



Civil's IAS
Empowering Nation

MRP: ₹ 30

Weekly Current Affairs Compilations

A holistic magazine for UPSC Prelims, Mains and Interview Preparation

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- a. Interview and one to one Feedback session with experienced panels.
- b. Recorded CDs of the same will be provided to students

9. GS MAINS - MARKS ENHANCEMENT SERIES [MES]

- a. Coverage of General Studies 1,2,3,4 and ESSAY topics to boost students marks in Mains examination.

10. OPTIONAL

- a. Geography
- b. Gujarati Literature
- c. Anthropology
- d. Political Science
- e. Sociology
- f. Philosophy
- g. History

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- Fact 5 STATE OF SCHOOL

MODEL ANSWER

1. MOB VIOLENCE

TOPIC 1. CRYPTOCURRENCIES

1. Supreme Court Judgements

- a. *Supreme Court set aside an April 6, 2018, circular of Reserve Bank of India (RBI) that prohibited banks and entities regulated by it from providing services in relation to virtual currencies (VCs).*
- b. Besides, SC found that RBI did not consider availability of alternatives before issuing circular.
- c. The court held that the ban did not pass the “proportionality” test. The test of proportionality of any action by the government, the court held, must pass the test of Article 19(1)(g), which states that all citizens of the country will have the right to practice any profession, or carry on any occupation or trade and business.
- d. In a circular in 2018, the RBI had banned banks from dealing with virtual currency exchanges and individual holders on the grounds that these currencies had no underlying fiat and that it was necessary in the larger public interest to stop banks from providing any services related to these.
- e. Supreme Court held that the RBI directive came up short on the five-prong test to check proportionality — direct and immediate impact upon fundamental rights; the larger public interest sought to be ensured; necessity to restrict citizens’ freedom; inherent pernicious nature of the act prohibited or its capacity or tendency to be harmful to the general public; the possibility of achieving the same object by imposing a less drastic restraint.
- f. The court did not agree, however, with any other submission made by petitioners. The petitioners had submitted that the acceptance of Distributed Ledger Technology, or blockchain, and the rejection of virtual currencies by the RBI as well as the government, is a “contradiction” in terms.
- g. Apart from domestic agencies, RBI could not be faulted for not adopting a “light-touch” approach as adopted by other countries, court said, adding that there could be no comparison with other countries such as US, UK, Japan, or Singapore as they were developed economies. “Therefore, we will not test correctness of measure taken by RBI on basis of approach adopted by other countries,”.

2. **What are virtual currencies? Are they different from cryptocurrencies?**

- a. There is no globally accepted definition of what exactly virtual currency is.
- b. Some agencies have called it a method of exchange of value; others have labelled it a goods item, product or commodity.
- c. In its judgment, Supreme Court observed, “Every court which attempted to fix identity of virtual currencies, merely acted as 4 blind men in Anekantavada philosophy of Jainism, who attempt to describe an elephant, but end up describing only one physical feature of the elephant.”
- d. Satoshi Nakamoto widely regarded as founder of modern virtual currency bitcoin and underlying technology called **blockchain**, defined bitcoins as “**a new electronic cash system that’s fully peer-to-peer, with no trusted third party**”. This essentially meant there would be no central regulator for virtual currencies as they would be placed in a globally visible ledger, accessible to all users of technology. All users of such virtual currencies would be able to see and keep track of transactions taking place.
- e. **Virtual currency** is larger umbrella term for all forms of non-fiat currency being traded online. Virtual currencies are mostly created, distributed and accepted in local virtual networks.
- f. **Cryptocurrencies** on other hand, have an extra layer of security, in form of encryption algorithms.
 - i. Cryptographic methods are used to make currency as well as network on which they are being traded, secure.
 - ii. Most cryptocurrencies now operate on blockchain or distributed ledger technology, which allows everyone on network to keep track of transactions occurring globally.

3. **Are cryptocurrencies dangerous?**

- a. The jury is out on that. Organizations across the globe have called for caution while dealing with virtual currencies, while also warning that a blanket ban of any sort could push the entire system underground, which in turn would mean no regulation.
- b. In June 2013, the RBI had for the first time warned users, holders and traders of virtual currencies about the potential financial, operational, legal and customer protection and security-related risks that they were exposing themselves to.
- c. The following year, the Financial Action Task Force came out with a report that highlighted both legitimate uses and potential risks associated with virtual currencies. In a different report, it again said use of such virtual currencies was growing among terror financing groups.

4. Why did the RBI ban virtual currencies?

- a. Owing to the lack of any underlying fiat, episodes of excessive volatility in their value, and their anonymous nature which goes against global money-laundering rules, the RBI initially flagged its concerns on trade and use of the currency. Risks and concerns about data security and consumer protection on the one hand, and far-reaching potential impact on the effectiveness of monetary policy itself on the other hand, also had the RBI worried about virtual currencies.
- b. In its arguments in the Supreme Court, the RBI said it did not want these virtual currencies spreading like contagion, and had therefore, in the larger public interest, asked banks not to deal with people or exchanges dealing in these non-fiat currencies. The RBI argued that owing to a “significant spurt in the valuation of many virtual currencies and rapid growth in initial coin offerings”, virtual currencies were not safe for use.

5. Why did the case land in court?

- a. It has its origins in the writ petitions filed by the industry body, the Internet and Mobile Association of India, and several crypto exchanges, their shareholders, and traders. They challenged the RBI circular on many counts. Through that circular, the RBI had forbidden banks from extending a range of services to facilitate individuals and entities in dealing with cryptocurrencies. The list of such services included “maintaining accounts, registering, trading, settling, clearing, giving loans against virtual tokens, accepting them as collateral, opening accounts of exchanges dealing with them and transfer/receipt of money in accounts relating to purchase/sale of VCs [or virtual currencies].”
- b. The petitioners gave instances of virtual currency exchanges shutting down as a result of this circular. There was also a mention of how money lying in the account of one of the exchanges got frozen. The petitioners questioned the RBI’s power in prohibiting trading in virtual currencies; they wondered how the RBI could propose an outright ban when all other stakeholders such as the Department of Economic Affairs, the Securities and Exchange Board of India, the Central Board of Direct Taxes, among others, had batted for a regulatory regime; they also challenged the circular on the grounds of lack of proportionality (the idea that regulatory action should not be disproportionate to the goals such action seeks to achieve).

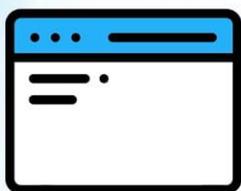
6. Why does the central banker find virtual currencies problematic?

- a. This can be understood by how RBI defined virtual currencies in 2013, which Court said was perhaps first time it took note of “technology risks in changing business environment”. The RBI defined such currency, Court order notes, “as a type of unregulated digital money, issued and controlled by its developers and used and accepted by members of a specific virtual community”.
- b. The absence of a centralized authority running it, seen as a plus by those who back cryptocurrencies, is viewed as a drawback by official monetary systems. There are other factors too. The value of such currencies has been driven purely by speculative impulses, and they have had a volatile journey all along.
- c. The anonymity that system ensures has also been misused in past, with cryptocurrencies said to enable funding of terrorist operations.
- d. There is also fear that it could undermine monetary system and render policies ineffective. And all these fears are shared by global financial system.

7. Will relief for the cryptocurrency ecosystem be short lived?

- a. Quite likely. The inter-Ministerial committee had recommended an outright ban on cryptocurrencies. A draft law was also put in place.
- b. This verdict may not have changed the direction in which our policymakers want to go with respect to cryptocurrencies.
- c. The Economic Times has reported that RBI is planning to file a review petition in Supreme Court.

