# Topics

- Zika virus
- What is scientific deep drilling?
- Dengue virus
- Caste census
- Star tortoise
- Mains


By saurabh Pandey

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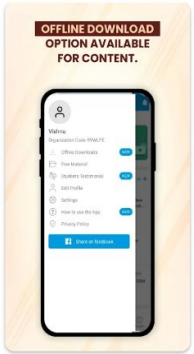



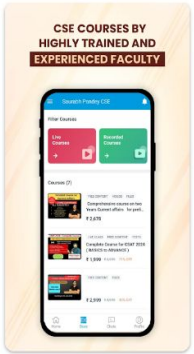


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BY SAURABH PANDEY SIR

# Zika virus: the need to improve surveillance and vector control

Zubeda Hamid

The Zika virus is making the news once again. At least 15 cases, including eight pregnant women, of Zika have been discovered so far in Pune, Maharashtra. In Karnataka, a 74-year-old who had Zika has died. State Health Department officials say the death was caused by other factors. Another suspected case in Karnataka is being investigated as well.

The Pune Municipal Corporation has said it has stepped up surveillance; the Karnataka Health Department has released guidelines on the virus for the public, and both States have urged members of the public to ensure there are no mosquito-breeding sites at their homes.

Meanwhile, the Union Health Ministry has issued an advisory to States to be vigilant; screen pregnant women, and strengthen entomological surveillance and intensify vector-control activities.

The Indian Council of Medical Research (ICMR) has asked States not only to increase testing for Zika but also to test patients with chikungunya and dengue-like symptoms who test negative for these infections for Zika, as per a news report.

As the monsoon continues over large parts of the country, creating ideal breeding grounds for mosquitoes, and with cases of dengue spiking as well, State administrations and members of the public need to step up mosquito-control measures to prevent transmission of diseases.

Here's a quick FAQ on Zika:

**What is Zika virus?**

As per the World Health Organization (WHO), Zika virus is a mosquito-borne virus first identified in Uganda in 1947 in a Rhesus macaque monkey, followed by evidence of infection and disease in humans in other African countries in the 1950s. Zika virus occurs through the bite of infected Aedes mosquitoes, mainly Aedes aegypti, which also transmits dengue and chikungunya. The Aedes mosquitoes usually bite during the day. Sexual transmission, transmission from mother to foetus and transfusions of blood and blood products are other routes of transmission.

Mosquitoes carry dengue, yellow fever, chikungunya and Zika. AP

**How it manifests?**

Most people infected with the Zika virus do not develop symptoms, the WHO says. Among those who do, they typically start 3-14 days after infection and are generally mild, including rash, fever, conjunctivitis, muscle and joint pain, and headache, which usually last for 2-7 days.

**How is it diagnosed?**

Zika virus may be suspected based on symptoms or the fact that the person is living in or visiting areas where Zika transmission has occurred. A diagnosis can only be given after a laboratory test. A recent report in *The Hindu* pointed to gaps in the tracking and surveillance of the virus, highlighting the fact that in March 2023, the Central Drugs Standard Control Organisation (CDSCO), India's apex agency for diagnostic approvals, confirmed that there was no approved diagnostic test for Zika. This limitation, the report said, hinders the country's ability to diagnose Zika. At present, samples are generally sent to a few select labs, including the National Institute of Virology, for confirmation. The NIV, a media report indicates, is flooded with samples, leading to delays in the issuing of reports.

**What are the ill effects?**

Zika virus infection during pregnancy, the WHO says, can cause infants to be born with microcephaly and other congenital malformations and can also cause preterm births and miscarriage. Microcephaly is a condition in which an infant's head is smaller than what is typical for their age and can be caused by the brain not developing properly. An estimated 5-15% of infants born to women infected with Zika virus during pregnancy have evidence of Zika-related complications, as per the WHO. Zika virus infection is also associated with Guillain-Barré syndrome, neuropathy, and myelitis in adults and children. Guillain-Barré syndrome is a rare condition that causes a person's immune system attacks the peripheral nerves.

**Is there a vaccine?**

No vaccine is as yet available for the prevention or treatment of Zika virus infection, the WHO says. The development of a Zika vaccine remains an active area of research.

A few studies have shown promising results. In India for instance, several companies are attempting to make a vaccine. In a study published in 2017, Bharat Biotech's "killed Zika virus vaccine" which uses an African strain showed 100% efficacy against mortality and disease in animal studies. Indian Immunologicals Limited, a wholly-owned subsidiary of the National Dairy Development Board said earlier this year that it was also working on developing a vaccine.

