

**The Hindu Important News Articles & Editorial For UPSC CSE**

**Monday, 13 Jan, 2025**

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Kerala faces rising maternal mortality rates due to declining birth rates, impacting social fabric and demographic shifts in the state.

## Kerala's maternal mortality ratio climbs as fertility levels fall to a new low

C. Maya  
THIRUVANANTHAPURAM

Kerala's maternal mortality ratio, the lowest in the country at 19 per one lakh live births, is now climbing steadily, much to the consternation of the State Health Department. The reasons for the increase may be beyond the control of officials.

The latest Sample Registration System special bulletin on maternal mortality in India (2018-20), brought out by the Registrar-General of India, put Kerala's MMR at 19. However, while it depended on a sample survey to arrive at the figure, the State Health Department's actual estimates of maternal deaths – Kerala has near 100% institutional deliveries – put the figure at 29.

Except during 2020-21, when Kerala lost many women to COVID-19 during pregnancy and childbirth, the State had consistently held a firm grip over mater-

nal mortality. Ironically, the current spike is not because more women are dying but because there are fewer childbirths than ever in the State.

The State has now hit a low of 3,93,231 births from an average of 5-5.5 lakh annually earlier, show the latest data of the Economics and Statistics Department of the State. It is this dip in the denominator that is pushing the MMR up and not necessarily an actual spike in maternal deaths.

The Health Department puts live births in the State below the five-lakh mark for the first time in 2016, when 4,96,262 live births were recorded. Since 2018, the figure has been plummeting steadily, never going above the five-lakh mark again. The last published VSR (2021) recorded the total number of live births as 4,19,767.

"As part of the Sustainable Development Goals, Kerala was targeting an MMR of 20 by 2030. However, that looks quite unlikely now, given that birth rates are falling steeply. We reckon the State's MMR in 2024-25 has already climbed to 32," says V.P. Paily, a senior consultant in Obstetrics and Gynaecology.

"It would now be a herculean task to hold the MMR at 20. Because, while we have successfully addressed all major medical

causes of maternal mortality, the issues that are impacting the State's MMR now are not something essentially within our control. We are seeing the impact of demographic changes in Kerala much earlier than we thought we would," Dr. Paily says.

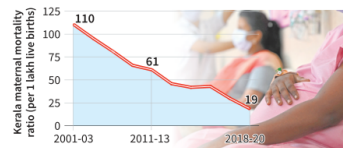
"It has been three decades since the birth rate began falling in Kerala and the steep fall in the number of children born now is part of a larger trend. But the problem is that once the fertility rate comes

down, the graph rarely goes up because demographic transition is hard to reverse," says S. Irudaya Rajan, Chairman of the International Institute of Migration and Development (IIMAD).

**Demographic transition** Kerala led the demographic transition in the South, attaining the replacement level fertility rate of 2.1 in 1987-88. Replacement level fertility is the average number of children a woman needs to have to replace

### A worrying trend

Kerala's MMR is beginning to climb now because of fewer child births than ever in the State



Source: Sample Registration System bulletin of Registrar General of India

herself and her generation, so that the population is stable. The State's total fertility rate (TFR) went below the replacement level in 1991 and remained stagnant at 1.8-1.7 for years, before touching 1.5 in 2020.

The current TFR of Kerala (2021 VSR) is 1.46. This means that a couple of reproductive age in Kerala mostly have only one child and sometimes none. It is possible that the TFR will drop to 1.35 once the latest data on live births are accounted for.

"Already, the impact of migration, especially the fact that a chunk of those in the reproductive age group are going abroad for higher education or jobs and choosing to settle down there, and the economic impact of the loss of a young workforce and changing attitudes regarding marriage and fertility are hurting us. In the next 10 years, the proportion of elderly population in Kerala

is expected to go above that of children and the magnitude of the issues related to the care and welfare of this population is likely to overwhelm us," Dr. Rajan says. But the birth rate is expected to plummet further and the consequences will be starkly evident in the next two decades itself.

Not just declining birth rates, the State is also beginning to see the consequences of a higher age at marriage and delayed childbearing. The proportion of older mothers and the increase in pregnancy-related morbidities in this group and their reproductive health issues are emerging concerns, though the State is yet to adduce hard evidence to substantiate this.