What is Cryptocurrency?



Cryptocurrency is digital money created from code.



The cryptocurrency economy is monitored by a peer-to-peer internet protocol.



Cryptocurrency is an encrypted string of data or a hash, encoded to signify one unit of currency.

Examples of Cryptocurrency



Bitcoin Market Cap
\$127,331,758,431



Ethereum Market Cap
\$24,383,863,767



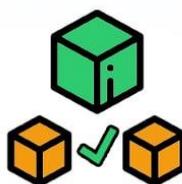
XRP Market Cap
\$18,187,690,567



Someone requests a transaction.

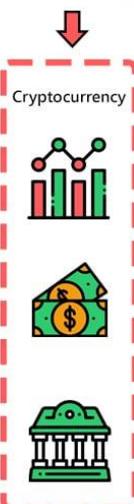


The requested transaction is broadcast to a P2P network consisting of computers known as nodes.



The P2P network of nodes validates the transaction and the user's status using known algorithms.

A verified transaction can involve cryptocurrency, contracts, records, or other information.



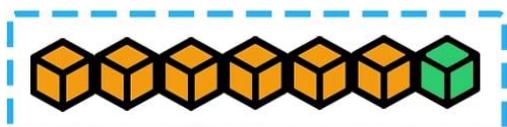
Has no intrinsic value in that it is not redeemable for another commodity.

Has no physical form and exists only in the network.

Its supply is not determined by a central bank, and the network is completely decentralized.



The transaction is complete!



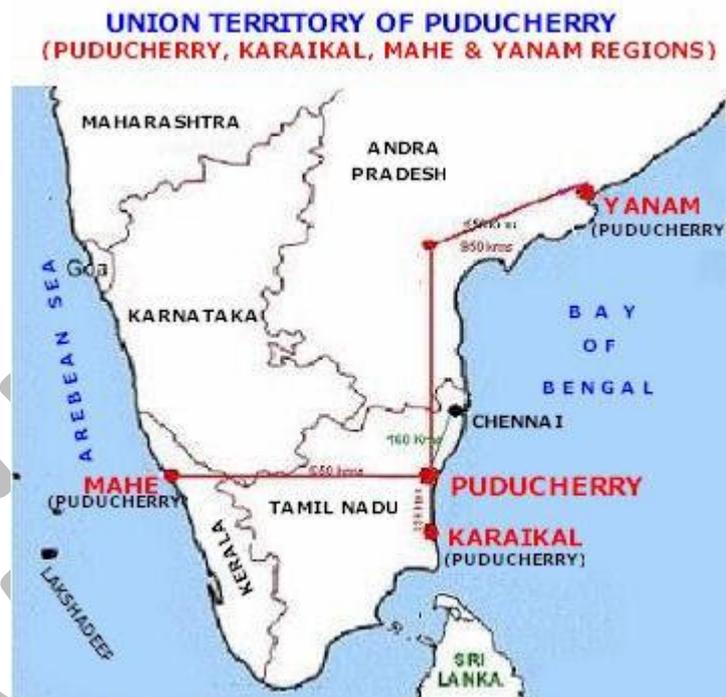
The new block is then added to the existing blockchain in a way that is permanent and unalterable.

Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.



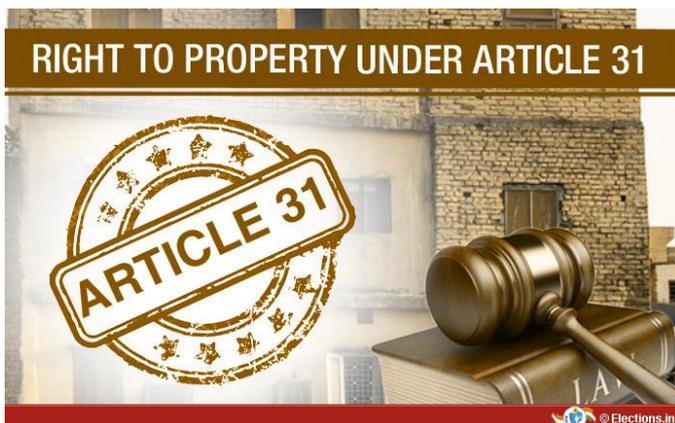
TOPIC 2. PUDUCHERRY

1. Madras High Court said a government is *“a trustee for the little man who should not have a perception that the running of the government is a gigantic conspiracy”*.
 - a. held that Puducherry’s Lieutenant Governor and elected government should act in unison
 - b. State legislatures were a creation of Constitution, whereas Union Territory legislatures were created under a law such as Government of Union Territories Act, 1963.
 - c. “To say Lieutenant Governor has an integral role has also to be understood in light that it is neither meant to be overwhelmingly awkward or overreaching but at same time is not a mere illusory role. The role is that of a governing mechanism in true sense that controls and acts as a bridge between Centre and popularly elected government,”.
 - d. It held that role of Puducherry’s Lieutenant Governor and that of an elected government in Union Territory were intertwined as per law, and therefore they were expected to act in unison and not in division.



TOPIC 3. RIGHT TO PROPERTY

1. The Supreme Court has reiterated that *forcible dispossession of a person of his private property without due process of law is a violation of human rights*.
2. In a recent judgment by a Bench led by Justice S.K. Kaul, the court stressed **that right to property is both a human right and a constitutional right** — the latter under Article 300A of the Constitution.
3. “It is accepted in every jurisprudence and by different political thinkers that some amount of property right is an indispensable safeguard against tyranny and economic oppression of the government... Property itself is the seed bed which must be conserved if other constitutional values are to flourish,” the judgment quoted a precedent.
4. The verdict came on the acquisition of a few acres in Sikkim by the State’s Agriculture department in 1980 for building the Progeny Orchard Regional Centre. The land was recorded in two names — 1.29 acres in the name of the Maharaja of Sikkim and 7.07 acres in the name of Man Bahadur Basnett, who was the father of the original appellant in this case. The judgment found that “in this case, the appellant could not have been forcibly dispossessed of her property without any legal sanction...”
5. The court gave the State three months’ time from the date of the judgment for it to “make up their mind as to what they want to do”. “Would they still like to retain the land by issuing a proper notification, or would they like to surrender possession of the land. In either eventuality, the question of payment for use and occupation would still arise, which will have to be determined in accordance with law,” the judgment said.



Constitution

Right to Property (300A)

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TOPIC 4. CORONAVIRUS

TERMS ASSOCIATED WITH CORONAVIRUS

PANDEMIC

1. World Health Organization declared coronavirus outbreak a pandemic after it spread across six continents and more than 100 countries.
2. ***A pandemic is the worldwide spread of a new disease that affects large numbers of people.***

EPIDEMIC

1. An epidemic is a ***regional outbreak of an illness that spreads unexpectedly***, according to the WHO.
2. Centers for Disease Control and Prevention defines ***it as an increase, often sudden, in the number of cases of a disease above normal expectations in a set population.***

COVID-19

1. The technical name for coronavirus is **SARS-CoV-2**.
2. The respiratory disease it causes has been named the “coronavirus disease 2019,” or COVID-19.
3. Coronaviruses are named for ***crown-like spikes that protrude from their surfaces, resembling sun’s corona.***
4. Coronaviruses are among a large number of viruses that are common in people and many animals.
5. The new virus, first detected in China, is believed to have originated in **bats**.
6. While antibiotics don’t work against viruses, researchers are testing drugs that could disrupt viral proteins and stop the infection.

