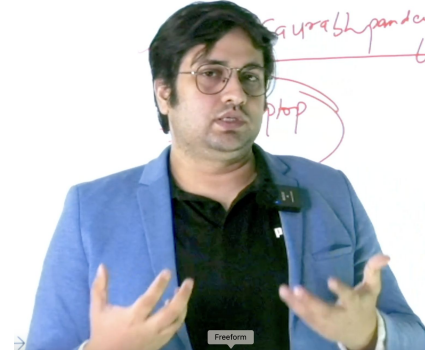


# Topics

- **Ballistic Missile Defence (BMD) system**
- **Cheetah in Gujarat**
- **A CRISPR Cas-based TB detection system”.**
- **Ketamine**
- **Urbanisation in india**
- **Do Governors have immunity?**
- **Typhoon Gaemi**
- **Mains**



By saurabh Pandey



**THE HINDU**

**Target Mains -2024/25 -**

**Q “Urbanisation in india can be planned but not without proper infrastructure” Discuss**

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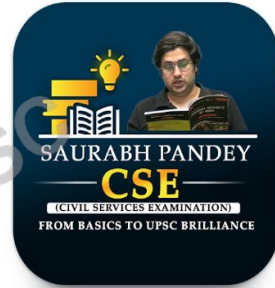
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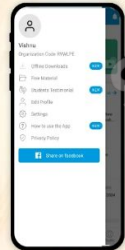
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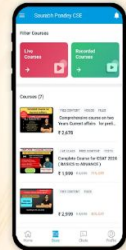
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## INBRIEF



### DRDO tests Phase-II ballistic missile defence system

The DRDO on Wednesday successfully flight-tested the Phase-II Ballistic Missile Defence (BMD) system demonstrating the indigenous capability to defend against ballistic missiles of 5,000-km class. Phase 1 of the BMD, which can intercept ballistic missiles with a range of 2,000 km, has already been deployed. The maiden test of the Phase-II BMD was carried out in November 2022. “The Target Missile was launched from LC-IV Dhamra at 1620 hrs mimicking adversary ballistic missile, which was detected by weapon system radars deployed on land and sea and activated the Air Defence (AD) interceptor system,” DRDO said in a statement.

# Ballistic Missile Defence (BMD) system

- **The DRDO successfully Flight-tested the Phase-II Ballistic Missile Defence (BMD) system demonstrating the indigenous capability to defend against ballistic missiles of 5,000-km class.**
- **Phase 1 of the BMD, which can intercept ballistic missiles with a range of 2,000 km, has already been deployed**

# HOW INDIA'S MISSILE DEFENCE WILL WORK

But as of now despite DRDO's claims, it is only a technology demonstrator programme with many critical elements yet to be proved. An expert has termed DRDO's claims as jingoistic kite-flying

## CONTROL CENTRE

Houses highly automated battle management system

Interceptor missile flies towards enemy missile, guided by onboard thermal radars (Russian bullt)

HOSTILE MISSILE DESTROYED

5  
Interceptor missile launches

3  
Long-range tracking radar (Israeli Green Pine) traces velocity and direction of missile

2  
IAF's AWACS (airborne warning and control systems) alerts control centre

4  
As missile comes closer, second radar (French-made multifunction fire control radar) locks on to it

1  
Enemy missile launches

6

2

3

4

5



# DESI & VIDESHI MISSILE SHIELDS

## 1. Akash

Indigenous area defence missile system

**RANGE: 25 KM**

- IAF inducting 15 squadrons of Akash-1 & two systems for Rs 10,900 crore
- Army has inducted 2 regiments for Rs 14,180cr (Two more Akash-2 regiments from Dec 2018 onwards)



## 2. S-400 Triumf

Rs 39,000-crore deal with Russia to be inked this year

**RANGE: 400 KM**

- 1st missile unit in 24 months after contract. All 5 in 54 months
- China inducting S-400 batteries under \$3 billion inked in 2014

## 3. Spyder

Israeli low-level quick-reaction missile system

**RANGE: 15 KM**

- IAF inducting 4 Spyder systems
- DRDO developing 30-km range QR-SAM system



## 5. Ballistic Missile Defence

- Indigenous project to develop 2-tier BMD shield
- Phase-I (interceptor missiles with 4.5 Mach speed) for 2,000-km range enemy missiles
- Phase-2 (interceptor missiles with 6-7 Mach speed) for 5,000-km range missiles
- Will take 2 years for Phase-I to be deployed

## 4. Barak-8

Joint DRDO-Israeli Aerospace Industries project

**RANGE: 70-KM**



- IAF to get initial nine medium-range SAM squadrons for Rs 10,076 crore
- Navy to get it for its frontline warships for Rs 2,606 crore (initial cost)
- 14 warships fitted with older Barak-I systems (range 9 km)



# PROPOSED MULTI-LAYERED MISSILE SHIELD FOR NCT OF DELHI

## 1. Outermost BMD layer

- Two-tier indigenous system of AAD (advanced air defence) & PAD (Prithvi air defence) interceptor missiles
- Designed to track & destroy ballistic missiles both inside (endo) and outside (exo) at altitudes from 15-25 km to 80-100 km

**Phase-1** (interceptor missiles with 4.5 Mach speed) meant for 2,000-km range enemy missiles. System almost ready

**Phase-2** (interceptor missiles with 6-7 Mach speed) will be for 5,000-km class missiles

## 2. S-400 layer

- Russian Triumf surface-to-air missile (SAM) systems
- \$5.43 billion (Rs 40,000 crore) deal inked in October 2018
- Missiles with interception ranges of 120, 200, 250 & 380 km
- Deliveries of 5 squadrons from Oct 2020 to April 2023