"It has been over 35 years since we attained the replacement level fertility rate and the cohort of those women in the reproductive age of 15-49 we had then has now been replaced by a new cohort. The fertility is low in this new cohort of women, either by will or by nature, so naturally, the number of childbirths will go down. And even the number of women in this cohort has begun to dwindle," Sajini B. Nair, social scientist, Population Research Centre, says.

**'Data not available'** By the Census 2011, the female population in the reproductive age group of 15-49 in Kerala was 93,32,494 and the Registrar-General's projected figure for 2021 was 92,23,500.

Meanwhile, the State had not published the VSR after 2021, claiming that there were reporting errors. There is also an ongoing debate about whether Kerala is registering its births properly and on time and the actual data on childbirths in the State collected by various official agencies are not available in the public domain now.

### Kerala's Maternal Mortality Ratio (MMR)

- ➔ Kerala's MMR has increased, moving from 19 to 29 per one lakh live births.
- ➔ This rise is not due to more maternal deaths but fewer childbirths.
- ➔ The drop in the number of live births has pushed the MMR higher.
- ➔ Kerala's MMR spike follows a dip in births from 5-5.5 lakh annually to 3.93 lakh.
- ➔ In 2020-21, many deaths were linked to COVID-19 among pregnant women.

### Decline in Fertility Rate

- ➔ Kerala's fertility rate has been decreasing for over three decades.
- ➔ In 1991, the fertility rate went below replacement level (2.1 children per woman) and stayed at 1.7-1.8.
- ➔ In 2020, the total fertility rate (TFR) dropped to 1.5 and is currently at 1.46.
- ➔ The TFR means couples in Kerala mostly have one or no children.
- ➔ The state's declining birth rates have significant social consequences.

### Impact of Migration and Social Changes

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## Daily News Analysis

- ▶ Many young people in Kerala migrate for jobs or education, affecting fertility rates.
- ▶ Delayed marriage and childbearing also contribute to the decline in births.
- ▶ Over the next decade, the elderly population in Kerala will surpass the number of children, causing concerns for care and welfare.

### Challenges in Data Collection

- ▶ Kerala's birth registration has issues, and official data on live births is not available publicly after 2021.

### USPC Mains Practice Question

**Ques :** Discuss the implications of declining birth rates in states like Kerala on demographic transition, social fabric, and policy formulation. **(250 Words /15 marks)**

Research from the University of Nevada and Max Planck Institute explored gene creation through duplication, methylation, and random sequences.

# An unlikely mystery: studies shed new light on how genes are made

In 1970, Japanese-American biologist Susumu Ohno proposed that the main source of new genes is gene duplication. When the body's genome has two copies of the same gene, one copy can continue to provide the original function while the other is free to mutate and acquire new functions

D.P. Kasbekar

**T**he likeness of identical twins can be startling. They are alike because all their genes are alike. Genes are those segments of the genome where, if changes occur, the characteristics of an organism change. Non-identical twins vary in 50% of their genes and are much less alike. Thus, genes define our individuality in many ways.

In December 2024, two research groups addressed how new genes are created. The University of Nevada, Reno, group reported its findings in *Molecular Biology and Evolution*, and the other, from the Max Planck Institute for Evolutionary Biology Plön, Germany, reported in *Genome Biology and Evolution*.

### The 24 molecules

A group of 24 molecules of DNA gives identity to our 24 chromosomes. These are the chromosomes numbered 1 to 22 and the sex chromosomes X and Y. Our cells contain two sets of the genome: one derived from the mother's egg and the other from the father's sperm. Eggs and sperm receive only one chromosome of each pair. When they fuse and form the zygote, the latter has two sets again. The zygote then multiplies to form a baby.

The cells in human bodies possess two copies of chromosomes 1-22. Biological females have two X chromosomes, whereas biological males have an X chromosome and a Y chromosome.

Identical twins arise from a single zygote, while non-identical twins arise from two zygotes produced simultaneously.

Each DNA molecule has two strands held together by bonds between compounds on the strands, called base pairs. Our genome contains 3.2 billion base pairs. A gene is typically a few-thousand base-pair-long segment of DNA.

When a gene is 'expressed,' it means a cell will transcribe the underlying base pair sequence to a molecule called messenger RNA (mRNA), and read the mRNA like a recipe to make a protein.