STATE OF EMERGENCY

1. A state of emergency can be declared during **natural disasters, epidemics and other public health emergencies.**
2. Declaring a state of emergency, as more than a dozen states — including New York, New Jersey and Michigan — have done, **gives government officials the authority to take extra measures to protect public, such as suspending regulations or reallocating funds to mitigate spread of a disease.**

INCUBATION

1. The incubation period is the **time it takes for symptoms to appear after a person is infected.**
2. This time can be critical for prevention and control, and it allows health officials to quarantine or observe people who may have been exposed to the virus.
3. The new coronavirus has an incubation period of two to 14 days, with symptoms appearing about five days after infection in most cases.
4. During the incubation period, people may shed infectious virus particles before they exhibit symptoms, making it almost impossible to identify and isolate people who have the virus.

SOCIAL DISTANCING

1. The virus can easily spread in dense places — in a packed subway car, for example, or at a rally or concert.
2. Social distancing refers to **measures that are taken to increase physical space between people to slow spread of the virus.**
3. Examples include working from home, school closures and the postponement or cancellation of mass gatherings, such as the South by Southwest music, technology and film conference.
4. By maintaining a distance of **6 feet** from others when possible, people may limit the spread of the virus.

SELF-QUARANTINE

1. This is key to **keeping the virus from spreading**, along with measures like social distancing, frequent handwashing and wearing masks.
2. While isolation refers to separating sick people from people who aren't sick, quarantine refers to separation and restriction of movement of people who were exposed to virus to see if they become sick.
3. Who should self-quarantine?
 - a. If you've left an area with widespread or continuing transmission, including China, Iran, Italy and South Korea, you should self-quarantine at home for a period of 14 days from time you left.
4. While in quarantine, you shouldn't receive any visitors and must stay 3 to 6 feet from others at all times.
5. **once someone has been in isolation for 14 days and hasn't become ill, he or she is not considered to be a risk to other people.**

FATALITY RATE

1. The case fatality rate is **number of deaths divided by total number of confirmed cases**.
2. Eventually, scientists hope to have a more comprehensive number called **infection fatality rate**, which includes everyone who was infected with the virus.
3. The WHO estimates the fatality rate of the new coronavirus to be about **3%**, based on current data, but experts suggest 1% is more realistic.

R-NAUGHT

1. The R-naught, or **R0**, is a **virus's basic reproductive number** — an epidemiologic metric used to describe the contagiousness of infectious agents.
2. At its simplest, the basic reproductive number can show us how worried we should be about infection.
3. If R0 is above one, each case is expected to infect at least one other person on average, and virus is likely to keep spreading.
4. If it's less than one, a group of infected people are less likely to spread infection.
5. Research is still in its early stages, but some estimates suggest that each person with the new coronavirus could infect between two and four people.

CONTAINMENT

1. The virus's high transmission rate has made it difficult to effectively contain the outbreak. Containment refers to **use of any available tools to mitigate spread of a disease**.
2. Early on, Trump administration sought to slow spread of virus by barring entry into United States by any foreign nationals who had traveled to China in previous 14 days, excluding the immediate family members of American citizens or permanent residents. While that measure may have bought the government time to prepare, the administration made key missteps in its efforts to make widespread testing available in the early days of the outbreak, when containment would have been easier.
3. Coronavirus is particularly hard to contain because it is "reasonably transmissible" and some people who don't have a lot of symptoms can still pass the virus to others. "That's been part of the problem," , "but it also points to the fact to how interconnected we all are and how quickly this thing spread from Asia to the rest of the world."

TOPIC 5. ELECTORAL REFORMS

1. Election Commission of India (ECI) is considering **new voting methods, capping campaign expenditure of political parties, online registration of new voters at 17 years and ending social media campaigning 48 hours before polling** among recommendations proposed by working groups it set up in June 2019.
2. The nine working groups, constituted after the Lok Sabha election and comprising ECI officials and State Chief Electoral Officers, had presented their draft recommendations on February 18.
3. Among proposals is to issue electronic versions of the voter ID card — EPIC — for convenience of voters.
4. Among recommendations being considered is replacing all forms for **various voter services, including registration of new voter and change of address, with one single form.**
 - a. “Multiple numbers of forms create confusion and affect the efficiency in the process. It is now proposed to have a unified and simplified form for all services to voters.”
5. Another recommendation was to start online registration facilities at school or college-level for all prospective voters at 17 years of age, so they can be enrolled in electoral roll as soon as they become eligible at 18.
6. The ECI also recommended four cut-off dates in a year to enroll as a voter. Currently, January 1 is the qualifying date so those who turn 18 after that date are not eligible to vote the whole year. The ECI has proposed January 1, April 1, July 1 and October 1 as the qualifying dates.
7. Though not specifying the method, one of the recommendations was to look at the “possibility and feasibility of different voting methods”. The Hindu had reported on February 16 that the IIT-Madras was working on a prototype for an Aadhaar-linked remote voting system for the ECI.
8. In its letter inviting suggestions, the ECI said: **“The Commission has already implemented one-way online transfer of postal ballots for service and implemented the same for the whole country in 2019. It has been seen that approximately 30% of electors are not able to participate in elections for various reasons. Commission is exploring the possibility and feasibility of different voting methods which remains secure and safe to ease and improve the electoral participation.”**
9. Another recommendation was to impose a “silence period of 48 hours” before polling on social media and print media.

STEMMING THE ROT

There have been a plethora of suggestions and attempts to make political parties and the election process more transparent

REFORMS ORDERED BY SC SINCE 2003

Mar 2003	Says a voter has a fundamental right to know candidates' qualifications, assets, liabilities and criminal antecedents, if any	of two years or above	Sep 27 2013	Gives voters right to not back any candidate by ordering the none of the above (NOTA) option to be enabled in voting machines	
Jul 05 2013	Rules that freebies in poll manifestos vitiate electoral process; asks EC to frame guidelines after consulting with political parties	Declares unconstitutional Section 8(4) of Representation of the People Act that allowed a convicted MP/MLA to continue in office	Mar 10 2014	Sets one-year deadline for lower courts to complete trial in cases involving MPs, MLAs	
Jul 10 2013	Orders automatic disqualification of MPs/ MLAs convicted of crimes attracting punishment	Sep 13 2013	Says knowing about a candidate is a voter's natural right and candidates will be rejected if they refuse to disclose any information on their election affidavit	Feb 5 2015	Rules a candidate's election can be declared 'null and void' due to non-disclosure of criminal antecedents



TOPIC 6. INDIAN OCEAN COMMISSION

1. India has been approved as an **observer state** for a five-nation grouping in **Western Indian Ocean**, which includes **Madagascar, Comoros, Seychelles, Mauritius and French Reunion**.
2. The decision to join IOC marks a part of government's push for greater salience in whole Indian Ocean Region (IOR), including what is called the Western or African Indian Ocean.
3. In December 2019, Ministry of External Affairs decided to include Madagascar, Comoros and Reunion as part of IOR (Indian Ocean Region) desk along with Sri Lanka, Maldives, Mauritius and Seychelles.
4. Subsequently, they have been incorporated into one single division under additional Secretary (Indo-Pacific).
5. **The IOC is also significant for its geographical location, as the islands sit around a "key choke-point" in the Indian Ocean — the Mozambique Channel.**
 - a. This channel is being watched more closely as U.S.-Iran tensions threaten Strait of Hormuz. Given China's growing presence in region, India hopes to increase its naval presence and gain support for its maritime projects across Indo-Pacific, beginning at East African shores.
6. **Indian Ocean Commission**
 - a. The Indian Ocean Commission is an intergovernmental organization that was created in 1982 at Port Louis, Mauritius and institutionalized in 1984 by the Victoria Agreement in Seychelles.
 - b. The COI is composed of five African Indian Ocean nations: Comoros, Madagascar, Mauritius, Réunion (an overseas region of France), and Seychelles.
 - c. These five islands share geographic proximity, historical and demographic relationships, natural resources and common development issues.
7. **Aims and Objectives of IOC**
 - a. Political and diplomatic cooperation,
 - b. Economic and commercial cooperation
 - c. Sustainable development in a globalisation context, cooperation in the field of agriculture, maritime fishing, and the conservation of resources and ecosystems
 - d. Strengthening of the regional cultural identity, cooperation in cultural, scientific, technical, educational and judicial fields.