## 3. Barak-8 layer

- Medium & long-range SAM systems jointly developed by Israeli Aerospace Industries & DRDO
- Interception range of 70 to 100 km
- Systems being delivered to Navy (initial cost Rs 2,606 crore), IAF (Rs 10,076 crore) & Army (Rs 16,830 crore)

## 4. Akash layer

- Indigenous area defence missile system
- Range: 25-km

➤ IAF inducting 15 squadrons of Akash-1 & 2 systems for Rs 10,900 cr

➤ Army has inducted 2 regiments for Rs 14,180 cr. Two Akash-2 regiments on the way

## 5. NASAMS layer

- Quick reaction, networked system of Stingers, gun systems & AMRAAM missiles

➤ Deal for almost \$1 billion being finalized with the US

➤ Geared to track & destroy small incoming targets, shoot around buildings



# Grasslands in Kutch likely to host cheetahs from Africa

While the Gandhi Sagar sanctuary in Madhya Pradesh is the preferred location for the next lot of imports, Banni in Gujarat is also getting readied to house some of the big cats to land in India

**Jacob Koshy**  
NEW DELHI

Some of the next batch of cheetahs being brought in from Africa, as part of the next phase of Project Cheetah, may be sent to a cheetah-breeding and conservation centre being built in the sprawling grasslands of Banni in the Rann of Kutch in Gujarat, senior officials in the Environment Ministry told *The Hindu*.

While the Gandhi Sagar sanctuary in Madhya Pradesh is the preferred location for the next lot of wild cats, with Banni being considered a potential habitat for over a decade, officials say there is a surge in activity to set up basic infrastructure in Banni and get it ready this year.

“The next [lot of] animals will go to Gandhi Sagar. However, the Gujarat government is setting up suitable enclosures in Banni where cheetahs can be bred. If all goes to plan, there is no reason [the site] cannot be readied in the next six months and some animals sent there,” an official told *The Hindu*.

Banni is a vast grassland in the southern part of Kutch and extends to near-



Banni is a vast grassland in the southern part of Kutch and extends to nearly 3,500 sq.km. VIJAY SONEJI

ly 3,500 square kilometres. While that is plenty of space, more than that available in Kuno and Gandhi Sagar, there is barely enough prey to sustain a viable population.

Antelope species such as chinkara and blackbuck – the prey for the cheetah – are present in the Banni landscape but not enough for the big cat. “It will take years for enough prey, and practically this means chital – the main prey for the cheetahs in India – needs to be brought into these grasslands. There isn’t an official plan yet but it is a site that is under consideration,” the official added.

While the Madhya Pradesh Forest Department is tasked with managing the

cheetahs at Kuno in Madhya Pradesh, an expert steering committee gives scientific input on managing the programme. This includes recommending future sites for introducing fresh batches of cheetahs at regular intervals.

Of the 20 adult cheetahs brought to Kuno since September 2022, 13 survive. Additionally there are 13 cubs, making it 26 animals overall. However, the maximum capacity (in terms of available prey) of the Kuno reserve is for 21 adult animals.

The government’s estimate is that India will need to import anywhere between 10 and 12 adult cheetahs every year for the next five years to groom a sus-

tainable breeding population. “One attractive aspect of Banni is that there are no leopards. So with enough prey, we can overtime sustain a larger population. But this is a long-term plan,” an official said.

In October, all of the cheetahs in Kuno are expected to be released into the wild. Currently, most of them are in the bomas, or large enclosures that are a kilometre wide and long. These animals were brought in after infections and acclimatisation problems led to fatalities. Following the release of all the animals into the wild, preparations for the next batch are expected to begin – again from South Africa and Namibia.

# Cheetah in Gujarat



- Some of the next batch of cheetahs being brought in from Africa, as part of the next phase of Project Cheetah, may be sent to a cheetah-breeding and conservation centre being built in the sprawling **grasslands of Banni** in the Rann of Kutch in Gujarat

saurabh pandey iitgsc

- While the Gandhi Sagar sanctuary in Madhya Pradesh is the preferred location for the next lot of wild cats, with Banni being considered a potential habitat for over a decade.

## **Banni grassland**

- Banni is a vast grassland in the southern part of Kutch and extends to nearly 3,500 square kilometres.
- While that is plenty of space, more than that available in Kuno and Gandhi Sagar, there is barely enough prey to sustain a viable population.
- Antelope species such as chinkara and blackbuck — the prey for the cheetah — are present in the Banni landscape but not enough for the big cat.



# ASIA'S LARGEST GRASSLAND

- Spread over 3,000 sq km, Banni, Asia's largest grassland, is a reserve forest

- Around 48 villages, populated by around 8,000 families, are part of the Banni grassland



- Around 1 lakh animals graze on the grassland

- Out of the 8,760 hectares of encroached land in Banni, 540 hectares land cleared so far

**HOME TO RICH FLORA AND FAUNA:** The Banni area consists of two ecosystems – wetlands and grasslands – in juxtaposition. Banni falls under the Dichanthium-Cenchrus Lasiurus type of grass cover. These grasslands are home to a rich array of flora and fauna including 192 species of plants, 262 species of birds, several species of mammals, reptiles and amphibians. Traditionally, Banni grasslands were managed following a system of rotational grazing.