In the human genome, there are 20,000 protein-coding genes and 20,000 genes that cells use to create RNA that influences the expression of other genes. There are also some genes, called promoters and enhancers, which tell the cell when and where other genes are copied into mRNA.

Two compounds involved in forming the base pairs are cytosine and thymine. Sometimes the cytosine molecules bind to a methyl ion and are said to be methylated. A methylated cytosine



Each DNA molecule has two strands held together by bonds between compounds on the strands, called base pairs. Our genome contains 3.2 billion base-pairs. Representative illustration. GETTY IMAGES/ISTOCKPHOTO

molecule is likelier than an unmethylated one to mutate and become a thymine molecule.

### Duplications create new genes

In 1970, Japanese-American biologist Susumu Ohno proposed that the main source of new genes is gene duplication. When the body's genome has two copies of the same gene, one copy can continue to provide the original function while the other is free to mutate and acquire new functions.

Ohno's proposal was simple but had one flaw: it didn't explain how the organism's cells would deal with producing twice the quantity of the same proteins as a result. Protein over-expression can lead to debilitating conditions. The University of Nevada, Reno, researchers addressed this problem.

Humans and mice last shared a common ancestor 75 million years ago. The researchers compared genes duplicated in human or mouse genomes, those duplicated in both, and those not duplicated in either.

They found the promoters of duplicated genes had more methylated DNA than the promoters of genes that hadn't been duplicated. Increased methylation would have prevented the cells from manufacturing twice as many proteins, minimising the ill effects of duplication and allowing the duplicate gene to survive long enough to acquire

### Cells possess two copies of chromosomes 1-22. Females have two X chromosomes, whereas males have an X chromosome and a Y chromosome

new functions.

The researchers reported that the higher rate of methylation also elevated the rate of mutation.

### Random sequences to incipient genes

The Max Planck Institute group inserted exogenous DNA into a population of cells derived from a human. (Exogenous means the DNA came from sources separate from the cells.) The researchers were careful to insert the DNA at a specific site in the genome and allowed the cells to make proteins with them.

The exogenous DNA had a chunk that consisted of a random sequence of base-pairs – which means the proteins the cells made with it would be random as well.

The researchers put together a collection of cells of 3,708 types and nurtured them for 20 days. At regular intervals they checked the relative abundance of different cell types.

After 20 days, the team found that 53% of cell types had become less abundant, 8% more abundant, and 40% didn't swing either way. That is, more often than not, random DNA sequences affected cell

growth and thus became relevant for evolution to act upon.

In yet other words: the random DNA inserts behaved like incipient genes.

### Keeping vs. chucking a gene

For a genome to retain a gene, it must have some use, or the genome allows it to mutate. But establishing a gene's usefulness is challenging.

Consider blood groups. Individuals can have one of four groups – A, B, AB or O – depending on which variants of the ABO gene they've inherited. If a person receives A and A or A and O, they have the A blood type. If they have B and B or B and O, they have the B blood type. If they have A and B or O and O, then they have the AB or the O blood types, respectively. In sum, every individual lacks either one or two of the variants, which means no variant is really essential. The O variant also encodes a protein with no known function and whose amino acid sequence is markedly different from those encoded by A and B.

Primates and humans took different branches on the tree of evolution millions of years ago but share blood types – which is to say evolution both found a way and saw fit to retain all three variants in so many species for a very long amount of time. Scientists don't yet have a simple answer to why evolution has done this, but they aren't complaining.

(D.P. Kasbekar is a retired scientist. kasbekar1dp@yahoo.co.in)

### THE GIST

A group of 24 molecules of DNA gives identity to our 24 chromosomes. Our cells contain two sets of the genome: one from the mother and the other from the father. Eggs and sperm receive only one chromosome. When they form the zygote, the latter has two sets again

In the genome, there are 20,000 protein-coding genes and 20,000 genes that are used to create RNA that influences the expression of other genes. There are also some genes, called promoters and enhancers, which tell the cell when and where other genes are copied into mRNA

Researchers found the promoters of duplicated genes had more methylated DNA. Methylation prevented the cells from manufacturing twice as many proteins, minimising the ill effects of duplication and allowing the duplicate gene to survive

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## How Genes Are Made: New Research Insights

### Gene Duplication

➔ Gene duplication is a key process in creating new genes.