TOPIC 7. SUNSPOTS

1. Sunspots are relatively cooler spots on Sun's surface.
2. Their number waxes and wanes in cycles that last 11 years approximately. We are currently at minimum of one such cycle.
3. Amidst claims that Sun would "go silent" and not give out sunspots for an extended period, a group from IISER Kolkata has shown that next sunspot cycle has begun, and Sun has indeed spoken.
4. From our safe distance of about **148 million km**, Sun appears to be sedate and constant. However, huge solar flares and coronal mass ejections spew material from its surface into outer space. They originate from sunspots, an important phenomenon that people have been following for hundreds of years.
5. **Sunspots occur in pairs, with a leader and a follower.**
6. They originate deep within Sun and become visible when they pop out. Their number is not constant but shows a minimum and then rises up to a maximum and then falls again in what is called solar cycle. So far, astronomers have documented 24 such cycles, last one ended in 2019.
7. Following a weakening trend in activity over the last few cycles, there were predictions that the Sun would go silent into a grand minimum in activity, with the disappearance of cycles. However, a team from IISER Kolkata has shown that there are signs that cycle 25 has just begun.
8. They used the data from the instrument Helioseismic and Magnetic Imager aboard NASA's space-based Solar Dynamics Observatory for their calculations.
9. "There has been a lot of controversy about solar cycle 25 stemming from observations of a weakening trend in solar activity over the past three sunspot cycles. This has led to speculation that the solar cycle is about to die, and we are going to enter a grand minimum in solar activity lasting many decades. Some groups have claimed that this would give rise to a mini ice age and cooling of global climate," says Dibyendu Nandi of IISER Kolkata who led the effort. "Our findings indicate that sunspot cycle 25 fields have already started appearing, implying that we are going to have a solar cycle. Speculation and predictions of a grand minimum are unfounded."
10. **Why is this so important to us on earth?**
 - a. After all the sunspots look small and are hardly even visible to us.
 - b. Contrary to this, sunspot activity may be correlated with climate on earth.
 - c. In period between 1645 and 1715, sunspot activity had come to a halt on Sun – a phenomenon referred to as **Maunder minimum**.
 - d. This coincided with extremely cold weather globally. So, sunspots may have a relevance to climate on earth.
 - e. Such links are tenuous, but definitely solar activity affects space weather, which can have an impact on space-based satellites, GPS, power grids and so on.
11. Given the high temperatures in the Sun, matter exists there in the form of plasma, where the electrons are stripped away from the nuclei. The Sun is made of hot ionized plasma whose motions generate magnetic fields in the solar interior by harnessing the energy of the plasma flows. This mechanism is known as the solar dynamo mechanism (or magnetohydrodynamic dynamo mechanism). "Simply stated, it is a process by which kinetic energy of plasma motions is converted to magnetic energy, which generates the magnetized sunspots, giving rise to the solar cycle," explains Prof. Nandi.
12. Because of the nature of the solar dynamo, the part of its magnetic field that gives rise to sunspots reverses direction when it moves from one solar cycle to another. This can be inferred by observing when the relative orientation of the sunspot pairs flip. Studying 74 such pairs of magnetic regions, the researchers find that in 41 the orientation corresponds to cycle 24, and in 33 the orientation corresponds to cycle 25. Thus, they conclude that the Sunspot cycle 25 is brewing within the solar interior.
13. "Small magnetic regions and a few full-grown sunspots with the magnetic polarity orientation that is expected of sunspot cycle 25 have already started appearing on the solar surface. This means that we have either already seen the start of sunspot cycle 25 or it is just about to start," says Prof. Nandi.

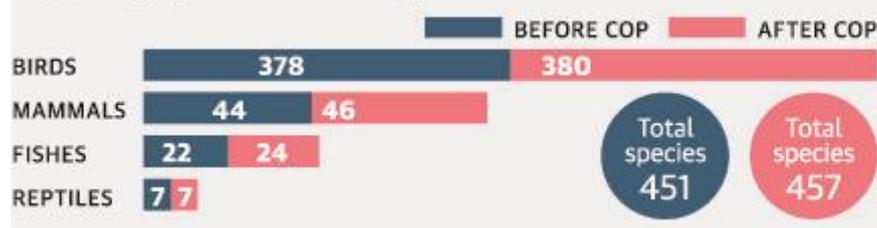
TOPIC 8. CONVENTION ON CONSERVATION OF MIGRATORY SPECIES (CMS)

1. With new additions to wildlife list put out by Convention on Conservation of Migratory Species (CMS), scientists say that **total number of migratory faunas from India comes to 457 species**.
2. Birds comprise 83% (380 species) of this figure.
3. Zoological Survey of India (ZSI) had for first time compiled list of migratory species of India under CMS before the Conference of Parties (COP 13) held in Gujarat recently. It had put the number at 451.
4. Six species were added later. They are **ASIAN ELEPHANT, GREAT INDIAN BUSTARD, BENGAL FLORICAN, OCEANIC WHITE-TIP SHARK, URIAL** and **SMOOTH HAMMERHEAD SHARK**.
5. Globally, more than 650 species are listed under the CMS appendices and India, with over 450 species, plays a very important role in their conservation.
6. Birds make up the bulk of migratory species. Before COP 13, the number of migratory bird species stood at 378 and now it has reached 380.
7. Bird family Muscicapidae has highest number of migratory species. **“The next highest group of migratory birds is raptors or birds of prey, such as eagles, owls, vultures and kites which are from family Accipitridae,”**.
8. India has three flyways (flight paths used by birds):
 - a. Central Asian flyway,
 - b. East Asian flyway and
 - c. East Asian–Australasian flyway.
9. Another group of birds that migrate in large numbers are **waders or shore birds**. In India, their migratory species number 41, followed by ducks (38) belonging to family Anatidae.
10. The estimate of 44 migratory mammal species in India has risen to 46 after COP 13.
11. The Asian elephant was added to Appendix I and urial to Appendix II.
12. **“The largest group of mammals is definitely bats belonging to family Vespertilionidae.**
13. **Dolphins are second highest group of mammals with nine migratory species of dolphins listed,”**.
14. COP 13 has focussed on transboundary species and corridor conservation.
15. Fish make up another important group of migratory species. Before COP 13, the ZSI had compiled 22 species, including 12 sharks and 10 ray fish. The oceanic white-tip shark and smooth hammerhead shark were then added. The total number of migratory fish species from India under CMS now stands at 24.
16. Seven reptiles, which include five species of turtles and the Indian gharial and saltwater crocodile, are among the CMS species found in India. There was no addition to the reptiles list.