# ICMR ready to transfer technology of a 'breakthrough' TB detection system

**Bindu Shajan Perappadan**  
NEW DELHI

The Indian Council of Medical Research (ICMR) has begun work on spreading an affordable, faster and easy-to-use testing technology for detection of tuberculosis.

The council has invited an Expression of Interest from organisations, companies and manufacturers for “transfer of technology” for commercialisation of “a CRISPR Cas-based TB detection system”.

Developed by the ICMR Regional Medical Research Centre, Dibrugarh, the technology is touted as the “world’s cheapest TB testing system”. It can detect the TB bacterium using DNA from saliva at a very low cost. It can identify the bacterium with preliminary symptoms, and test over 1,500 samples within two hours.



Over 1,500 samples can be simultaneously tested within two hours.

“It is so simple that it can be used even in the primary health centre of a village,” say researchers at the centre.

TB kills an estimated 4,80,000 Indians every year or over 1,400 patients every day. Additionally, the country has more than a million “missing” TB cases annually, which are not notified. Most remain either undiagnosed, or unaccountably and inadequately diagnosed and treated in the private sector.

A senior Health Ministry official had noted that India’s efforts to achieve rapid decline in the burden of TB morbidity and mortality, towards the elimination of the infection by 2025, have plateaued.

He added that there is now a move to rework the protocol to tackle the disease, specifically TB medication and its duration, to reboot the TB-free initiative with zero deaths, disease, and poverty resulting from the disease.

## **Expert guidance**

The ICMR has developed the “CRISPR Cas-based TB detection system” and is lawfully entitled to enter into any form of exclusive or non-exclusive agreements with eligible manufacturing companies through a defined agreement for licensing and commercialisation of the system, which shall be go-

verned by the ICMR IP Policy, it said.

Listing out its role, the council has noted that the Dibrugarh centre will provide expert guidance and technical support for the production of the system in all phases.

“The ICMR through its institutes would provide support and facilitation to conduct the R&D/clinical study of new technology/product in India, in collaboration with the company/institutions in a professional and mutually agreed upon manner and timelines, which will be decided later under the Agreement. It will also provide technical support in development of technology/product and will also facilitate the validation as per the terms & conditions of the agreement. It shall have no financial implications unless otherwise specified,” it said.

## **A CRISPR Cas-based TB detection system”.**

- **a CRISPR Cas-based TB detection system”.**
- **Developed by the ICMR Regional Medical Research Centre, Dibrugarh, the technology is touted as the “world’s cheapest TB testing system”.**
- **It can detect the TB bacterium using DNA from saliva at a very low cost.**
- **It can identify the bacterium with preliminary symptoms, and test over 1,500 samples within two hours**



- ❑ **CRISPR- Cas9** : is clustered, regularly interspaced, short palindromic repeat and the associated Cas9 protein is naturally **an adaptive immunity mechanism** in prokaryotes.
- ❑ **CRISPRs** are found in approximately **40%** of sequenced **bacterial** genomes and **90%** of sequenced **archaea**.
- ❑ **Cas 9** is an **endonuclease**, first identified from ***Streptococcus pyogenes*** bacteria. It's **genes** are often **located next to CRISPR** repeat-spacer arrays.
- ❑ Specificity of **CRISPR-Cas9** depends on the presence of a sequence-specific Protospacer Adjacent Motif (**PAM**) and **target sequence** (20 bases).

# Ketamine pill offers hope, and risks, for treatment-resistant depression

Reports have suggested tablets that release ketamine slowly can improve symptoms of depression. Based on these reports, a team led by Paul Glue at the University of Otago, in New Zealand, proposed that patients could dose themselves safely at home using slow-release ketamine tablets

Snaha Kheskar

**A** new tablet that slowly releases the drug ketamine can ease treatment-resistant depression, offering an alternative to cumbersome clinic-based treatments for people with the condition, researchers have found in a clinical trial.

Ketamine, sometimes called a "party drug", blocks the receptor for an excitatory neurotransmitter – those that cause neurons fire and send messages – called glutamate. It was originally used as an anaesthetic but researchers found that it had rapid antidepressant effects, acting within hours.

As such, health workers routinely prescribe ketamine to people with treatment-resistant depression, where antidepressants don't improve symptoms, and with suicidal ideation.

## Slipping past side-effects

It is most commonly administered intravenously (ie. by injecting into the blood), and can also be delivered via an intranasal spray. However, in these routes ketamine can have many side effects, including headache, nausea, and drowsiness, and serious ones like increased blood pressure, loss of focus or dissociation from reality.

As a result, clinicians monitor patients who have been given ketamine for two hours while the side effects subside. This means an in-clinic treatment protocol that those suffering from depressive symptoms have said are inconvenient and render the drug more inaccessible.

Previous reports have suggested that tablets that release ketamine slowly can improve symptoms of depression with fewer side effects. Based on these reports, a team led by Paul Glue at the University of Otago, in New Zealand, proposed that patients could dose themselves safely at home using slow-release ketamine tablets.

"Ketamine is formulated as an extended-release tablet where it takes about 10 hours to release ketamine is broken down in the liver before it can get into the blood", Dr. Glue told *The Hindu* in an email. Ketamine's metabolites – the compounds formed when the liver breaks ketamine down – are the main drivers of its antidepressant effects, he explained. "However, the lower blood ketamine levels mean patients experience few or no side effects."

## An enriched clinical trial

Dr. Glue's team developed an extended-release ketamine pill called R107. To test its effects, they administered it to 23 volunteers recruited from 20 psychiatric clinics in New Zealand, Australia, Singapore, and Taiwan. All the participants had a major depressive disorder and whose symptoms hadn't shown any improvement despite being treated with at least two antidepressants.