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## Daily News Analysis

- ➔ When a gene is duplicated, one copy keeps its original function, while the other is free to mutate and develop new functions.
- ➔ Researchers discovered that duplicated genes have more methylated DNA, which helps prevent the overproduction of proteins.

### Methylation and Mutation

- ➔ Methylation refers to the addition of a methyl group to a DNA molecule, affecting its function.
- ➔ Methylated genes tend to mutate more, which helps generate diversity in genetic functions.

### Exogenous DNA and Random Sequences

- ➔ Researchers inserted random DNA sequences into human cells to observe their effects.
- ➔ Some of these random sequences helped cells grow, acting like early-stage genes that could evolve.

### Retaining Useful Genes

- ➔ For a gene to stay in the genome, it must be useful or allow the organism to survive.
- ➔ Non-essential genes, like those for blood types, may not have a clear function but are retained due to evolution.

### Conclusion

- ➔ These findings show how new genes emerge through duplication, mutations, and the survival of useful genetic changes over time.

### USPC Prelims PYQ

**Ques : Which of the following best describes the function of the CRISPR-Cas9 technology?**

- a) It is used to replicate DNA strands during cell division.
- b) It enables editing specific genes by cutting DNA at targeted sites.
- c) It helps in synthesizing RNA molecules in the laboratory.
- d) It is used to sequence the entire genome of an organism.

**Ans : b)**

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The India Meteorological Department (IMD) will celebrate its 150th anniversary on January 15, 2025.

## WHAT IS IT?

# IMD: India's weather tracker

**Vasudevan Mukunth**

On January 15, 2025, the India Meteorological Department (IMD) will turn 150 years old.

The organisation was set up by the provincial British government in the country in 1875, and its first (Imperial) Meteorological Reporter was Henry Francis Blanford. The IMD's genesis can be traced to the importance of the monsoons over South Asia and the formation and effects of cyclones from the Indian Ocean.

Its formation was particularly accelerated by the 1864 Calcutta cyclone, which devastated the city and left more than 60,000 people dead, and the Orissa famine that followed just two years later because the monsoons had failed. So the government at the time decided to funnel weather data collected around the country into a single set of records, managed by a bespoke organisation. This organisation was the IMD.

It was originally headquartered in Calcutta but by 1944 had moved to New Delhi. In independent India, the IMD became a member of the World Meteorological Organisation in 1949.



Students taking part in an event to mark the 150th anniversary of the India Meteorological Department (IMD) in Chennai. ANI

The IMD currently operates six Regional Meteorological Centres, a Meteorological Centre in every State capital, plus a panoply of centres for various meteorological services. Aside from tracking and studying phenomena like rainfall and cyclones, the IMD helps record earthquakes and atmospheric pollution and generates alerts and warnings about impending anomalous weather. It also maintains a complicated communications system that collects data from a variety of sources, including ground observatories, naval vessels, atmospheric balloons, and satellites.

### For feedback and suggestions

for 'Science', please write to  
[science@thehindu.co.in](mailto:science@thehindu.co.in)  
with the subject 'Daily page'

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## Daily News Analysis

- The IMD was established in 1875 by the British government in India.
- Henry Francis Blanford was its first Meteorological Reporter.
- The IMD was created due to the importance of monsoons and cyclones in South Asia.
- The 1864 Calcutta cyclone and the Orissa famine in 1866 led to the formation of the IMD.
- Initially based in Calcutta, the IMD moved to New Delhi in 1944.
- After India's independence, the IMD joined the World Meteorological Organisation in 1949.
- The IMD operates six Regional Meteorological Centres and a Meteorological Centre in each state capital.
- It tracks weather phenomena like rainfall, cyclones, and earthquakes.
- The IMD issues weather alerts and warnings to the public.
- It uses data from observatories, naval ships, balloons, and satellites for its services.

### USPC Prelims Practice Question

**Ques : The India Meteorological Department (IMD) comes under which of the following ministries?**

- a) Ministry of Earth Sciences
- b) Ministry of Environment, Forest, and Climate Change
- c) Ministry of Science and Technology
- d) Ministry of Home Affairs

**Ans : a)**

The Aam Aadmi Party (AAP) and Bharatiya Janata Party (BJP) have accused each other of manipulating electoral rolls ahead of the Delhi Assembly elections, reigniting the debate on linking voter IDs with Aadhaar numbers.