The roving lot



List of migratory species in India as per Conservation of Migratory Species (CMS) Appendices



TOPIC 9. US - TALIBAN AGREEMENT

1. New Delhi has signaled its acceptance of U.S.-Taliban and U.S.-Afghanistan peace agreements in Doha and Kabul that aim to end 18-year war in Afghanistan, by sending envoys to witness them.
2. The US and Taliban signed an agreement for “Bringing Peace to Afghanistan”, which will enable the US and NATO to withdraw troops in the next 14 months. India attended the signing ceremony in Doha and was represented by Ambassador to Qatar P Kumaran.
3. The pact is between the “Islamic Emirate of Afghanistan which is not recognized by the United States as a state and is known as the Taliban” and the US. The four-page pact was signed between Zalmay Khalilzad, US Special Representative for Afghanistan Reconciliation, and Mullah Abdul Ghani Baradar, political head of the Taliban.
4. Separately, a three-page joint declaration between the Afghan government (Islamic Republic of Afghanistan) and the US was issued in Kabul.
5. US, Taliban sign peace accord aimed at ending 18 years of conflict in Afghanistan US peace envoy Zalmay Khalilzad, left, and Mullah Abdul Ghani Baradar, the Taliban group’s top political leader sign a peace agreement between Taliban and US officials in Doha, Qatar. (AP Photo)
6. **The key elements:**
 - a. **Troops withdrawal:** The US will draw down to 8,600 troops in 135 days and the NATO or coalition troop numbers will also be brought down, proportionately and simultaneously. And all troops will be out within 14 months — “all” would include “non-diplomatic civilian personnel” (could be interpreted to mean “intelligence” personnel).
 - b. US, Taliban sign peace accord aimed at ending 18 years of conflict in Afghanistan US Secretary of Defense Mark Esper, right, and Afghan President Ashraf Ghani, speak during a joint news conference in presidential palace in Kabul, Afghanistan, Saturday.
 - c. **Taliban commitment:** The main counter-terrorism commitment by the Taliban is that “Taliban will not allow any of its members, other individuals or groups, including al-Qaeda, to use the soil of Afghanistan to threaten the security of the United States and its allies”. While Miller said the reference to al-Qaeda is important, the pact is silent on other terrorist groups — such as anti-India groups Lashkar-e-Toiba or Jaish-e-Mohammed. Again, India, not being an US ally, is not covered under this pact.
 - d. UN sanctions on Taliban leaders to be removed by three months (by May 29) and US sanctions by August 27. The sanctions will be out before much progress is expected in the intra-Afghan dialogue.
 - e. **Prisoner release:** Miller identified it as a “possible trouble spot” because the US-Taliban agreement and the joint declaration differ, and it is not clear whether the Ashraf Ghani-led government is on board with this “pretty big up-front concession to Taliban”. The joint declaration says the US will facilitate “discussion with Taliban representatives on confidence building measures, to include determining the feasibility of releasing significant numbers of prisoners on both sides”. While there are no numbers or deadlines in the joint declaration, the US-Taliban pact says up to 5,000 imprisoned Taliban and up to 1,000 prisoners from “the other side” held by Taliban “will be released” by March 10 — which is when intra-Afghan negotiations are supposed to start, in Oslo.
 - f. **Ceasefire:** Identified as another potential “trouble spot”. The agreement states ceasefire will be simply “an item on the agenda” when intra-Afghan talks start and indicates actual ceasefire will come with the “completion” of an Afghan political agreement.
7. **Challenges ahead**
 - a. The joint declaration is a symbolic commitment to the Afghanistan government that the US is not abandoning it. The Taliban have got what they wanted: troops withdrawal, removal of sanctions, release of prisoners. This has also strengthened Pakistan, Taliban’s benefactor, and the Pakistan Army and the ISI’s influence appears to be on the rise. It has made it unambiguous that it wants an Islamic regime.

- b. The Afghan government has been completely sidelined during the talks between the US and Taliban. The future for the people of Afghanistan is uncertain and will depend on how Taliban honors its commitments and whether it goes back to the mediaeval practices of its 1996-2001 regime.
- c. Much will depend on whether the US and the Taliban are able to keep their ends of the bargain, and every step forward will be negotiated, and how the Afghan government and the political spectrum are involved.
- d. “This is only the first step towards peace. Peace in Afghanistan will be predicated now on how the Afghans talk to each other, independent of outside pressures. Like in 1989, 1992, 1996, and in 2001, Pakistan has the opportunity to play a constructive role. It frittered away the opportunities in the past. The most point is, will this time be any different?” said former Indian ambassador to Afghanistan Jayant Prasad.

8. India and Taliban

- a. For New Delhi, too, it is a tough task ahead. Quite predictably, Mullah Baradar did not name India among the countries that supported the peace process, but specially thanked Pakistan for the “support, work and assistance” provided.
- b. India and the Taliban have had a bitter past. New Delhi nurses bitter memories from the IC-814 hijack in 1999, when it had to release terrorists — including Maulana Masood Azhar who founded Jaish-e-Mohammed that went on to carry out terror attacks on Parliament (2001), in Pathankot (2016) and in Pulwama (2019). The Taliban perceived India as a hostile country, as India had supported the anti-Taliban force Northern Alliance in the 1990s.
- c. India never gave diplomatic and official recognition to the Taliban when it was in power during 1996-2001. In recent years, as US-Taliban negotiations picked up momentum, New Delhi has been in touch with all stakeholders. But its foreign policy establishment has shied away from engaging with the Taliban directly. Even when former envoy to Afghanistan Amar Sinha and former envoy to Pakistan T C A Raghavan were sent as “non-official representatives” to talks with the Taliban in Moscow in November 2017, they went as “observers” and did not engage in direct talks, although some conversations are learnt to have taken place on the sidelines.

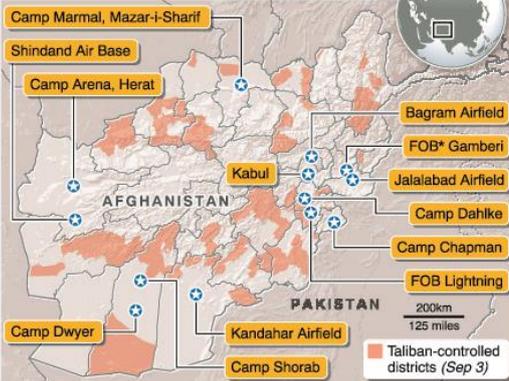
9. New Delhi and Kabul

- a. India has been backing the Ghani-led government and was among very few countries to congratulate Ghani on his victory. India’s proximity to Ghani also drew from their shared view of cross-border terrorism emanating from Pakistan. The government sent Foreign Secretary Harsh Vardhan Shringla to Kabul on Friday and Saturday to meet with Ghani and the senior political leadership, while its envoy in Doha went for the US-Taliban ceremony.
- b. Shringla has reiterated India’s consistent support for an “independent, sovereign, democratic, pluralistic and inclusive” Afghanistan in which interests of all sections of society are preserved. He also conveyed India’s support for “enduring and inclusive” peace and reconciliation which is “Afghan-led, Afghan-owned and Afghan-controlled”. His reference to an “end to externally sponsored terrorism” is a signal that the state and non-state actors must keep Pakistan-sponsored terrorism at bay.
- c. To convey India’s commitment, agreements for road projects in Bamyán and Mazar-e-Sharif provinces with Indian development assistance were signed during the visit.
- d. Many Indian diplomats say although there has not been formal contact with top Taliban leaders, the Indian mission has a fair amount of access to the Pashtun community throughout Afghanistan through community development projects of about \$3 billion. Due to these high-impact projects, diplomats feel India has gained goodwill among ordinary Afghans, the majority of whom are Pashtuns and some may be aligned with the Taliban as well.
- e. So, although Pakistan military and its ally Taliban have become dominant players in Kabul’s power circles, South Block insiders insist that it is not all that grim for New Delhi.