In the first stage of the study, the researchers treated all the participants with 120 mg of R107 every day for five days. They assessed the participants' depression symptoms after eight days. Those whose symptoms had not improved left the study at this point, leaving 168 people to proceed to the second stage of the trial.

Many clinical trials use this sort of stepped intervention – called an enrichment phase – to exclude people who don't respond to acute treatment in



Ketamine is a drug of abuse, and unsupervised treatment in people with depression symptoms or suicidal ideation could be dangerous. Representative image: iStock.com/ase

the first stage. Only those who respond to the treatment proceed to the next stage, which is double-blind, meaning neither the participants nor the researchers know which participant has received the actual treatment and which a placebo.

According to Dr. Glue, "Normally, depression treatment studies have a high failure rate of about 50%, where there is no visible difference in responses between those treated with the drug and those treated with the placebo." The risk of study failure drops to about 20% by using this two-stage design."

## 'Very satisfying to see the results'

The 168 people recruited to the double-blind stage received either placebo tablets or one of four R107 doses – 30, 60, 120 or 180 mg – twice a week for three months. The participants reported experiencing minimal side effects, including headache, nausea, and anxiety. Very few reported symptoms of dissociation. While some people reported more side effects such as severe headache, chest pain, and suicidal ideations, the researchers were able to determine them to be unrelated to the treatment.

After the trial period, more participants treated with the tablets showed improved depression symptoms compared to those who had received placebo (as measured using a standard clinical scale to assess symptom severity). Those treated with 180 mg of ketamine reported the most signs of improvement. And compared to 43% of those who received the highest ketamine dose, 71% of those taking placebo relapsed and suffered from symptoms of depression. "These results didn't surprise Dr. Glue, since previous early clinical data had



revealed rapid antidepressant response to ketamine. "However, antidepressant drug trials can be unpredictable, so it was very satisfying to see the results," he added.

Rishabh Bajaj, a psychiatrist at Asha Hospital in Hyderabad, also said the results, described in the journal *Nature Medicine* on June 24, were to be expected: "I would be surprised if people did not respond to ketamine."

## The cost question

Most participants in the double-blind stage consumed the pills at home, with brief visits to the clinic that they said did not inconvenience them. This was a sign that extended-release ketamine tablets, with fewer or no side effects could ease access to treatment for the people who need it the most, Dr. Glue said.

"A ketamine-containing tablet is convenient, particularly for those in tier-three cities," said Dr. Bajaj, since they may not have access to clinics for ketamine treatment sessions. The drug costs only about ₹ 20 whereas intravenous treatment, which is more common, can cost anywhere between ₹ 750 and ₹ 2,500 per session, he said. Nasal sprays are usually inaccessible because they are even more expensive, ₹ 10,000 to ₹ 20,000, he said.

However, he added that licensing costs might push up the tablets' cost as well.

The major limitation of the study, per Dr. Bajaj, was the enrichment phase, which can skew the results because a significant number of people had been excluded after acute treatment. Dr. Glue expressed a similar concern: "Enrichment is fine to demonstrate that the tablets work," but further studies in more people for regulatory approval will need to have an 'unenriched' population as well.

## Risk of abuse and overdose

Another concern, according to Dr. Bajaj, is that ketamine is a drug of abuse, and unsupervised treatment in people with depression symptoms or suicidal ideation could be dangerous.

To address some of these concerns, Dr. Glue's team designed R107 to be exceptionally hard and difficult to shatter, so people can't crush the tablet and snort it or dissolve it in water to inject it intravenously for recreational use.

Fortunately, none of the trial participants reported craving the tablet either. Dr. Bajaj agreed making the tablets shatter-proof could mitigate abuse, but said there was still the possibility of users with severe symptoms overdosing themselves with multiple tablets. He suggested this risk could be reduced by rationing the number of tablets available to users. But there's a downside of this idea is that patients would have to visit the clinic to refill their prescriptions, which was the point of devising R107 in the first place.

Having more data about the treatment in more people can make the picture clearer, Dr. Bajaj concluded. "But that is going to take time."

(Snaha Kheskar is a biologist turned freelance science journalist.)

# Ketamine

- A new tablet that slowly releases the drug ketamine can ease treatment-resistant depression, offering an alternative to cumbersome clinic-based treatments for people with the condition, researchers have found in a clinical trial.
- Ketamine, sometimes called a “party drug”, blocks the receptor for an excitatory neurotransmitter — those that cause neurons to fire and send messages — called glutamate.
- It was originally used as an anaesthetic but researchers found that it had rapid antidepressant effects, acting within hours

# An outlining of urban transformation strategies

Cities are home to about 50 crore people, accounting for about 36% of India's population. The urban population has been growing at a steady pace of 2% to 2.5% annually. The ever-growing pace of urbanisation in India calls for sustained investments, with a vision and determination. The maiden Budget of the new government has recognised cities as the growth hubs and offered many options and opportunities for the planned development and the growth of cities.

## The issue of housing

The Pradhan Mantri Awas Yojana (Urban) has been under implementation since 2015 and has provided as many as 85 lakh housing units for the Economically Weaker Sections (EWS)-Middle Income Groups (MIG) categories of population, with an investment of about ₹8 lakh crore. Of this, a quarter has been provided by the central government and the remaining by the beneficiaries and State governments. The Budget has proposed to give a further push to the scheme by announcing support for the construction of another one crore such units in urban areas with an investment of ₹10 lakh crore, which will include central assistance of ₹2.2 lakh crore in the next five years, against which ₹30,171 crore has been provided in the Budget for the current year. A part of this allocation will be available to provide interest subsidy to facilitate loans at affordable rates.

