, this process is easier said than done. Producing such real-time results with precision requires the support of rigorous data analysis. The genetic data from several tumour and blood samples needs to be assimilated by artificial intelligence systems based on machine learning algorithms, combined with big data analytics platforms. No wonder chip makers and sequencing technology firms are making significant investments to expand their presence in the NGS domain. These technology tools enable researchers not only to process large amounts of information faster, but also to detect patterns that previously would have gone unnoticed by the human eye or mind alone.

As we navigate the ever-evolving landscape of oncology, it is clear that the future holds immense promise. By combining the power of data at our disposal, with innovative technologies like NGS, we may well be inching closer to unravelling the complexities of this disease. A popular saying suggests that data has become the new oil. As we stand at the forefront of a new era in cancer research, perhaps solving for its cure is also a data problem.

(The author is part of Hyderabad-based Exogen Genomics, a company focused on pioneering a liquid biopsy diagnostic specifically created for brain cancers. vikaspawar@hotmail.com)



# What is NGS?



- **Next-generation sequencing (NGS) is a massively parallel sequencing technology that offers ultra-high throughput, scalability, and speed.**
- **The technology is used to determine the order of nucleotides in entire genomes or targeted regions of DNA or RNA.**
- **NGS has revolutionized the biological sciences, allowing labs to perform a wide variety of applications and study biological systems at a level never before possible.**
- **Today's complex genomics questions demand a depth of information beyond the capacity of traditional DNA sequencing technologies.**



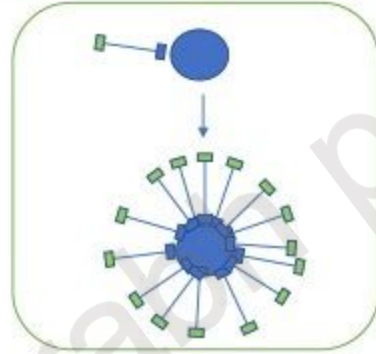
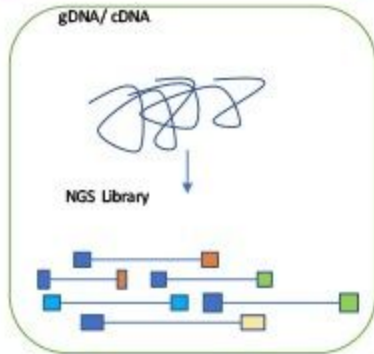
- **NGS has filled that gap and become an everyday tool to address these questions.**
- **Next-generation sequencing (NGS) is a technology for determining the sequence of DNA or RNA to study genetic variation associated with diseases or other biological phenomena.**
- **Introduced for commercial use in 2005, this method was initially called “massively-parallel sequencing”, because it enabled the sequencing of many DNA strands at the same time, instead of one at a time as with traditional Sanger sequencing by capillary electrophoresis (CE)**

1. Construct Library

2. Clonal Amplification

3. Sequence Library

4. Analyze Data



Saurabh Pandey



IBD primarily affects approximately 1% of the world's population and one in every 10 people in the United Kingdom. [GUT 11/2022](#)

## Major cause of inflammatory bowel disease discovered

Asian News International

Researchers have identified a new biochemical pathway that is a major cause of inflammatory bowel disease (IBD) and related disorders that can be addressed with existing medications.

An autoimmune disease, such as IBD, which encompasses Crohn's disease and ulcerative colitis, presently affects approximately 5% of the world's population and one in every 10 people in the United Kingdom. These diseases are also becoming increasingly widespread, with over half a million individuals in the U.K. living with IBD by 2022, nearly double the previous prediction of 300,000.

Despite increasing prevalence, current treatments do not work in every patient and attempts to develop new drugs often fail due to our incomplete understanding of what causes IBD.

Researchers at Francis Crick Institute, in collaboration with UCL and Imperial College London published their findings in Nature. Scientists at the Crick journeyed into a "gene desert" – an area of DNA that doesn't code for proteins – which has previously been linked to IBD and several other autoimmune diseases.

They found that this gene desert contains an "enhancer," a section of DNA that is like a volume dial for nearby genes, able to crank up the amount of proteins they make. The team discovered that this particular enhancer was only active in macrophages, a type of immune cell known to be important in IBD, and boosted a gene called ETS2, with higher levels correlating with a higher risk of

**Researchers found that MEK inhibitors, drugs already prescribed for other non-inflammatory conditions, were predicted to switch off the inflammatory effects of ETS2**

disease. Using genetic editing, the scientists showed that ETS2 was essential for almost all inflammatory functions in macrophages, including several that directly contribute to tissue damage in IBD. Strikingly, simply increasing the amount of ETS2 in resting macrophages turned them into inflammatory cells that closely resembled those from IBD patients.