Winding down war

The signing on Saturday of an agreement between the United States and the Taliban has spurred hopes that it could lead to an end to almost two decades of conflict in Afghanistan

U.S. MILITARY BASES IN AFGHANISTAN



Key features of the agreement

- a) The deal lays the groundwork for intra-Afghan talks - negotiations between the Taliban and the Afghan government
- b) It sets out a timeline for the pullout of thousands of U.S. troops in exchange for guarantees from the Taliban not to allow militant groups such as al-Qaeda to operate
- c) However, Western powers

could continue to maintain military bases

- **Current troop level**
- **U.S.: 12,000-14,000**
- **Other countries: 8,500**
- d) Prisoner release
 - Taliban has agreed to release **1,000 Afghan prisoners**
 - In exchange, the Taliban expects the Afghan government to release their **5,000 fighters**



U.S. Special Representative Zalmay Khalilzad

Timeline of talks

September 2018: U.S. President Donald Trump appoints veteran Afghan-American diplomat Zalmay Khalilzad to negotiate with the Taliban

2018-2019: Khalilzad engages in intermittent talks with the Taliban, mainly in Qatar where the insurgents maintain a political office

Sept. 9, 2019: After a particularly intense escalation in Taliban attacks, including a Kabul bombing that killed a U.S. soldier, Trump scraps talks

Sept. 28: Afghan presidential elections are held but official results are not known for months

Nov. 24: Trump visits U.S. troops in Afghanistan on Thanksgiving, says the Taliban want to make a deal and signals the Qatar negotiations are back on

Feb. 15, 2020: Washington says a

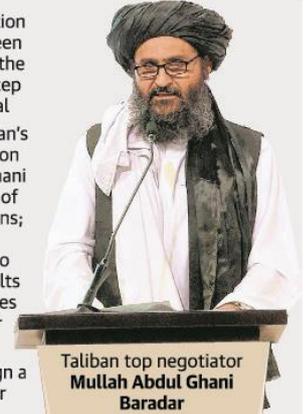


Afghan men in Jalalabad celebrating on Friday ahead of the U.S-Taliban agreement.

temporary "reduction in violence" has been agreed upon with the Taliban as a first step towards a final deal

Feb. 18: Afghanistan's Election Commission declares Ashraf Ghani the official winner of September elections; his rival Abdullah Abdullah refuses to recognise the results and instead declares himself the winner

Feb. 29: The U.S. and the Taliban sign a deal in Doha, Qatar



Taliban top negotiator Mullah Abdul Ghani Baradar

Source: Graphic News, Reuters, AP

Charting U.S. withdrawal

March 10: Release of 5,000 Taliban and 1,000 non-Taliban prisoners

withdraw from five military bases

May 29: Removal of UN Security Council sanctions against Taliban fighters; release of all remaining prisoners

August 27: Removal of U.S. sanctions against Taliban

April 29, 2021: Expected completion of the U.S.-Taliban agreement, full withdrawal of U.S. troops in five military bases

June 15: U.S. Coalition Forces reduce to 8,600,



The reduction in violence is a much-needed respite for Afghans ... All Taliban demands have been front-loaded, while the actual terms of the 'peace deal' are yet to be negotiated between the Taliban and the Afghan side, facilitated by the U.S. So, much of the heavy lifting remains

AMAR SINHA, NATIONAL SECURITY ADVISORY BOARD MEMBER

TOPIC 10. WHITE GIRAFFE

1. Poachers have killed two extremely rare white giraffes in northeast Kenya, leaving just one such animal in the world. The two giraffes to be killed were a mother and her seven-month-old calf. The mother's other male calf is the one that survived.
2. ***The white appearance of the giraffe is due to leucism, a genetic condition that causes skin cells to have no pigmentation.***
3. **The state of giraffes**
 - a. International Union for Conservation of Nature (IUCN) had classified giraffes as **vulnerable** in Red List in December 2016, when it noted that their population had dropped by over 40 per cent since 1985. Further, as per IUCN, large losses of the species have occurred in East Africa, where roughly 86,000 giraffes have died since 1985.
 - b. According to IUCN, the four principal factors that have led to a population decline among giraffes are **habitat loss, civil unrest, poaching and ecological issues.**
 - c. According to Hirola Conservation Programme, in Garissa County, ***emergence of farms along river Tana have blocked giraffe water points, because of which they have to force their way to river through farms.***
 - d. In order to keep giraffes away from the farms and to prevent them from ***destroying crops, farmers use snares and pitfall traps.***
4. **What causes the rare white giraffe to be white?**
 - a. In a 2017 update, Hirola Conservation Programme said that very first reports of a white giraffe in wild came in January 2016 in Tarangire National Park, Tanzania. A second sighting was reported in March 2016 in Ishaqbini conservancy in Garissa county, Kenya.
 - b. The condition leucism, which leads to ***white colour of these giraffes, is different from albinism, because of which animals lack melanin throughout their body.***
 - c. ***Leucism, on the other hand, is partial and leads to pale or patchy colouration of the skin, hair, feathers, scales or cuticles, but not the eyes, according to the Corvid Isle blog.***
 - d. Essentially, unlike albino animals, leucitic animals retain some essence of their normal pigmentation.