# Should voter IDs be linked with Aadhaar?

Why was the National Electoral Rolls Purification and Authentication Program launched by the Election Commission? How do already existing voters link EPIC with their respective Aadhaar numbers? What did the Supreme Court mandate in the Puttaswamy case in 2018?

## EXPLAINER

Rangarajan. R

### The story so far:

The Aam Aadmi Party (AAP) and the Bharatiya Janata Party (BJP) have accused each other of manipulating electoral rolls before the Delhi Assembly elections. This has reignited the debate about linking voter IDs/Election Photo Identity Card (EPIC) with respective Aadhaar numbers.

### What is the history of the proposal?

The Election Commission (EC) had in February 2015 launched the National Electoral Rolls Purification and Authentication Program (NERPAP). This was to address the issue of duplicate entries in the electoral roll and to remove such entries. In order to achieve this, the EC began authenticating EPIC data by linking it with the Aadhaar database. It had linked more than 300 million voters in a span of three months. However, the Supreme Court in an interim order, in August 2015, held that the mandatory use of Aadhaar should only be for welfare schemes and PAN linking. Following this order, the NERPAP exercise was discontinued.

After the Supreme Court's final order in *Puttaswamy* in September 2018, that upheld the constitutional validity of the Aadhaar Act, the EC sought amendments to the Representation of the People Act, 1950 (RP Act, 1950). The Parliament amended the RP Act, 1950 and The Registration of Electors Rules, 1960 in December 2021 to enable the linking of EPIC with Aadhaar. It provided the format in which Aadhaar information may be submitted to the electoral registration officer by a new voter at the time of fresh registration (Form 6: to establish identity) or an existing voter already included in the electoral roll (Form 6B: for the purpose of authentication). Any other listed document may be submitted only if the voter is unable to furnish their



**Need to verify:** A special camp for linking Aadhaar with voter ID card held in Madurai in 2022. FILE PHOTO

Aadhaar number because they do not have one. However, in order to keep these amendments voluntary in nature, the word 'may' have been used in the amendments. Further, the amendment also specifies that no application for inclusion of name in the electoral roll shall be denied and no entries shall be deleted due to the inability of the individual to furnish or intimate the Aadhaar number due to 'sufficient cause'.

Such individuals may furnish alternate documents like PAN card, Driving Licence, Passport, Bank passbook etc.

While the above amendments were challenged in the Supreme Court, the EC

in September 2023 informed the court that submission of the Aadhaar number is not mandatory. It added that it is looking into issuing appropriate clarificatory changes in the forms introduced for this purpose. However, it may be noted that Form 6 and 6B have not been amended till date and they continue to seek the same details as before from the applicants.

The forms require the voters to declare that they do not have an Aadhaar number to avoid providing the same.

### What are the pros and cons?

EPIC linkage with the respective Aadhaar

number would definitely help in weeding out duplicate entries; that is essential. At present, more than 650 million Aadhaar numbers have already been uploaded in the process of finalising the electoral rolls. However, there are some concerns about this exercise that need to be considered.

Firstly, the errors in the Aadhaar database, however minuscule, may result in wrongful rejection or deletion of entries from the electoral roll. Secondly, Aadhaar is only a proof of residence and not a proof of citizenship. Thus, it may not help in removing voters who are not citizens from the electoral roll. It would require a separate effort from the EC.

Finally, while the linkage is to happen at the back end and a mere mention of the Aadhaar number on the EPIC/electoral roll may not by itself be a violation of right to privacy, it may still result in misuse as the electoral rolls are widely circulated amongst political parties.

### What can be the way forward?

The right to vote is a constitutional right and declared so by the Supreme Court in various cases. It is part of the basic structure of free and fair elections and cannot be constricted through legislative action. Citizens are the most important stakeholders in a democracy and any electoral process should gain their confidence. There must be wide publicity about the benefits of linking EPIC and Aadhaar to clean up the electoral roll of duplicate entries, which in turn strengthens the electoral process. Any misplaced concern amongst voters about the secrecy of their vote being compromised because of this linking should be assuaged.