The team also discovered that many other genes previously linked to IBD are part of the ETS2 pathway, providing further evidence that it is a major cause of IBD.

Specific drugs that block ETS2 don't exist, so the team searched for drugs that might indirectly reduce its activity. They found that MEK inhibitors, drugs already prescribed for other non-inflammatory conditions, were predicted to switch off the inflammatory effects of ETS2.

The researchers then put this to the test, and discovered that these drugs not only reduced inflammation in macrophages, but also in gut samples from patients with IBD.

As MEK inhibitors can have side effects in other organs, the researchers are now working with LdBioAc to find ways to deliver MEK inhibitors directly to macrophages.

James Lee, Group Leader of the Genetic Mechanisms of Disease Laboratory at the Crick, and Consultant Gastroenterologist at the Royal Free Hospital and UCL, who led the research, said: "IBD usually develops in young people and can cause severe symptoms that disrupt education, relationships, family life and employment. Better



Saurabh Pandey upsc

## What is Gene deserts ??

- **Gene deserts are regions of the genome that are devoid of protein-coding genes. Gene deserts constitute an estimated 25% of the entire genome, leading to the recent interest in their true functions.**
- **Originally believed to contain inessential and "Junk DNA" due to their inability to create proteins, gene deserts have since been linked to several vital regulatory functions, including distal enhancing and conservatory inheritance.**
- **Thus, an increasing number of risks that lead to several major diseases, including a handful of cancers, have been attributed to irregularities found in gene deserts.**
- **One of the most notable examples is the 8q24 gene region, which, when affected by certain single nucleotide polymorphisms, lead to a myriad of diseases**



# Regulator SEBI expands promoter definition for IPO-bound companies



**Ashley Coutinho**  
MUMBAI

The exchanges have expanded the promoter definition for companies tapping the market for an initial public offering, said two people in the know.

According to current SEBI regulations, a promoter is someone who controls the affairs of the company or can appoint the majority of directors or is named as such in an offer document. Earlier, founders holding 25% were deemed as promoters by virtue of having negative control and the power to block special resolution.

For the past year or so, SEBI has been insisting that founders of IPO-bound companies holding 10% or more classify themselves as promoters. SEBI has yet to introduce a consultation paper or any amending regulations to put this view into practice, according to experts.

## What norms say

The new guidelines now go a step further, and say founders collectively holding 10% will all be promoters if they are key managerial personnel (KMP) or a director in the company.

Even the immediate relative of the promoter will have to be classified as a promoter if she/he is on the company board or a KMP. Immediate relatives who hold 10% or more in the company, directly or indirectly, will also be deemed promoters.

It is not unusual for immediate relatives to hold 10% or more in Indian companies despite not being on the board or in-



**Definition issues:** The new norms say founders collectively holding 10% will all be promoters if they are KMP. REUTERS

involved in its management, said experts. "A brother or father of a promoter who is a non-executive director and does not hold any shares in the company will be deemed a promoter. This is going way beyond what is envisaged in law," said a lawyer. If a promoter's brother is classified as a promoter, for instance, then the latter's brother-in-law (his spouse's brother) will be classified as part of the promoter group, even though he may not be involved in the business of the listed company.

## Declassification

Once part of the promoter group, there is no easy way for declassification as a public shareholder given 31A of LODR Regulations.

"Since such a person was anyway classified as a part of the promoter group by virtue of him being an immediate relative of the promoter, any declassification would be impossible due to the restrictive rule. This is especially problematic in case of married daughters who may not any active role in the listed company," said Binoy Parikh, ED, Katalyst Advisors.

Last year, Khubilal Jugraj Rathod and Vimalchand Jugraj Rathod were identified as promoters while filing the draft prospectus for Flair Writing Industries.

Later, relatives Rajesh Rathod, Mohit Rathod and Sumit Rathod, each holding 10%, were included as promoters.

Consequently, several relatives of these three new promoters, including in-laws, were made part of the promoter group.

## Subjective definition

The subjective definition of promoter has been a subject matter of several court rulings in the past, according to Vinod Kothari, Director, Vinod Kothari Consultants. "There is no perfect way to ascertain control. Accounting standards have very complicated criteria for determination of control. So, moving to a more objective test is appreciable."