The migrant population working in industries has been surviving in general in slums and yearning for a roof over their heads and a functional housing unit close to their workplaces. The Budget has announced new rental housing with dormitory-type accommodation for industrial workers. This is envisaged to be developed in public-private partnership (PPP) mode with upfront financial support under the Viability Gap Funding (VGF) scheme. This is to the extent of 20% from the central government, with the possibility of similar support from the State government.

The core infrastructure requirement for cities includes water supply, sanitation, roads and sewerage systems. Specific to the cities, the Atal



**Sudhir Krishna**

former Secretary,  
Urban Development,  
Government of India

Mission for Rejuvenation and Urban Transformation (AMRUT) provides ₹8,000 crore, which, by itself, may not appear to be very substantial. However, the Finance Minister has announced the availability of the VGF window, provided that the project is taken up as a commercial venture in PPP Mode. Most cities have, over the years, got exposed to the PPP model, and it should be possible to speed up the development of such core infrastructure, where it is unavailable and upgrade it where it exists but is inadequate.

The Budget Speech also mentions a huge investment of ₹11.1 lakh crore for capex in infrastructure. While this would include highways and many other sectors, cities can also make efforts to partake a share in it. Similarly, a provision of ₹1.50 lakh crore is made available to States as an interest-free loan for infrastructure development. States could use this window also, for cities.

The Smart Cities Mission, that was launched in 2015, was provided budgetary support of ₹8,000 crore in 2023-24, which has been scaled down to ₹2,400 crore in 2024-25, to take care of the remnant commitments. However, a new window, the National Urban Digital Mission (NUDM), has been opened in this Budget, with a provision of ₹1,150 crore, with a focus on the digitisation of property and tax records and their management, with GIS mapping. These will help urban local bodies in managing their finances better, and also help property owners.

## On city planning

The Budget has declared the intention of focusing on the planned development of cities. Municipalities would get the normal 'Finance Commission Grant' of ₹25,653 crore. In addition, a provision of ₹500 crore has been made for the incubation of new cities. With the development of mass rapid transit systems, cities can embark on transit-oriented development, wherein transit hubs can be surrounded by denser development without creating a traffic overload on roads. Moreover, a well-designed mobility plan can conveniently connect cities with their peri-urban areas and 'new cities'. Accordingly, the Budget

has announced an enhanced focus on economic and transit planning, with the orderly development of peri-urban areas utilising town planning schemes. The Budget has also proposed encouraging electric bus systems for cities and has provided ₹1,300 crore for it. E-buses offer an economical and eco-friendly operating system, but the main challenge is their higher upfront cost. However, with this budgetary support, it should get going.

## Solid waste management

Solid waste management (SWM) is perhaps the biggest challenge that most cities face today. The Budget has announced a special thrust to introduce bankable projects for SWM in collaboration with State government and financial institutions. States and municipalities can also make use of the VGF for this purpose. Cities such as Indore, Madhya Pradesh, have shown the way in making SWM a financially viable proposition.

The Street Vendors Act, 2014, was enacted by Parliament to regulate street vendors in public areas and protect their rights. It also envisaged the preparation of street-vending plans and the creation of street-vending zones, with a view to make street-vending a healthy and safe option for consumers and vendors. The Budget has proposed to develop 100 weekly 'haats' or street food hubs in select cities. Perhaps States need not feel constrained with the number and can facilitate all cities in preparing street-vending plans and developing street vending 'haats' in various parts of the city, according to felt needs.

While the Budget has made a slew of provisions, financial as well as procedural, to push for planned urbanisation, cities, represented by the municipalities, and guided by the respective State governments, will have to show the vision and the determination to incorporate all the resources coming not only from the Union Budget but also augmented by their own resources.

Above all, the participation of citizens would remain the bedrock for the success of any city's development strategy.

State governments, their municipalities and also citizens will have to take forward the provisions outlined in the Budget

# Urbanisation in india



- **Cities are home to about 50 crore people, accounting for about 36% of India's population.**
- **The urban population has been growing at a steady pace of 2% to 2.5% annually.**
- **The ever-growing pace of urbanisation in India calls for sustained investments, with a vision and determination**

- **The Pradhan Mantri Awas Yojana (Urban) has been under implementation since 2015 and has provided as many as 85 lakh housing units for the Economically Weaker Sections (EWS)-Middle Income Groups (MIG) categories of population, with an investment of about ₹8 lakh crore.**
- **The migrant population working in industries has been surviving in general in slums and yearning for a roof over their heads and a functional housing unit close to their workplaces.**



- **The Budget has announced new rental housing with dormitory-type accommodation for industrial workers.**
- **This is envisaged to be developed in public-private partnership (PPP) mode with upfront □ financial support under the Viability Gap Funding (VGF) scheme.**
- **The core infrastructure requirement for cities includes water supply, sanitation, roads and sewerage systems.**
- **Specific to the cities, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) provides ₹8,000 crore, which, by itself, may not appear to be very substantial.**

- **The Budget Speech also mentions a huge investment of ₹11.11 lakh crore for capex in infrastructure.**
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saurabh pandey upsc