Meanwhile, the forms should be suitably modified without any delay, to reflect that providing Aadhaar is not mandatory, as per the submission of the EC in the Supreme Court in September 2023.

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

## THE GIST

The right to vote is a constitutional right and declared so by the Supreme Court in various cases. It is part of the basic structure of free and fair elections and cannot be constricted through legislative action.

The Election Commission of India (EC) had in February 2015 launched the National Electoral Rolls Purification and Authentication Program (NERPAP). This was to address the issue of duplicate entries in the electoral roll and to remove such entries.

EPIC linkage with the respective Aadhaar number would definitely help in weeding out duplicate entries; that is essential.

## Background of the Proposal

- ➔ In February 2015, the Election Commission (EC) launched the National Electoral Rolls Purification and Authentication Program (NERPAP) to remove duplicate entries by linking voter IDs (EPIC) with Aadhaar. Over 300 million voters were linked in three months.

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## Daily News Analysis

- ➔ The Supreme Court intervened in August 2015, ruling that Aadhaar could only be used for welfare schemes and PAN linking, halting the NERPA.
- ➔ In December 2021, Parliament amended the Representation of the People Act, 1950, allowing the linking of Aadhaar with EPIC, making it voluntary.
- ➔ If voters don't have Aadhaar, they can provide alternate documents like PAN cards or bank passbooks.

### Potential Implications

#### ➔ Challenges and Concerns

- The Supreme Court was informed in September 2023 that submitting Aadhaar numbers is not mandatory.
- There are concerns that errors in the Aadhaar database could lead to incorrect voter registrations or deletion of entries.
- Aadhaar is only proof of residence, not citizenship, so it may not help in identifying non-citizens on the electoral roll.
- There are privacy concerns as the electoral roll is shared with political parties, which could lead to misuse of Aadhaar information.

#### ➔ Pros and Cons

- **Pros:** Linking Aadhaar with EPIC helps remove duplicate voter entries. Over 650 million Aadhaar numbers have already been uploaded.
- **Cons:** Errors in the Aadhaar database can affect voter registration, and Aadhaar does not prove citizenship, limiting its effectiveness in removing non-citizens.

### Way Forward

- Voting is a constitutional right, and public trust in the electoral process is crucial.
- There should be awareness about the benefits of linking Aadhaar to clean up the electoral roll.
- Voter registration forms should be updated to reflect that Aadhaar submission is voluntary, as per the Supreme Court's 2023 decision.

### USPC Mains Practice Question

**Ques :** Discuss the implications of linking Aadhaar with voter IDs in the context of electoral reforms. What are the potential benefits and challenges of this linkage? **(150 Words /10 marks)**

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**In News : Pink Fire Retardent**

The article examines the use of pink fire retardants in combating wildfires.



**Analysis of the news:**

**What is Pink Fire Retardant?**

- Pink fire retardant, primarily Phos-Chek, is a chemical solution used to slow or prevent the spread of wildfires.
- Its main component is an ammonium phosphate-based slurry, mixed with salts like ammonium polyphosphate.
- The solution is sprayed ahead of fires to coat vegetation and inhibit oxygen supply, thus reducing flammability.
- The bright pink color ensures visibility for firefighters, aiding in creating fire lines for containment.

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## Effectiveness and Limitations

- ▶ While pink fire retardants are a long-standing firefighting tool, their effectiveness remains debatable.
- ▶ Studies suggest their success depends on variables such as terrain, fuel type, and weather conditions.
- ▶ Their role is often hard to isolate, as they are used alongside other suppression tactics.
- ▶ Critics argue that the narrow conditions under which they are effective are shrinking due to climate change.

## Environmental Concerns

- ▶ **The use of aerial fire retardants raises significant environmental issues:**
  - **Toxic Metals:** Research shows Phos-Chek contains harmful metals like chromium and cadmium, which pose risks of cancer, kidney, and liver diseases.
  - **Impact on Waterways:** Retardants entering rivers and streams harm aquatic life, with heavy metals causing long-term ecological damage.
  - **Pollution:** Between 2009 and 2021, over 440 million gallons of retardant were used, releasing an estimated 400 tons of heavy metals into the environment.