*(zubeda.h@thehindu.co.in)*

## What is Zika virus?

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-

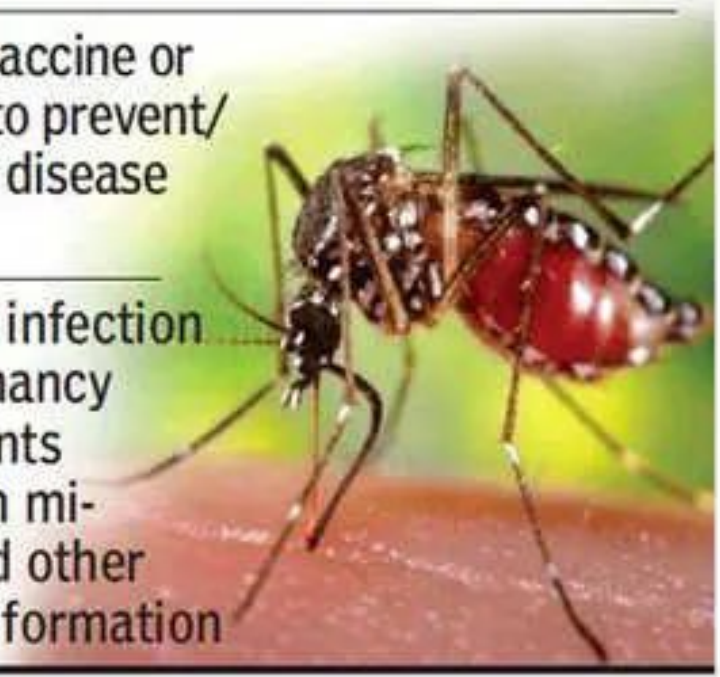
# ALL ABOUT ZIKA VIRUS DISEASE

**Zika virus disease is an emerging viral disease transmitted through the bite of an infected Aedes mosquito**

## Symptoms

- Most of those infected with Zika virus disease either remain asymptomatic or show mild symptoms of fever, rash, conjunctivitis, body ache, joint pain
- Severe forms of disease requiring hospitalization is uncommon and fatalities are rare

- There is no vaccine or drug available to prevent/ treat Zika virus disease at present
- Zika virus infection during pregnancy can cause infants to be born with microcephaly and other congenital malformation



# Why is India drilling a 6-km deep hole in Maharashtra?

The Borehole Geophysics Research Laboratory (BGRL) in Karad, Maharashtra, is a specialised institute mandated to execute India's scientific deep-drilling programme. Under BGRL, the aim is to drill the earth's crust and conduct scientific observations to help expand our understanding of reservoir-triggered earthquakes in the Koyna-Warna region

**DIVE:** At the deep-drilling site in Koyna region, Maharashtra, the towering drilling rig is seen surrounded by associated equipment, an onsite mud logging unit, gas analysis lab, and a geological studies lab. MOES-BGRL


Bhavya Khanna
Sukanta Roy
M. Ravichandran


Scientists don't yet have a way to predict when and where an earthquake will occur. We know powerful earthquakes at the boundaries of tectonic plates, which measure more than 7.5 on the Richter scale, are almost certainly associated with a severe loss of infrastructure and life. In the ocean, these geological events trigger tsunamis. However, more minor earthquakes that occur in a plate's interior are more challenging to predict because they occur at the least expected sites and could strike densely populated habitats. This is why scientific deep drilling is an indispensable tool for progress in the earth sciences.

### What is scientific deep drilling?

Scientific deep-drilling is the enterprise of strategically digging boreholes to analyse deeper parts of the earth's crust. It offers opportunities and access to study earthquakes and expands our understanding of the planet's history, rock types, energy resources, life forms, climate change patterns, and more.

The Borehole Geophysics Research Laboratory (BGRL) in Karad, Maharashtra, is a specialised institute under the Ministry of Earth Sciences mandated to execute India's sole scientific deep-drilling programme. Under BGRL, the aim is to drill the earth's crust to a depth of 6 km and conduct studies to help expand the understanding of reservoir-triggered earthquakes in the Koyna-Warna region of Maharashtra.

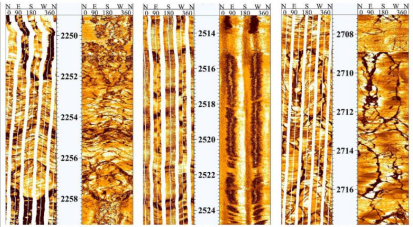
This region has been experiencing frequent earthquakes since the Shivaji Sagar Lake, or the Koyna Dam, was impounded in 1962. BGRL's 3-km-deep pilot borehole in Koyna is complete; the Ministry of Earth Sciences is committed to reaching a depth of 6 km.

### Benefits of a deep-drilling mission

Earthquakes are challenging to study. Surface-level observations can't make complete sense of them. The recurrent earthquakes in Koyna are synchronous with the dam's loading and unloading during the monsoon and post-monsoon periods, offering an opportunity to widen our understanding of earthquakes.

However, making observations inside the earth is a different ball game. Scientifically drilled boreholes can be a hub of direct, unique *in situ* experiments and observations and monitor a region's fault lines and seismic behaviour. They also provide exact and fundamental knowledge of the composition of the earth's crust, structure, and processes, and help validate models based on surface studies. Thus, it can inform a range of societal problems related to geohazards and geo-resources.