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- **The Budget has also proposed encouraging electric bus systems for cities and has provided ₹1,300 crore for it.**
- **E-buses offer an economical and eco-friendly operating system, but the main challenge is their higher upfront cost**

- **Solid waste management (SWM) is perhaps the biggest challenge that most cities face today.**
- **The Budget has announced a special thrust to introduce bankable projects for SWM in collaboration with State government and financial institutions.**
- **States and municipalities can also make use of the VGF for this purpose.**
- **Cities such as Indore, Madhya Pradesh, have shown the way in making SWM a financially viable proposition.**

- **The Street Vendors Act, 2014, was enacted by Parliament to regulate street vendors in public areas and protect their rights.**
- **It also envisaged the preparation of street-vending plans and the creation of street-vending zones, with a view to make street-vending a healthy and safe option for consumers and vendors.**
- **The Budget has proposed to develop 100 weekly ‘haats’ or street food hubs in select cities.**
- **Perhaps States need not feel constrained with the number and can facilitate all cities in preparing street-vending plans and developing street vending ‘haats’ in various parts of the city, according to felt needs.**

# Is immunity for the President and Governors absolute?

Does Article 361 grant absolute to the Governor even against criminal charges?

**Krishnadas Rajagopal**

**The story so far:**

A three-judge Bench headed by the Chief Justice of India D.Y. Chandrachud has impleaded the Union government and sought assistance from the Attorney General of India to decide if a “blanket” immunity granted under Article 361 to the President and Governors, while in office, from criminal proceedings undermines fairness, constitutional morality and violates fundamental rights to equal protection of the law and fair trial.

**What is the case?**

The question came up in a petition filed by a contractual woman employee with the Raj Bhavan who has accused West Bengal Governor C.V. Ananda Bose of sexual harassment and molestation.

The woman, identified as ‘XXX’ in Supreme Court records to protect her identity, said the “absolute immunity” given to the Governor is based on the

victorian belief that the “King can do no wrong”. She said the police have treated her complaint against the constitutional authority in a “cavalier manner” citing the immunity clause. She said the only option left to her is to wait for the Governor to demit office for the investigation to commence on her complaint of gender violence. She, however, fears that the delay in the criminal investigation against such a powerful person may eventually deny her justice during trial. She has urged the court to mandate the State of West Bengal through its police machinery to carry out an investigation. The employee has also asked the court to frame guidelines and qualify the extent of the immunity.

**Do Governors have immunity?**

Article 361 (1) provides that the President and Governors are not answerable to any court for acts done in exercise and performance of their powers and duties.

However the first proviso to Article 361(1) allows the conduct of the President

to be reviewed by any court, tribunal or body designated by either House of Parliament for the investigation of a charge under Article 61 (impeachment for violation of the Constitution). The second proviso to Article 361(1) holds that the immunity cannot stop a person from suing the Centre or State concerned.

The clause in question before the Supreme Court in the current case is clause (2) of Article 361 which mandates that “no criminal proceedings whatsoever shall be instituted or continued against the President, or the Governor of a State, in any court during his term of office”. The apex court has decided to interpret clause (2) of Article 361 to determine when exactly could criminal proceedings be instituted against a President or Governor. In short, the court has decided to rattle the protective cover of immunity to see if it is “unfettered or unbridled”.

Interestingly, the Constituent Assembly debates on Article 361 (Draft Article 302) in September 1949 show that a Member had indeed found the language of clause

(2) vague. The discussion concerned the phrase “during the term of his office” in Article 361(2). The Member had queried if this would mean the President or a Governor could enjoy immunity by continuing in office despite committing a criminal act. The question was left open.

**What are the arguments raised?**

The petitioner argues that a bar on criminal proceedings under Article 361(2) does not extend to illegal acts or those which “strike at the roots” of a citizen’s fundamental rights. The alleged actions of Governor Bose infringed upon her right to life under Article 21 of the Constitution, she submitted. The immunity under Article 361 cannot impair the police’s powers to investigate the offence or even name the perpetrator in the complaint/FIR. No part of the powers of the Governor provide for him to sexually abuse employees, the employee said.

The Supreme Court, in *Rameshwar Prasad vs. Union of India*, had interpreted that ‘civil immunity’ under Article 361(4) did not take away the power of citizens to challenge the actions of the President or Governors on the ground of ‘malafides’. An analogy could be drawn to interpret criminal immunity the same way. The petition referred to a Madhya Pradesh High Court ruling in *Ram Naresh vs State of Madhya Pradesh*, which had held that the immunity would not impair the police’s powers to investigate an offence, which included recording the Governor’s statement.

## THE GIST

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# Streets turn into rivers as Typhoon Gaemi blows past Philippines

**Agence France-Press**  
MANILA

Relentless rain drenched the northern Philippines on Wednesday, triggering floods in Manila and deadly landslips as Typhoon Gaemi intensified the seasonal monsoon.

Rescuers were deployed across the densely populated capital to help evacuate people from low-lying homes after downpours turned streets into rivers, trapping vehicles.

People clutched flimsy umbrellas as they waded through thigh-deep murky water or used small boats and shopping trolleys to move around.

“The disturbance it caused is great. The waters reached the second floor of our house,” Nora Clet, a resident, said.



**Helping hand:** Residents in Quezon city in Manila being rescued on Wednesday after Typhoon Gaemi hit Philippines. GETTY IMAGES

Restaurant employee Rex Morano said he was not able to work due to the “very high” floodwaters.

A state of calamity was declared for Manila, unlocking funds for relief efforts, after forecasts warned of “serious flooding” in some areas.