# India's data protection rules need some fine-tuning

**O**n January 3, 2025, the Ministry of Electronics and Information Technology (MeitY) released the much-anticipated Draft Digital Personal Data Protection (DPDP) Rules – a key moment in India's journey to regulate digital personal data. This step follows the passage of the DPDP Act, 2023, bringing India closer to operationalising its framework for safeguarding personal data.

The draft rules represent a departure from the earlier and controversial Personal Data Protection Bill, which many deemed was overly restrictive and even hostile to industry interests. The Bill underwent extensive framing, reframing and consultations over nearly a decade, only to be rescinded when committees and government stakeholders wisely decided it was untenable.

In contrast, the positive response to the DPDP Act and its accompanying rules, reflected in conversations with businesses and in media coverage, stems from the less prescriptive, principles-based approach of the draft rules.

Unlike the earlier rush to regulate under the so-called "Brussels Effect", where global digital rulemaking mirrored the European Union (EU)'s interventionist regulatory ethos, India has taken a more pragmatic stance. The EU's General Data Protection Regulation (GDPR), once hailed as a gold standard by privacy experts, now faces criticism for unintended consequences – favouring well-resourced corporations, stifling smaller enterprises, and failing to significantly enhance public trust in the Internet. India's measured approach thus far offers a refreshing alternative to Europe's interventionist policies.

## The hits as pragmatism and flexibility

One of the draft rules' standout features is their principles-based framework for notice and consent. While the GDPR has cumbersome requirements, such as notifying users of indirect data acquisition, cross-border data transfers, and automated decision-making processes, India's rules emphasise simplicity and clarity. This helps reduce "consent fatigue", a significant issue in Europe, where users are inundated with unnecessary details, such as the location of data processing – information of little practical use.

In 2023, the European Commission introduced the Cookie Pledge Initiative to address growing frustration over incessant consent pop-ups. However, such course correction would have been unnecessary had the EU taken a less invasive approach to regulating user interfaces and consent mechanisms. The very existence of this pledge highlights the burdens created by prescriptive regulation.

India's DPDP Rules sidestep these pitfalls by focusing on outcomes rather than processes, empowering users without drowning businesses and consumers in unnecessary complexities. The



**Vivan Sharan**

a technology policy expert at Koan Advisory Group



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rules avoid dictating how entities should enable users to exercise their rights to correction, erasure, nomination, withdrawal of consent and to seek information from entities. They require only the publication of relevant information on apps and websites. In contrast, the GDPR is prescriptive about how similar information should be presented, including instances where entities may need to provide this information orally to users. Why should the state dictate every aspect of an app or website's design or user interface? India's approach, thankfully, respects business autonomy and innovation.

The processing of children's personal data requires stricter protection compared to other types of data processing – which the rules provide for. However, as more children engage with digital technologies online, they increasingly benefit from certain activities, such as monitoring and tracking, which are of value in specific contexts. Take the case of educational institutions, including supplementary education and vocational training services. They rely on activities such as behavioural monitoring and tracking to deliver targeted interventions tailored to students' academic performance. These practices leverage the benefits of learning management systems, which personalise instruction and improve educational outcomes. Recognising this, the rules thoughtfully allow exemptions for specific industries. Educational institutions, clinical and mental health establishments, allied health-care providers, and child-care centres are not required to verify parental consent for tracking and behavioural monitoring, as long as they adhere to guardrails. The exemption for such industries demonstrates a nuanced understanding of industry-specific needs, reflecting the principles of thoughtful policymaking.

## The misses as data localisation, overreach

However, the draft rules are not without flaws. Their provisions for restricting cross-border data flows introduce unnecessary complexity and ambiguity. Significant Data Fiduciaries (SDFs) – large enterprises handling substantial data volumes – face potential localisation mandates that extend beyond the legislation's original scope. While the DPDP Act allows the government to restrict personal data transfers, it limits such action to specific notified countries. Differentiating between SDFs and smaller entities, where the second enjoy relaxed transfer rules for the same data, creates the risk of regulatory arbitrage. Smaller entities could exploit the lighter regime to gain an unfair advantage. These inconsistencies may deter investment and drive businesses out of India. The localisation provision likely stems from the challenges faced by law

enforcement agencies in accessing cross-border data for investigations. While these agencies undeniably need access to such data, a narrower sectoral approach to localisation could prove more effective than a centralised one. The Reserve Bank of India's 2018 mandate for localising payment data is a prime example of proportionate regulation. Tailored specifically to the financial sector, it effectively addressed legitimate industry concerns without causing too many business disruptions. Applying this approach to personal data could balance security and compliance with economic competitiveness.