Investing in scientific deep-drilling can also help expand scientific know-how and technological innovation, especially in seismology (the study of earthquakes). It can also spur the development of tools and equipment for drilling, observation, data analysis, sensors, etc.




High-resolution images (electrical and acoustic) of the borehole wall at a depth of 2,248-2,718 m in the Koyna pilot borehole showing the presence of fault-fracture zones and rock-deformation features in detail. MOES-BGRL

### Challenges of scientific deep drilling

Scientific deep drilling is the best tool to study the earth's interior. Other ways include geophysical measurements of seismic wave speed, gravitational and magnetic fields, and electrical conductivity from the near surface. Scientists can also examine crust fragments brought from deep underground to the surface.

But scientific deep-drilling remains the most reliable method because it helps get direct (*in situ*) and near-source measurements. Researchers can also capture rock and sediment cores aligned with the earth's timeline from within the borehole. It is also labour- and capital-intensive. The earth's interior is a hot, dark, high-pressure region that hinders long and continuous operations.

Even with these challenges, however, scientific pursuits are important. Expanding earth-science research, especially of solid earth, is crucial. Aside from earthquakes, this is because many surface phenomena – the composition of water and air, their availability, and the resulting interactions with climate-affected phenomena – are linked to what happens inside the earth's crust.

### What is the drilling technique?

The Koyna pilot borehole is about 0.45 m wide (at the surface) and roughly 3 km deep. It employs a unique drilling strategy – a hybrid of mud rotary drilling and air hammering.

In rotary drilling, a rotating drilling rod made of steel is attached to a diamond-embedded drill bit at the bottom. As it penetrates the crust, it generates considerable heat due to friction, so drilling mud is flushed through the rod into the borehole to cool the drill bit. In addition to being a coolant and a lubricant, the drilling mud helps bring rock cuttings up from the borehole.

A ring-shaped space separates the drilling rod and borehole wall. The debris moves out from the space due to the pressure of the drilling mud pumped from the top through the drilling rod. The deeper the borehole, the more pressure is required to bring up the debris from this space.

Air hammering pushes highly compressed air through the drilling rod to deepen the borehole and flush the cuttings out.

Deep-drilling operations at Koyna use a rig capable of both techniques. The decision to use each technique at a particular point is based on the rock type, presence of highly fractured rock, water inflow zones, and the need to collect core samples, among others.

Decisions of this kind are dynamic. Operators used the mud rotary technique to acquire cores because it allowed us to capture long, intact cylindrical sections. Where operators used air-hammering, the team collected rock chips for studies of rock properties.

The operators also have to circulate the drilling mud while making downhole measurements of physical and chemical properties of the borehole environment using temperature, density, electrical conductivity, sonic velocity, rock porosity, and radioactivity probes – while installing steel pipes to secure the borehole's sides.

When the borehole depth increases beyond 3 km and strikes for 6 km, the entire rig will have to be updated with exponentially enhanced capacity. In addition, increasing the depth to 6 km heightens the complexities of drilling through fractured rocks in the Koyna seismic zone and the possibility of drill rods and sensors getting stuck.

Troubleshooting also becomes more complicated because of limited access to equipment deeper down the hole. Rocks at these depths are softer so drilling mud is lost. Further, a 4-in-wide and 9-metre-long granite core can weigh up to 200 kg, and lifting it up by more than 3 km is technically exacting. Operators will also encounter fault lines and fracture zones more often, through which water could enter the borehole and stall drilling.

If any of the above situations arise and troubleshooting fails, we may have to abandon the borehole. Another challenge is to steer the borehole at the desired inclination from the top, using vertically controlled actions. This requires drill motors, imaging tools, and monitoring devices that can be 'tuned' every minute. The planning and execution of deep-drilling are thus dynamic and must be foolproof. Human resources are also a challenge. The process needs highly skilled technical personnel for continuous on-site engagement for 6-8 months at a time in harsh weather; this was the case for the 3 km pilot borehole. For a 6 km borehole, continuous drilling will last at least 12-14 months.

### What have scientists found?

The pilot drilling mission was a success and has yielded significant new information about the subsurface geological environment. For one, it revealed 1.2-km thick, 65 million-year-old Deccan trap lava flows, and below them 2,500-2,700-million-year-old granitic basement rocks. Downhole measurements of core samples and conditions from a depth of 3 km have also provided new information about the physical and mechanical properties of rocks, the chemical and isotopic composition of formation fluids and gases, temperature and stress regimes, and fracture orientations.

We also captured high-resolution images of the borehole wall using acoustic and micro-resistivity techniques. They can be used to validate data extracted from other cores worldwide. The team at Koyna also conducted hydraulic fracturing experiments to directly measure the rocks' stress regimes. We expect data from these experiments to be useful for many years, especially to understand the reasons for recurrent earthquakes in specific geographies. By integrating various datasets and using advanced analysis, the team could also detect buried fault zones and study their properties. One significant finding was the presence of water down to 3 km! It was found to be meteoric or rain-fed, implying deep percolation and circulation are possible. Another key finding was that the Koyna region is critically stressed: even small stress perturbations could cause the rock to fail and potentially trigger frequent, small-magnitude earthquakes in the region.