TOPIC 11. AT-1 BONDS

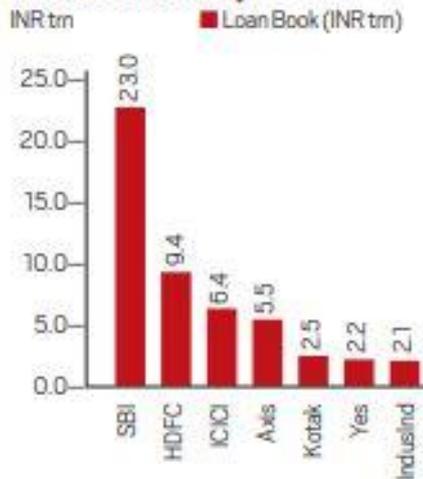
1. The RBI on March 5 announced it was superseding the Yes Bank Board of Directors for a period of 30 days “owing to serious deterioration in the financial position of the Bank”.
2. The objections of **Additional Tier 1 (AT-1) bondholders** of Yes Bank, who will be written down fully as per RBI’s reconstruction plan, are not tenable since these contracts provide for full write down after core common equity of banks falls below a certain threshold and triggers point of non-viability.
3. The entire plan has been vetted legally and there were series of discussion between government, RBI and potential investors, indicating that AT-1 bonds write down “will stand test of legal scrutiny.”
4. These are effectively hybrid instruments which carry higher risk when compared with secured bonds.
5. **What is AT1 capital?**
 - a. In a bank, there are **different tiers (hierarchies) of capital (money)**.
 - b. The top tier or T1 has “equity” capital — that is, money put in by owners and shareholders. It is riskiest category of capital. Then there are different types of bonds (such as AT1 and AT2), which a bank floats to raise money from the market. Last is the depositor — the one who parks her money in the bank’s savings account.
 - c. The depositor’s money is safest type of capital. When something goes wrong, the depositor is paid back first and the equity owner the last. When the going is good, the depositor earns the lowest reward (rate of return) while the equity owners earn the most profits.
 - d. What has created a problem is that RBI has said that capital raised via AT1 bonds, which is in the same tier of capital as equity (i.e., Tier 1), will be written off even though equity will not be.
 - e. Bond owners, that is mutual funds who loaned money to Yes Bank, argue that they are being unfairly written off. They argue that equity capital should be written off before AT1. But the RBI has thrown the rule book at them. In all likelihood, this matter will be only be decided in court.
6. **What is the RBI plan for Yes Bank?**
 - a. The RBI reconstruction plan for Yes Bank puts at risk nearly Rs 9,000 crore worth of AT-1 bonds, affecting bondholders including Nippon Life India AMC, mutual fund house Franklin Templeton, UTI Mutual Fund, SBI Pension Fund Trust and India bulls Housing Finance, among others.
 - b. The bondholders have reportedly postponed their legal challenge to RBI’s scheme and instead plan to negotiate with central bank regarding conversion of these instruments into equity shares after taking haircut of over 80 per cent.
7. **What do the rules say?**
 - a. As per RBI rules based on **Basel-III framework**, AT-1 bonds have principal loss absorption features, which can cause a full write-down or conversion to equity on breach of a pre-specified trigger of common Tier 1 capital ratio falling below 6.125 %.
 - b. The aggregate amount to be written-down / converted for all such instruments on breaching trigger level must be at least amount needed to immediately return bank’s CET1 ratio to the trigger level or, if this is not sufficient, full principal value of instruments, it further states.
8. **Can banks write down AT-1 bonds?**
 - a. Banks cannot use conversion or write down of AT1 instruments to support expansion of balance sheet.
 - b. It is only intended to replenish the equity of a bank in the event it is depleted by losses.

TOPIC 12. YES BANK CRISIS

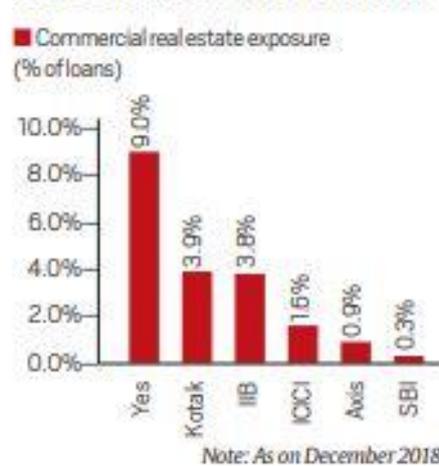
1. On March 5, Reserve Bank of India announced that it was superseding Yes Bank Board of Directors for a period of 30 days **“owing to serious deterioration in financial position of the Bank”**. But what created panic among general public, and in particular deposit holders in Yes Bank, was RBI’s decision to cap withdrawals at Rs 50,000.
2. The RBI said it had “no alternative but to” place the Bank under moratorium “in the absence of a credible revival plan, and in public interest and the interest of the bank’s depositors...”
3. Between 2004, when it was launched, and 2015, Yes Bank was one of buzziest banks. In 2015, UBS, a global financial services company, raised first red flag about its **asset quality**. The UBS report stated that Yes Bank had loaned more than its net worth to companies that were unlikely to pay back. However, Yes Bank continued to extend loans to several big firms and became fifth-largest private sector lender.
4. Yes Bank was overexposed to these **toxic assets**. It was only a matter of time that non-performing assets (NPAs) started rising in Yes Bank.
5. But, type of firms and sectors to which Yes Bank was lending resulted in start of crisis. According to one estimate, as much as 25% of all Yes Bank loans were extended to **Non-Banking Financial Companies, real estate firms, and the construction sector**.
6. These were three sectors of Indian economy that have struggled most over past few years. As Charts 2 and 3 show, Yes Bank was overexposed to these toxic assets. It was only a matter of time that non-performing assets (NPAs) started rising in Yes Bank.
7. Still, as Chart 4 shows, Yes Bank’s NPAs were not as alarmingly high as some of the other banks in the country. But what made it more susceptible to bankruptcy was its inability to honestly recognise its NPAs — on three different occasions, last being in November 2019, RBI pulled it up for under-reporting NPAs — and adequately provide for such bad loans. Chart 5 shows how Yes Bank fared poorly on provision coverage ratio, which essentially maps the ability of a bank to deal with NPAs.
8. **While debtors failing to pay back was the central problem, what further compounded Yes Bank’s financial problems was the reaction of its depositors.** As Yes Bank faltered on NPAs, its share price went down and public confidence in it fell. This reflected not only in depositors shying away from opening fresh accounts but also in massive withdrawals by existing depositors, who pulled out over Rs 18,000 crore between April and September last year. It is estimated that up to 20% more withdrawals could have happened between October and February.
9. **So essentially, Yes Bank lost out on capital (money) from both depositors and debtors.**
10. **Will Yes Bank’s fall affect other private sector banks?**
 - a. The banking system runs on trust. Yes Bank episode could likely push depositors away from private sector banks.
 - b. “With these developments, deposit growth for select private banks may slow, leading to lower credit growth”. The table above shows calculated risk-based scores of 11 private banks.
11. **What is RBI’s solution to Yes Bank’s revival; why has it triggered a controversy?**
 - a. On March 6, RBI released its “draft” revival plan for Yes Bank. Accordingly, State Bank of India could pick up 49% stake, and hold on to at least 26% for the next three years.
 - b. While this issue is still to be settled, another decision by RBI created consternation among investors of Yes Bank.
 - c. The RBI stated that so-called **Additional Tier 1 (or AT1) capital that was raised by Yes Bank would be completely written off**. In other words, those who lent money to Yes Bank under AT1 category of bonds would lose all their money.
 - d. As much as Rs 10,800 crore fall under this category, and many popular mutual funds like Franklin Templeton, UTI Mutual Fund, SBI Pension Fund Trust, etc. stand to lose out. Indirectly, a lot of common investors too will lose out on their investments.

YES BANK AND OTHERS

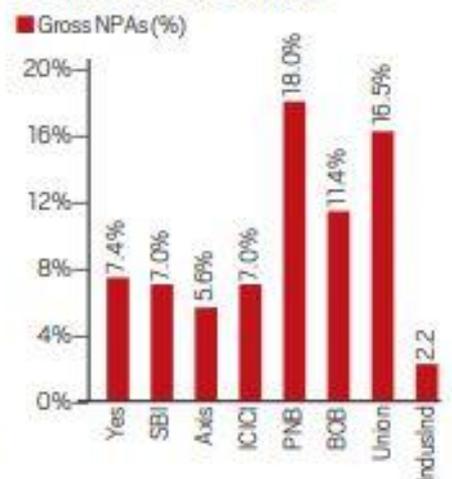
1. TOP BANKS (IN ORDER OF LOAN BOOK SIZE)



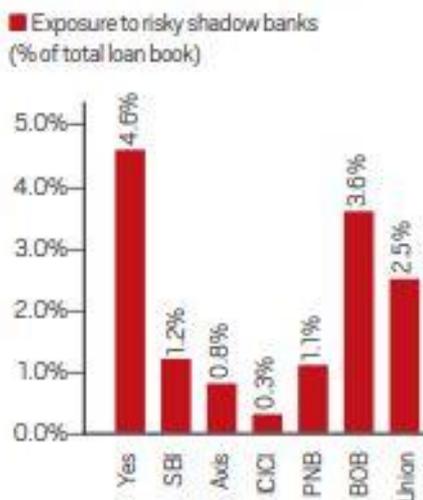
3. COMMERCIAL REAL ESTATE EXPOSURE: YES BK VS OTHERS



4. GROSS NPAs: YES BANK VS OTHER MAJOR BANKS



2. EXPOSURE TO RISKY SHADOW BANKS (% OF TOTAL LOAN BOOK)



Note: 'Risky' = Exposure to DHFL, ADAG NBFC, Religare fintech, Altico, IHFL, Edelweiss, Piramal capital and housing, and SREL