Government offices were shut and classes suspended, more than 100 domestic and international flights were cancelled, and tens of thousands of customers lost power because of the weather.

Some shopping malls and churches offered tem-

porary shelter to people affected.

“Many areas are flooded so we have rescuers deployed all over the city. There is an overwhelming number of people asking for help,” Peachy de Leon, a disaster official in suburban Manila, said.

“We were told last night the rain will not hit us, then the rain suddenly poured so we were quite shocked. There is an ongoing search and rescue now.”

Typhoon Gaemi, which has swept past the Philippines as it heads towards Taiwan, intensified the southwest monsoon rains typical for this time of year.

“Usually the peak of rainy season is July and August and it so happens that there is a typhoon in the

eastern waters of the Philippines that enhances the southwest monsoon,” senior weather specialist Glaiza Escullar said.

More than 200 mm of rain fell in the capital in the 24 hours to Wednesday morning, Ms. Escullar said, which was “not unusual”.

More heavy rain was expected on Thursday.

Landslips killed a pregnant woman and three children in Batangas province, south of Manila, and a woman and her five-year-old child in Pampanga province, north of the capital, police and disaster officials said Wednesday.

Three major roads were blocked by landslides in the mountainous Benguet province.

That takes the death toll from heavy rains over swaths of the country in

the past two weeks to at least 14, as tens of thousands sheltered in evacuation centres.

## Critical situation

President Ferdinand Marcos ordered on Wednesday disaster response officials to ensure they had sufficient stockpiles of food for the hardest-hit areas because “their situation is critical”.

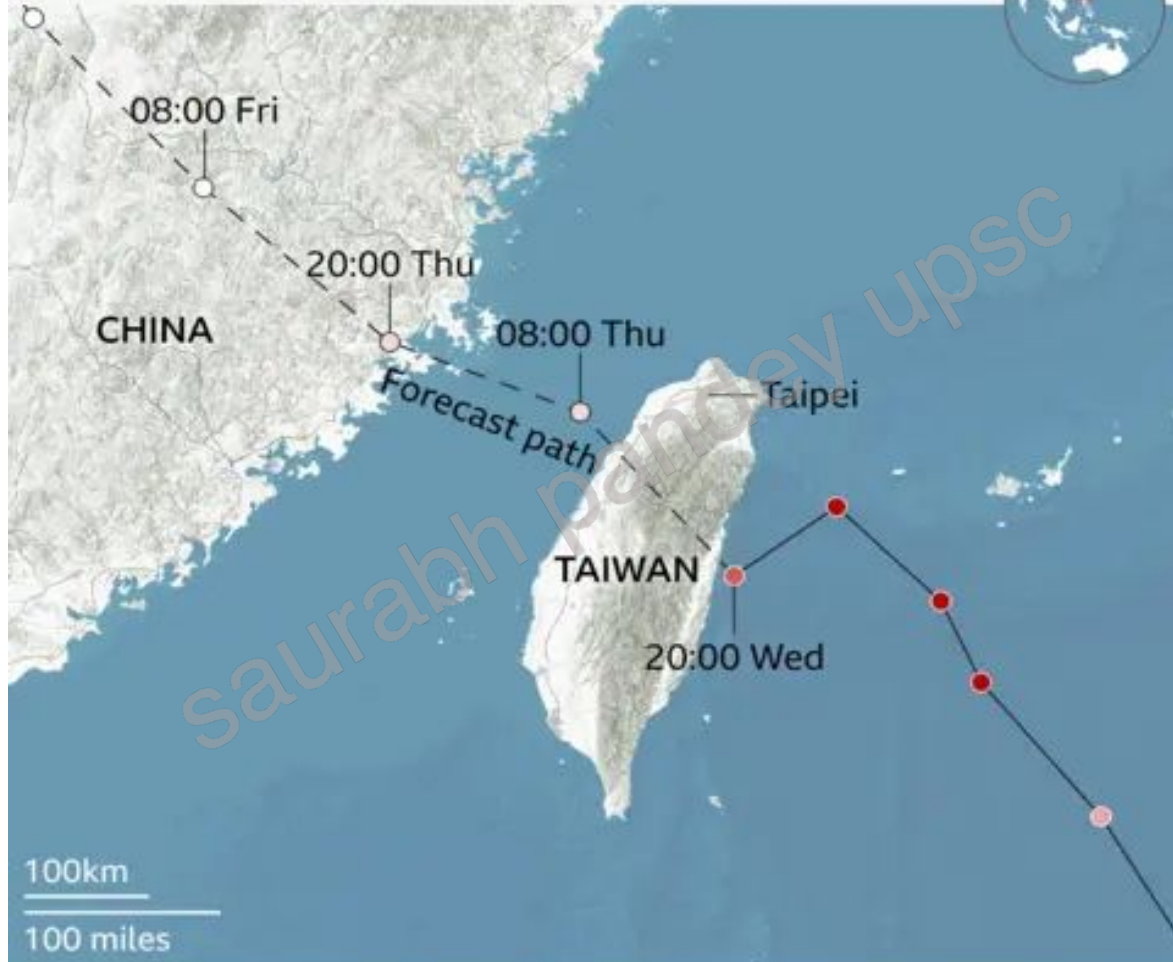
Hard-scrabble neighbourhoods near Manila Bay were badly affected, with most of the streets underwater and more than 2,000 people forced to flee their homes.

About 20 big storms and typhoons hit the Philippines or its surrounding waters each year, damaging homes and infrastructure and killing dozens of people.