### What next?

The pilot data will inform future drilling. Modelling experiments suggest the temperature at 6 km could be 180-210 degrees C. Drilling equipment, downhole data acquisition systems, and sensors for long-term placement at depth need to be designed accordingly. The Koyna data and samples will also facilitate new experiments. More than 20 research groups nationwide are already studying the Koyna samples. One is examining the gouge from fault zones to understand the frictional properties of rocks in quake-prone regions. Another is characterising microbes on these rocks to understand life forms that thrive in hot, dark, nutrient-poor environments. Their findings could potentially yield new molecules and clues to improve industrial processes.

Members of the international geological research community have also sought access to core samples for projects in emerging fields such as carbon capture and storage in the deep Deccan traps. In sum, the Koyna exercise is establishing a firm footing in scientific deep-drilling for India. Its lessons will inform future deep-drilling experiments and expand academic knowledge in multiple ways.

*Bhavya Khanna is a Scientist D, communication in science, at the Ministry of Earth Sciences (MoES). Sukanta Roy is a Scientist G and Head of Borehole Geophysics Research Laboratory, Karad, under MoES; and M. Ravichandran is the Secretary to the Government of India, MoES.)*

**Earthquakes that occur in a plate's interior are challenging to predict because they occur at the least expected sites and could strike densely populated habitats**

**Read the article in full online**
Visit bit.ly/deepdrillingprogramme

# What is scientific deep drilling?

- Scientific deep-drilling is the enterprise of strategically digging boreholes to analyse deeper parts of the earth's crust.
- It offers opportunities and access to study earthquakes and expands our understanding of the planet's history, rock types, energy resources, life forms, climate change patterns, and more.
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- Under BGRL, the aim is to drill the earth's crust to a depth of 6 km and conduct studies to help expand the understanding of reservoir-triggered earthquakes in the Koyna-Warna region of Maharashtra.
- This region has been experiencing frequent earthquakes since the Shivaji Sagar Lake, or the Koyna Dam, was impounded in 1962.
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- **Benefits of a deep-drilling mission Earthquakes are challenging to study.**
- **Surface-level observations can’t make complete sense of them.**
- **The recurrent earthquakes in Koyna are synchronous with the dam’s loading and unloading during the monsoon and post-monsoon periods, offering an opportunity to widen our understanding of earthquakes.**
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- Scientifically drilled boreholes can be a hub of direct, unique in situ experiments and observations and monitor a region’s fault lines and seismic behaviour.
- They also provide exact and fundamental knowledge of the composition of the earth’s crust, structure, and processes, and help validate models based on surface studies.
- Thus, it can inform a range of societal problems related to geohazards and geo-resources.

# Why are dengue cases on the rise worldwide?

## Are urbanisation and climate change fuelling dengue spread in the world?

Serena Josephine M.

**The story so far:**

Dengue cases have surged in India, with Karnataka, Kerala, and Tamil Nadu seeing significant increases. According to data published by the National Centre for Vector Borne Diseases Control, as of April 30, India recorded 19,447 cases and 16 deaths, with Kerala and Tamil Nadu leading in numbers. Karnataka, initially reporting 2,503 cases, has now recorded 7,840 cases and seven deaths as of July 10, with 293 new cases reported on that day alone.

**What is the global situation of dengue?**

According to the World Health Organization (WHO), as of April 30, over 7.6 million cases of dengue were reported in 2024. This included 3.4 million confirmed cases, over 16,000 severe cases and over 3,000 deaths. In an update on the global scenario on May 30, it said that 90 countries have known active dengue transmission, adding that "not all of which have been captured in formal reporting".

The WHO noted that at least five countries, including India, were grappling with the onset of monsoon season, which created suitable conditions for the breeding and survival of Aedes mosquito. Urbanisation and population movements have also played a pivotal role in the increasing burden in the region.

Dengue is endemic in more than 100 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia and Western Pacific. The Americas, South-East Asia and Western Pacific regions were the most seriously affected, with Asia accounting for around 70% of the global disease burden. However, it also noted that dengue is spreading to new areas in Europe, the Eastern Mediterranean and South America.

**How does dengue spread and how is it treated?**

Dengue virus is transmitted to humans through the bite of infected mosquitoes, with the primary vector that transmits the disease being Aedes aegypti. While cases are mostly asymptomatic or mild, some may develop severe dengue that could include shock, severe bleeding or organ impairment. According to the National Guidelines for Clinical Management of Dengue Fever, dengue presents as an acute febrile illness lasting two to seven days, characterised by symptoms such as headache, retro-orbital pain, myalgia, arthralgia, rash, and hemorrhagic manifestations. In those without any warning signs or complications, dengue is managed through symptomatic and supportive treatment.

**What are the emerging patterns in dengue?**

Researchers and public health experts have been closely monitoring the emerging patterns in dengue.