Immediate relatives include spouse of that person, or any parent, brother, sister or child of the person or of the spouse.

(The writer is with The Hindu businessline)



# Promoter



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# 'India must spend up to \$385 bn for RE goal'



**Reuters**

BENGALURU

India will have to invest as much as \$385 billion to meet its target of 500 gigawatts (GW) of renewable energy (RE) by 2030, but coal will remain a key source of electricity generation for the next decade, Moody's Ratings said.

India, a major greenhouse gas emitter, said it aims to ramp up non-fossil fuel capacity set by 50 GW each year to help meet 500 GW target. It missed its target of 175 GW by 2022.

Moody's, however, estimates an annual capacity addition of about 44 GW will help achieve the goal.

For that, India will have to spend \$190 billion to



\$215 billion on capacity over the next six to seven years and another \$150 billion to \$170 billion for transmission and distribution, the credit ratings agency estimates.

India's strong policy support boosted the RE share to about 43% in its power capacity mix in fiscal 2023-24, attracting private investments.

# Renewable energy fact

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# Russia defends OPEC+ oil pact, says may tweak if needed



**Reuters**

ST PETERSBURG

The current OPEC+ agreement is helping to balance oil supply and demand and provides certainty for energy markets, Russian Deputy Prime Minister Alexander Novak said, adding that the group might adjust it if necessary to support the market.

Brent crude oil prices slid below \$80 per barrel a day after the group agreed on Sunday to extend most of their oil output cuts into 2025, but left room for voluntary cuts from eight members to be unwound gradually, beginning in October.

That is the price level at which many OPEC+ mem-



**Output in focus:** OPEC+ members are now cutting production by a total of 5.86 million barrels per day. REUTERS

bers need to balance their budgets.

The Organization of the Petroleum Exporting Countries and allies led by Russia, together known as OPEC+, have made a series of deep output cuts since late 2022.

OPEC+ members are now cutting production by a total of 5.86 million barrels per day (bpd), or about 5.7% of global demand.

Some OPEC+ members, including Russia, agreed to gradually phase out the additional voluntary cuts of

2.2 million bpd over the course of a year from October to September 2025.

“However, we are ready to react quickly to market uncertainties,” Mr. Novak told an economic forum at St Petersburg, sitting alongside Saudi Energy Minister Prince Abdulaziz bin Salman among other high-profile guests.

Speaking to reporters, Mr. Novak also said Russia is working on establishing its oil production capacity by autumn 2025. OPEC+ is working to agree oil production capacity for its member countries by the end of 2024, an issue that has created tensions in the past because each nation’s output target is calculated from its notional capacity.