Some areas still require greater clarity. Businesses need safeguards to verify whether users requesting information about data processing are legitimate. This necessity is acknowledged even in the GDPR. However, India's draft rules do not address scenarios where businesses face incessant information requests or provide scope for businesses to charge a reasonable fee for requests which are excessive or even unfounded. A related ambiguity is whether the government can demand access to sensitive business data. If so, how will it ensure the protection of such information from falling into the hands of competitors? What if this information is a trade secret? These gaps highlight the need for thinking about procedural integrity.

## What lies ahead

According to IBM, data breaches cost Indian businesses an average of ₹19.5 crore (\$2.35 million) in 2024. Compliance with data protection laws should not be seen as a regulatory obligation, but as critical to protecting business reputation and ensuring continuity.

India must also move beyond reliance on notice-and-consent mechanisms to safeguard citizens' privacy in future laws. Notice and consent originate from the medical profession, where they can still be deemed to work effectively in controlled settings. However, in environments such as malls, airports, or even beaches, individuals have little opportunity to provide consent. With the convergence of the Internet of Things, 5G, and artificial intelligence enabling unprecedented data collection, India must envision privacy frameworks that do not exclusively rely on the fallible principle of consent. As public consultations refine the draft rules, prioritising preservation of the framework's flexibility and industry-specific accommodations is key. This approach will help maintain a balance between innovation, economic growth, and individual rights – something not many jurisdictions have managed to get right.

*The views expressed are personal*



The largely positive response to the Draft Digital Personal Data Protection (DPDP) Rules flows from its less prescriptive, principles-based approach

**GS Paper 02 : Governance**

**UPSC Mains Practice Question:** Discuss the significance of the Draft Digital Personal Data Protection (DPDP) Rules, 2025, in shaping India's data protection regime. **(150 Words /10 marks)**

**Context :**

- On January 3, 2025, the Ministry of Electronics and Information Technology (MeitY) released the Draft Digital Personal Data Protection (DPDP) Rules.
- The DPDP Rules represent a shift from the earlier Personal Data Protection Bill, which was seen as overly restrictive.

**A Practical Approach to Data Protection**

- The DPDP Rules adopt a flexible and principles-based approach, unlike the European Union's GDPR, which is more rigid.
- GDPR has been criticized for benefiting big companies, hurting smaller businesses, and failing to build public trust in online data handling.
- India's rules avoid such issues by focusing on business flexibility and innovation.

**Key Features of the Draft Rules**

- **Simplified Notice and Consent Framework**
  - The rules focus on making consent clear and simple, avoiding unnecessary details.
  - Businesses only need to publish important information without following strict guidelines for user interfaces.
- **Protection of Children's Data**
  - Children's data is given stricter protection, but some industries like education and healthcare have been granted thoughtful exemptions.
  - For example, schools can track student behavior to improve learning without needing parental consent, as long as safeguards are in place.

**Challenges and Concerns**

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## ➡ Data Localisation Requirements

- Large businesses, called Significant Data Fiduciaries (SDFs), may need to store data within India, which could discourage investment.
- A sector-specific approach, like the RBI's payment data rules, may work better.

## ➡ Ambiguities in Provisions

- Businesses lack clarity on handling excessive or unreasonable data requests.
- Concerns exist about whether the government can access sensitive business data and how it would protect trade secrets.

## Future Considerations

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- ➡ In 2024, data breaches cost Indian businesses ₹19.5 crore on average, showing the need for better data protection.
- ➡ India should explore privacy solutions beyond consent, especially with technologies like IoT, 5G, and AI collecting vast amounts of data.
- ➡ Public consultations should refine the rules to balance flexibility, industry needs, and individual rights.

## Conclusion

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- ➡ The DPDP Rules are a practical framework that supports innovation and economic growth while protecting personal data.
  - ➡ By addressing gaps and focusing on flexibility, India can create effective data protection laws without the issues seen in rigid global models like the GDPR.
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