According to the WHO, factors contributing to the increasing risk of dengue epidemics include the changing distribution of the Aedes aegypti vector, urbanisation, and human activities that create conducive environments for vector-host interaction, and climate change-induced shifts in weather patterns.

In the article 'Prevention and Control Strategies to Counter the Dengue Cyclical Trend in Tamil Nadu', published in the Tamil Nadu Journal of Public Health and Medical Research, public health officials said that the first epidemic of clinical dengue-like illness was recorded in erstwhile Madras in 1780. Dengue virus was isolated in India during 1945 for the first time. The first evidence of the occurrence of dengue fever in the country was reported in 1956 from Vellore district in the State, they said.

They said the infection has spread to all geographic regions due to rapid increase in urbanisation, expanding travel patterns and climatic changes.

Tamil Nadu, they said, has witnessed outbreaks of dengue infection once every five years in the past decade with the last outbreak occurring in 2017.

The State's Director of Public Health and Preventive Medicine T. S. Selvavinayagam pointed out seasonal variation every five years, probably due to the building up of susceptible populations. "We are seeing cases throughout the year. There are more cases in a short time if control measures are not taken on time. As for Tamil Nadu, we expect cases to rise in the coming months. Surveillance and immediate response are critical. Along with this, community empowerment and education is needed," he said.

### THE GIST

- Dengue cases have surged in Karnataka, Kerala, and Tamil Nadu, with significant increases reported
- Dengue is endemic in over 100 countries, with the Americas, Southeast Asia, and the Western Pacific regions most affected.
- Factors contributing to dengue epidemics include changing mosquito distribution, urbanisation, human activities, and climate change.

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# The case for a caste Census

The Census Act, 1948 should be amended to make enumeration by caste mandatory, instead of leaving it to the whims of the Union executive. Such data can be collected as part of the regular Census, with a few pertinent queries added to the questionnaire

FULL CONTEXT

K. Ashok Vardhan Shetty

Peter Drucker famously said, "Only what gets measured gets managed." The problems of social groups that have been historically discriminated against (be it by caste, race, religion, gender, disability etc.) cannot be resolved without collecting data group-identity wise. Doing so is not a capitulation to identity politics but a vital step towards informed policy making and inclusive development.

For instance, Germany's census does not enumerate people by race. This has worked to the disadvantage of its Black people who started a private, country-wide, online survey called Afrozensus in 2020. Its results showed that anti-Black racism is widespread and institutionally entrenched in Germany.

Applying Cicero's test of *cui bono* (who benefits?), it can be said that the demand for enumeration generally emanates from the victims of discrimination and is resisted by vested interests.

**Why a caste Census?**

A caste Census is crucial for four reasons – one, it is a social imperative. Caste continues to be a foundational social construct in India. Only about 5% of Indian marriages were inter-caste as of 2011-12. The use of caste surnames and caste marks is still widespread. Residential segregation by caste persists. Choices of candidates for elections and ministers for Cabinets continue to be dictated by caste considerations.

Two, it is a legal imperative. Constitutionally-mandated policies of social justice which include reservations in electoral constituencies, education and public employment cannot be pursued effectively without detailed caste-wise data. Even though the Constitution uses the word class instead of caste, various rulings of the Supreme Court have held caste as a 'relevant criterion', 'sole criterion' or 'dominant criterion' for defining a backward class, and have demanded detailed caste-wise data for upholding reservation policies.

Three, it is an administrative imperative. Detailed caste-wise data is necessary to avoid/correct wrongful inclusions of undeserving castes and exclusions of deserving castes, and to guard against a few dominant castes in a reserved category crowding out others. It is also needed for sub-categorising castes within a reserved category and to determine the income/wealth criterion for the creamy layer.

Four, it is a moral imperative. The absence of detailed caste-wise data has helped a coterie of elites, among upper castes and dominant Other Backward Classes (OBCs), to corner a disproportionate share of the nation's assets, incomes, and positions of power.

Censuses in British India between 1881 and 1931 enumerated all castes. In the first Census conducted after Independence in 1951, the Government of India (GOI) ordered that caste should not be enumerated. However, an exception was made for Scheduled Castes (SCs) and Scheduled Tribes (STs) which have been enumerated in every Census since 1951. In 1961, the GOI advised States to conduct their own surveys and draw up State-specific OBC lists if they so desired. There was no reservation for OBCs in the Centre and its undertakings then.

**The arguments against caste Census**

There are multiple views against the caste Census. These include:-

**Number game:** Supporters celebrate the release of Bihar's caste Census report, in Patna, in 2023. PTI

First, that it is socially divisive. India's social divisions predate Census efforts by nearly 3,000 years. The Census counts of the SCs and STs since 1951 have not led to any conflicts among these castes or tribes. Further, India's Census enumerates religion, language, and region which are as divisive as caste, if not more. Casteism will not wither away by not counting caste in the Census, any more than communalism, and regionalism will disappear by not enumerating religion, language and region.