## What is OPEC?

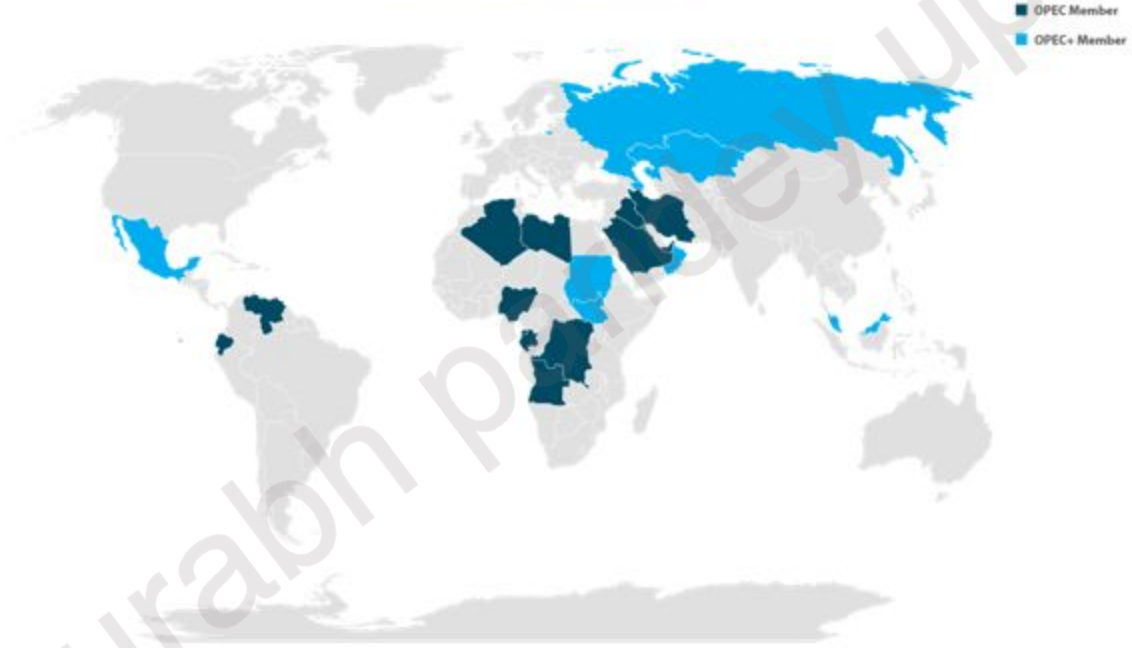


- **The Organization of the Petroleum Exporting Countries (OPEC) was founded in Baghdad, Iraq, with the signing of an agreement in September 1960 by five countries namely Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. They were to become the Founder Members of the Organization.**
- **It is a permanent, intergovernmental organization.**
- **Currently, the Organization has a total of 14 Member Countries.**

- **Opec+ refers to the alliance of crude producers, who have been undertaking corrections in supply in the oil markets since 2017.**
- **OPEC plus countries include Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.**
- **The aim was to undertake production restrictions to help resuscitate a flailing market.**



### OPEC and OPEC+ Member Nations, 2019



Saurabh Pandey UPSC



# 'First fatal human case of H5N2 bird flu identified'

**Agence France-Presse**  
GENEVA

The World Health Organization said on Wednesday a person in Mexico had died in the first confirmed human case globally of infection with the H5N2 variant of bird flu.

The patient, who died on April 24 after developing fever, shortness of breath, diarrhoea, and nausea, had "no history of exposure to poultry or other animals", and "multiple underlying medical conditions", the WHO said.

Mexican health authorities reported the confirmed case of human infection with the virus to the UN health body on May 23, after a 59-year-old was taken to hospital in Mexico City. The WHO said the case was the "first laboratory-confirmed human case of infection with an influenza A(H5N2) virus reported globally".

The source of exposure to the virus was unknown, although cases of H5N2 have been reported in poultry in the country.

According to the UN health body, H5N2 cases affected poultry in the state of Michoacan in March, with other outbreaks identified in the State of Mexico. But it said establishing a link between the human case and the poultry infections was so far impossible, estimating the risk to people as "low".

A different variant of bird flu, H5N1, has been spreading for weeks among dairy cow herds in the United States, with a small number of cases reported among humans.



# (H5N2



## Situation at a glance

- On 23 May 2024, the Mexico International Health Regulations (IHR) National Focal Point (NFP) reported to PAHO/WHO a confirmed fatal case of human infection with avian influenza A(H5N2) virus detected in a resident of the State of Mexico who was hospitalized in Mexico City.
- This is the first laboratory-confirmed human case of infection with an influenza A(H5N2) virus reported globally and the first avian H5 virus infection in a person reported in Mexico.
- Although the source of exposure to the virus in this case is currently unknown, A(H5N2) viruses have been reported in poultry in Mexico.



## What is H<sub>5</sub>N<sub>2</sub>?

- **H<sub>5</sub>N<sub>2</sub> is just one of several kinds of avian influenza viruses.**
- **H<sub>5</sub> viruses have been circulating among poultry and wild birds in Mexico since the mid-1990s.**
- **However, unlike other avian influenza strains that have caused outbreaks in humans — such H<sub>1</sub> and H<sub>3</sub> viruses — H<sub>5</sub> viruses rarely infect humans.**



- **The viruses are classified based on two types of protein on their surfaces: hemagglutinin, or H, which plays a crucial role in allowing the virus to infect cells, and neuraminidase, or N, which helps the virus spread. Many different combinations of H and N proteins are possible.**
- **H5N2 belongs to a family of bird flu viruses called H5, which primarily infects wild birds. There are a total of nine known subtypes of H5 viruses**

- **H<sub>5</sub>N<sub>1</sub>, which was detected in dairy cows in the U.S. in March, also belongs to this family.**
- **It is commonly associated with highly contagious strains of H<sub>5</sub> viruses called the “Goose Guangdong lineage” that have caused numerous outbreaks in poultry over the last 20 years and sporadic infections in humans**