# Typhoon Gaemi

- A powerful typhoon made landfall in northeastern Taiwan .
- Typhoons go by different names depending on where they occur: typhoons are over the Northwest Pacific Ocean; hurricanes are on the North Atlantic Ocean and Northeast Pacific; cyclones happen over the South Pacific and Indian Ocean.
- All of these are a type of giant tropical storm with winds of at least 119km/h,

● Cat. 4 ● Cat. 3 ● Cat. 2 ● Cat. 1 ○ Tropical storm



CHINA

08:00 Fri

20:00 Thu

08:00 Thu

Taipei

TAIWAN

20:00 Wed

100km  
100 miles

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- **A number of factors contribute to the formation: the force brought by Earth's spin, warm and humid air above the sea surface and cold and unstable air in the atmosphere.**
- **Typhoons use warm and humid air as fuel, which is why they only occur near the equator.**
- **A typical typhoon forms due to high temperatures around the sea surface, as a result of which water evaporates and becomes warm and humid air.**
- **This air moves away from the surface, leaving an area of lower air pressure below.**

- **Air from surrounding areas with higher air pressure pushes into this lower pressure area.**
- **The new air then becomes warm and rises as well.**
- **As this process repeats, clouds are formed when the moist air cools off, and when the rain falls, wind increases, hence the thunderstorm.**
- **This is where the Coriolis force comes into play.**
- **The Coriolis force is caused by the Earth's rotation that deflects moving objects to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.**

- **When the wind speed reaches 63km/h, it is called a “tropical storm”, and by the time it reaches 119km/h, it is officially a tropical cyclone or typhoon, according to Nasa.**
- **When a typhoon approaches land, it can also be tracked by buoys, radars, ships and even a special type of plane called the reconnaissance aircraft**

## How does global warming affect typhoons?

- Typhoons are formed over relatively warm sea surfaces.
- With temperatures rising due to global warming, it is widely believed that the number of typhoons will greatly increase as a result.

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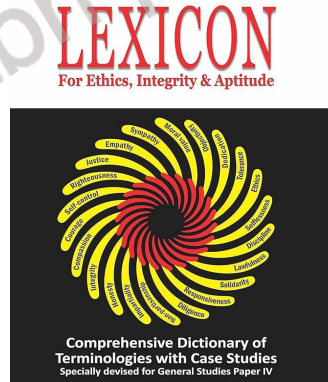
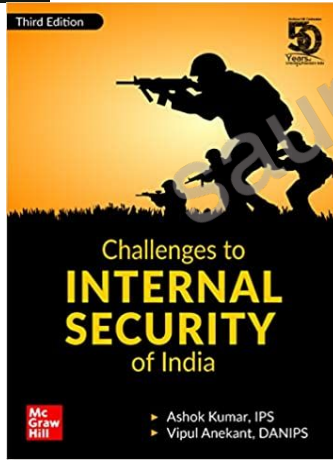
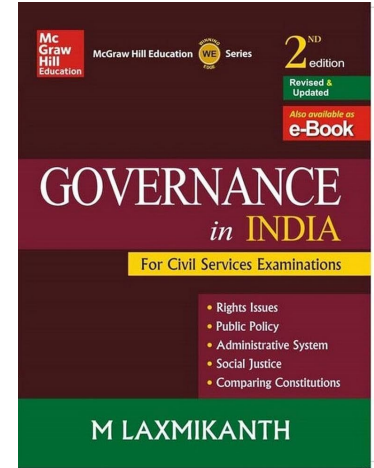
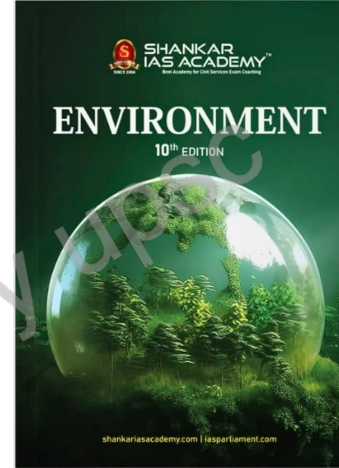
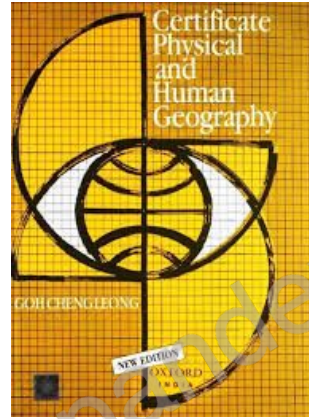
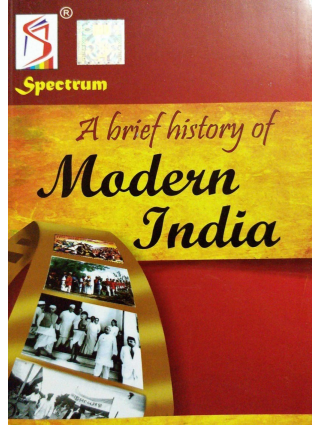
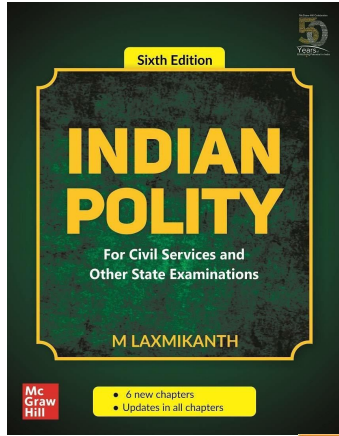
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