Second, that it is an administrative nightmare. Unlike race which is a fuzzy concept, but is still enumerated in many countries such as the U.S., there is little or no ambiguity about anyone's caste. The GOI has been able to smoothly enumerate 1,234 castes in the SC category and 698 tribes in the ST category. Therefore, it is difficult to understand why the enumeration of the 4,000-odd other castes, most of which are State-specific, should pose an intractable problem.

Third, that it would fuel demands for increased reservations. On the contrary, the availability of caste-wise Census data would help curb arbitrary demands from caste groups and capricious decision-making by governments. Policy makers would be able to objectively debate and address the claims of, say, the Marathas, Patidars, Jats, or any other groups for reservations. But governments prefer fuzzy data because it gives them the latitude to implement reservations arbitrarily for electoral considerations.

**The case for OBC inclusion in Census**

Like the SCs and STs, the Constitution permits reservation for the OBCs in education (Article 15(4)) and public employment (Article 16(4)). After the implementation of the Mandal Commission recommendations, the OBCs enjoy reservations in the Central government and its undertakings as well. In the *Indra Sawhney* case (1992), the Supreme Court ruled that the OBC list, based on the 1931 Census, should be revised periodically.

The OBCs do not have reservation in electoral constituencies for MPs and MLAs like the SCs and the STs. But after the 72nd and 74th amendments (1993), the Constitution provides for reservations in electoral constituencies in panchayats and municipalities not only for SCs and STs but also for OBCs (Articles 243D(6) and 243T(6)). For this, caste-wise, area-wise Census data of the OBCs is essential. Therefore, the GOI should have enumerated the OBCs at least in the 2001 Census. But it did not.

Whenever States like Uttar Pradesh, Madhya Pradesh, Gujarat, Maharashtra, Karnataka, Odisha and Jharkhand tried to implement reservations for the OBCs in elections to local bodies, the High Courts and the Supreme Court stayed the same, on the ground that there was no caste-wise data of OBCs. While one arm of the State – the judiciary –demands caste-wise data to uphold reservations, another – the executive – has avoided enumerating the very same data.

However, the 10% reservation for economically weaker sections (EWS) among those other than the OBCs, SCs and STs (effectively, the upper castes) was upheld by the Supreme Court in 2022 despite the absence of any supporting empirical data. In view of the EWS reservation, the Census should now enumerate all castes including the upper castes as it did till 1931.

While Census is a Union subject, the Collection of Statistics Act, 2008 empowers States and even local bodies to gather the necessary statistics. So, individual States can always do Caste surveys like Karnataka (2015) and Bihar (2023) did. But Census data carries more authority and is less contested. The government's reluctance to enumerate caste as part of the Census is legally indefensible and administratively unwise.

**How an attempt at caste Census failed**

After considerable lobbying by OBC leaders, in 2010, the Parliament passed a unanimous resolution (with both Congress and BJP on board) calling for caste to be enumerated as part of the 2011 Census. As per the 1931 Census when caste was last enumerated, there were 4,147 castes in India apart from the depressed classes/untouchables (as they were called then). Unfortunately, the Socio Economic and Caste Census (SECC)-2011 was poorly designed and executed, throwing up a ludicrous figure of 46 lakh castes and the results were never released.

The SECC-2011's failure was because of the fact that it was not conducted under the Census Act, 1948 as the Act was not amended to include caste as a parameter. It was conducted through the Union Ministries of Rural Development and Urban Development which did not have prior experience of conducting sociological/anthropological surveys. Additionally, the questionnaire was poorly designed and asked open-ended questions about caste. The enumerators couldn't distinguish between genuine castes, alternative caste names, larger caste groups, sub-castes, surnames, clan names, gotras, etc. In contrast, the Bihar government's Caste Survey in 2023, provided enumerators the list of 214 caste names specific to Bihar, with the 215th category labelled "Other Castes" and came up with better results.

Despite the unanimous Parliamentary resolution of 2010, the Central government announced in 2021 that it would not enumerate caste as part of the next Census. It reiterated this stand before the Supreme Court in a case filed by the Maharashtra government seeking a direction to the Centre to enumerate OBCs in the 2021 Census. The Supreme Court judgment dismissing the Maharashtra government's plea in December 2021 is questionable, considering its own past rulings.

**What is the way forward?**

Learning from the SECC-2011 failures, the Census Act, 1948 should be amended to make enumeration by caste mandatory instead of leaving it to the whims of the Union executive. Caste should be enumerated as part of the regular Census by the Census Commissioner only, with a few pertinent questions added to the questionnaire. Additionally, the government should enlist sociological/anthropological experts to draw up a draft list of castes specific to each State, publish the draft list online, inviting suggestions and comments from the public before finalising it, and give only that list to the enumerators. The questionnaire should be so designed as to ask the names of the sub-caste, caste, larger caste group, and the caste surname of the respondent. Internet-enabled hand-held devices preloaded with these details and limiting the enumerator's role to one of choosing the correct option will make the task easy and foolproof.