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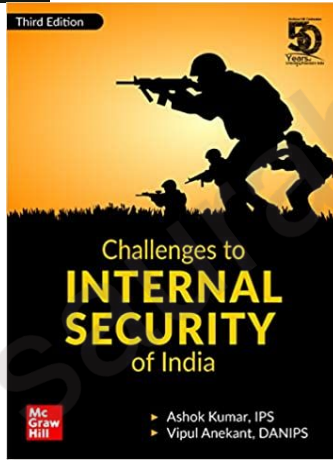
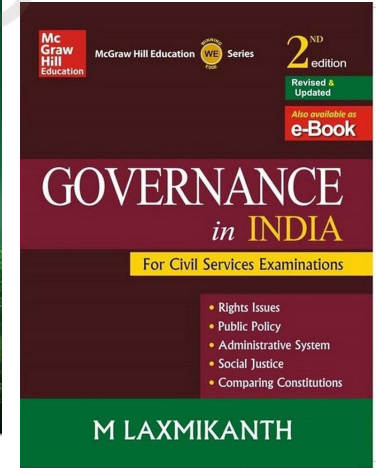
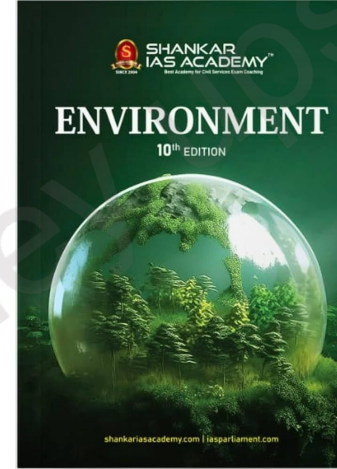
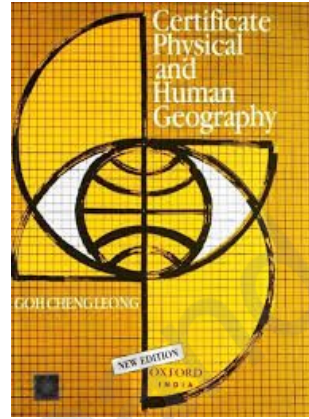
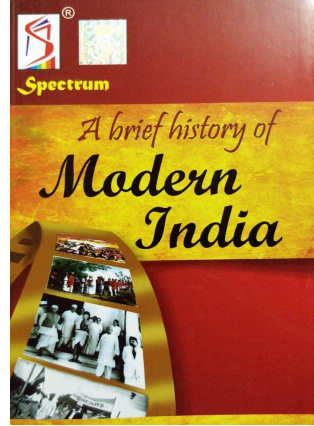
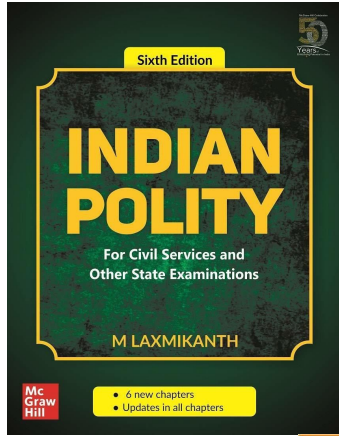
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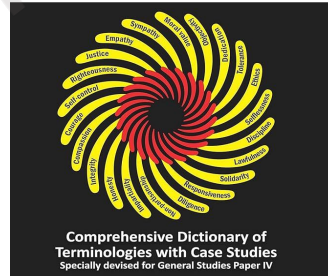


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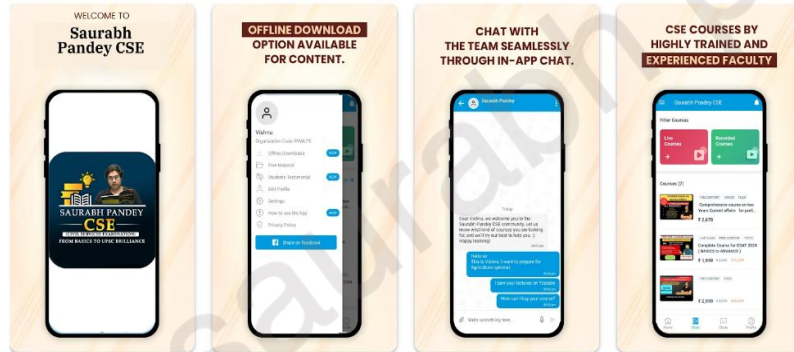
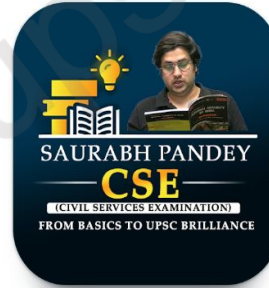
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