Interested States must move the apex Court to review its 2021 judgment. It is farcical to implement OBC reservation based on 1931 Census data and EWS reservation with no empirical data. The next Census must enumerate caste.

*The writer is former IAS officer of Tamil Nadu cadre and former Vice Chancellor, Indian Maritime University, Chennai.*

## THE GIST

- The problems of social groups that have been historically discriminated against (be it by caste, race, religion, gender, disability etc.) cannot be resolved without collecting data group-identity wise.
- The availability of caste-wise Census data would help curb arbitrary demands from caste groups and capricious decision-making by governments. Policy makers would be able to objectively debate and address the claims of, say, the Marathas, Patidars, Jats, or any other groups for reservations.
- The government should enlist sociological/anthropological experts to draw up a draft list of castes (together with alternative caste names and the names of sub-castes and larger caste groups) specific to each State, publish the draft list online, inviting suggestions and comments from the public before finalising it, and give only that list to the enumerators.

## Why a caste Census?

- A caste Census is crucial for four reasons — one, it is a social imperative. Caste continues to be a foundational social construct in India. Only about 5% of Indian marriages were inter-caste as of 2011-12.
- The use of caste surnames and caste marks is still widespread. Residential segregation by caste persists.
- Choices of candidates for elections and ministers for Cabinets continue to be dictated by caste considerations.

- Two, it is a legal imperative.
- Constitutionally-mandated policies of social justice which include reservations in electoral constituencies, education and public employment cannot be pursued effectively without detailed caste-wise data.
- Even though the Constitution uses the word class instead of caste, various rulings of the Supreme Court have held caste as a ‘relevant criterion’, ‘sole criterion’ or ‘dominant criterion’ for defining a backward class, and have demanded detailed caste-wise data for upholding reservation policies.

- **Three, it is an administrative imperative.**
- **Detailed caste-wise data is necessary to avoid/correct wrongful inclusions of undeserving castes and exclusions of deserving castes, and to guard against a few dominant castes in a reserved category crowding out others.**
- **It is also needed for sub-categorising castes within a reserved category and to determine the income/wealth criterion for the creamy layer.**

- Four, it is a moral imperative.
- The absence of detailed caste-wise data has helped a coterie of elites, among upper castes and dominant Other Backward Classes (OBCs), to corner a disproportionate share of the nation’s assets, incomes, and positions of power.
- Censuses in British India between 1881 and 1931 enumerated all castes.
- In the □first Census conducted after Independence in 1951, the Government of India (GOI) ordered that caste should not be enumerated.
- However, an exception was made for Scheduled Castes (SCs) and Scheduled Tribes (STs) which have been enumerated in every Census since 1951

## The arguments against caste Census

- There are multiple views against the caste Census.
- These include:- First, that it is socially divisive. India's social divisions predate Census efforts by nearly 3,000 years.
- The Census counts of the SCs and STs since 1951 have not led to any conflicts among these castes or tribes.
- Further, India's Census enumerates religion, language, and region which are as divisive as caste, if not more.

- **Second, that it is an administrative nightmare.**
- **Third, that it would fuel demands for increased reservations.**

- **The problems of social groups that have been historically discriminated against (be it by caste, race, religion, gender, disability etc.) cannot be resolved without collecting data group-identity wise.**
- **The availability of caste-wise Census data would help curb arbitrary demands from caste groups and capricious decision-making by governments.**
- **Policy makers would be able to objectively debate and address the claims of, say, the Marathas, Patidars, Jats, or any other groups for reservations.**

- **The government should enlist sociological/anthropological experts to draw up a draft list of castes (together with alternative caste names and the names of sub-castes and larger caste groups) specific to each State, publish the draft list online, inviting suggestions and comments from the public before finalising it, and give only that list to the enumerators.**

# Saving the 'stars'

Indian star tortoises that were rescued during a raid on a house in Ampang in Malaysia's Selangor State. Malaysian authorities arrested six members of an international crime ring known as the "Ninja Turtle Gang" and seized about 200 smuggled tortoises and turtles. AFP

# Indian star tortoise (*Geochelone elegans*)

- The Indian star tortoise (*Geochelone elegans*) is a threatened tortoise species native to India, Pakistan and Sri Lanka where it inhabits dry areas and scrub forest.
- It has been listed as Vulnerable on the IUCN Red List since 2016, as the population is thought to comprise more than 10,000 individuals, but with a declining trend. It is threatened by habitat loss and poaching for the illegal wildlife trade.

- It was upgraded to CITES Appendix I in 2019 by full consensus among all member states, giving it the highest level of international protection from commercial trade.
- Conservation group TRAFFIC found 6,040 were seized globally that were intended to be sold in the pet trade.
- Currently they are commonly bred in many countries to be sold as pets.

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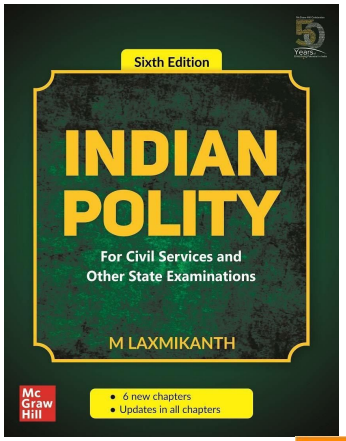


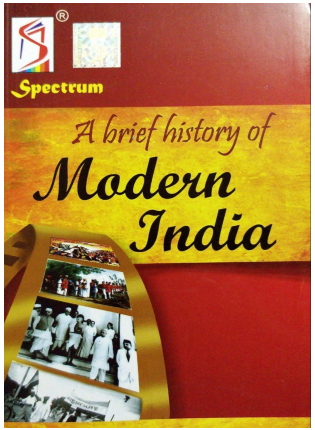


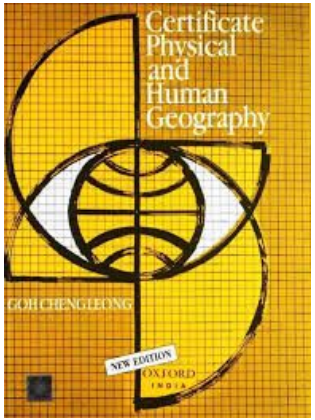


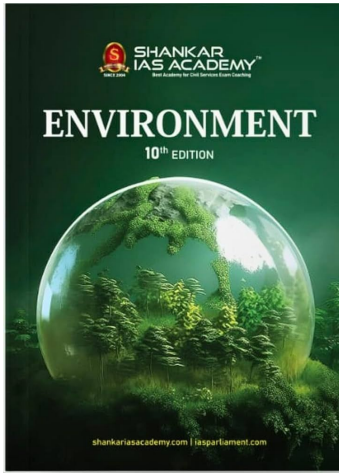


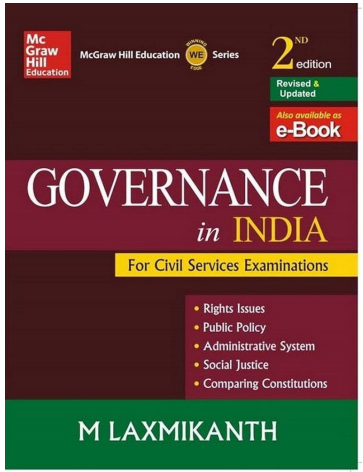


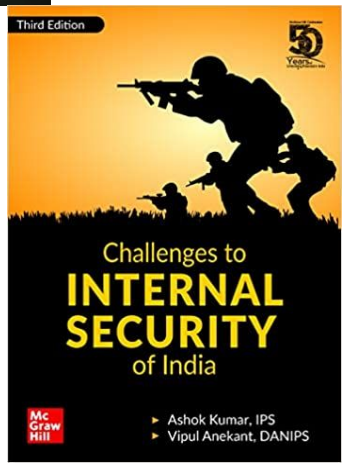


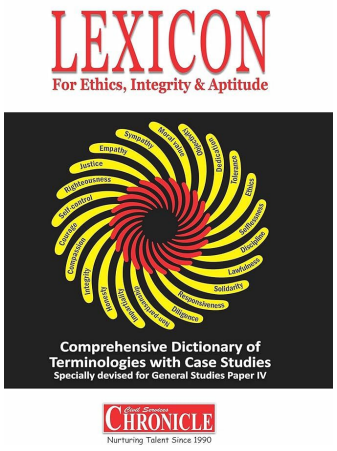


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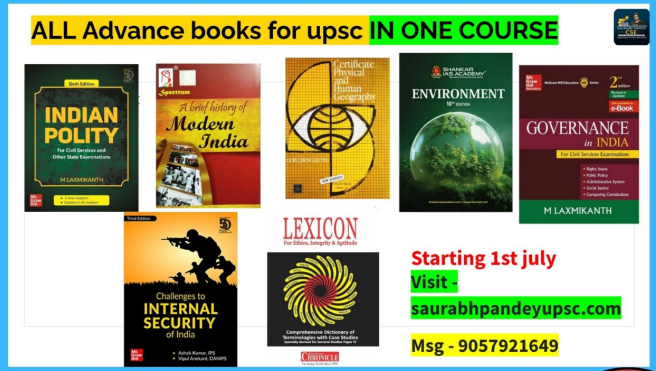


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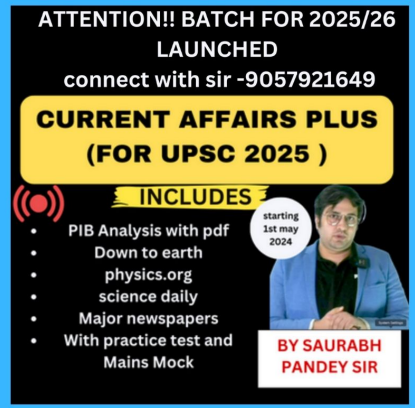

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