RISK-BASED SCORING

Rank	Bank	Risk Score
1	Yes*	99
2	Karnataka	67
3	South Indian	57
3	IndusInd	57
3	RBL	57
6	Federal	48
7	ICICI	43
8	Karur Vysya	42
9	DCB	40
10	Axis	26
11	City Union	15

Source: Company, Anand Rathi Research
 *Yes Bank for Q2 FY20
 Higher score reflects lower risk
 Lower ranks reflects lower valuations

5. PROVISION COVERAGE: YES BANK VS OTHERS BANKS



Note: NPA: Non Performing Assets. Yes Bank data are as on Q3 2019, while other banks reflect Q4 2019 data

Source: Nomura research

TOPIC 13. CORAL BLEACHING

1. Scientists have warned that Great Barrier Reef will face a **critical period of heat stress** over coming weeks, following most widespread coral bleaching natural world has ever endured.
2. Warming ocean temperatures, a sign of climate change, is associated with deteriorating health of Reef.
3. **Great Barrier Reef Marine Park**, which spreads across a length of over 2,300 km and is roughly size of Italy, is home to about **3,000 coral reefs, 600 continental islands, 1,625 type of fish, 133 varieties of shark and rays and 600 types of soft and hard corals.**
4. **What is coral bleaching?**
 - a. According to National Oceanic and Atmospheric Administration (NOAA), **when corals are stressed by changes in conditions such as temperature, light or nutrients, they expel algae living in their tissue, causing them to turn white, hence bleached.**
 - b. **Coral bleaching does not mean corals are dead, but make them vulnerable, hence increasing their mortality.**
 - c. Warm ocean temperatures are one condition that could lead to coral bleaching. For instance, in 2005, US lost half of its coral reefs in Caribbean in one year due to a massive bleaching event.
 - d. NOAA says that not all bleaching events are due to warmer temperatures. In Jan 2010, cold water temperatures in Florida Keys caused a coral bleaching event that resulted in some coral deaths.
5. **How does it affect Great Barrier Reef?**
 - a. The Great Barrier Reef, which covers an area of 344,400 sq. km makes up roughly 10 % of world's coral reef ecosystems. Today, reef is a Marine Park and World Heritage Area and supports a range of activities and contributes over AUD \$5.6 billion each year to Australian economy and is also responsible for creating over 70,000 jobs.
 - b. In 2019 Outlook Report prepared by Australian government, it said that climate change was greatest threat to Reef. **Other threats included coastal development, land-based run-off and direct human use, such as activities like illegal fishing.**
 - c. Significantly, coral bleaching events such as ones that took place in 2016 and 2017 have had severe impacts on Reef, causing changes in its ecosystem. However, some parts of reef that escaped impact of bleaching and cyclones still remain in good condition, the report said.
 - d. The 2016 bleaching caused by intense heat exposure affected northern third region of Reef, while 2017 bleaching affected central region.
 - e. As per latest Reef health update, while sea surface temperatures have remained relatively stable this week (until March 5, 2020), temperature is still above normal for this time of year. As of March 3, most of marine park varies between 0.5^o-1.5^oCelsius above normal. In some inshore areas temperature is 2.5-3^oCelsius warmer.

CORAL BLEACHING

Have you ever wondered how a coral becomes bleached?

HEALTHY CORAL
1 Coral and algae depend on each other to survive.

STRESSED CORAL
2 If stressed, algae leaves the coral.

BLEACHED CORAL
3 Coral is left bleached and vulnerable.

WHAT CAUSES CORAL BLEACHING?

- Change in ocean temperature**
Increased ocean temperature caused by climate change is the leading cause of coral bleaching.
- Runoff and pollution**
Storm generated precipitation can rapidly dilute ocean water and runoff can carry pollutants — these can bleach near-shore corals.
- Overexposure to sunlight**
When temperatures are high, high solar irradiance contributes to bleaching in shallow-water corals.
- Extreme low tides**
Exposure to the air during extreme low tides can cause bleaching in shallow corals.

Corals have a symbiotic relationship with microscopic algae called zooxanthellae that live in their tissues. These algae are the coral's primary food source and give them their color.

When the symbiotic relationship becomes stressed due to increased ocean temperature or pollution, the algae leave the coral's tissue.

Without the algae, the coral loses its major source of food, turns white or very pale, and is more susceptible to disease.

NOAA's Coral Reef Conservation Program
<http://coralreef.noaa.gov/>

TOPIC 14. RUSSIA - TURKEY

1. After a six-hour meeting Presidents of Turkey and Russia, Recep Tayyip Erdogan and Vladimir Putin respectively, agreed on a **ceasefire deal to de-escalate the situation in Syria**, where country's nine-year-old war is currently raging in northwestern province of Idlib. In recent days, tensions have rapidly escalated in Idlib region between Turkish military and Syrian government forces of President Bashar al-Assad, which are backed by Russia.
2. Several agreements to end fighting in Idlib have collapsed in past.
3. According to figures presented by United Nations, since December, when Syrian government launched an offensive in Idlib, 10 lakh people have fled hostilities. The province borders Turkey, and the latter has closed the frontier to try and seal itself from the waves of displaced refugees.
4. As part of the truce, which came into effect at midnight Thursday, the two leaders agreed to open a 12-kilometre secure corridor near the M4 highway — this road runs through Idlib — and hold joint patrols along it from March 15, reported Reuters.
5. **Why the Erdogan-Putin meet is significant?**
 - a. Putin is among the central figures in the Syrian war, with Russian military assistance having enabled Assad to first stabilize and then take back territory from rebel forces.
 - b. **Idlib** remains the last battleground in the war and is among the few strongholds of the rebel opposition and other groups that have been attempting to overthrow Assad's regime since 2011. For Turkey, which is presently hosting some 36 lakh refugees, more conflict in Idlib would only serve to displace more people, pushing them towards the Turkish border.
 - c. According to an Al Jazeera report, at least 59 Turkish soldiers have been killed in the region since Turkey launched its military campaign here. An attack by Syrian government forces on February 27 killed 34 Turkish soldiers, following which Turkey launched Operation Spring Shield on March 1. Since the attack, Russia had rapidly increased its military presence in Syria, sending more warships to the war-stricken country than its usual pattern.
 - d. In response, Turkey had increased the escort protocol for Russians passing through the critical **Bosphorus Strait**. Russia had also scrambled to fill the vacuum created by the departure of US forces from some parts of Syria in October.
 - e. The proxy fighting between Turkey and Russia had increased possibility of a direct clash between their armed forces.



TOPIC 15. LOK SABHA MP IS SUSPENSION

1. What is the reason for suspending an MP?

- a. The general principle is that it is role and duty of the Speaker of Lok Sabha to maintain order so that the House can function smoothly. This is a daunting task even at the best of times.
- b. In order to ensure that proceedings are conducted in the proper manner, the Speaker is empowered to force a Member to withdraw from the House (for the remaining part of the day), or to place him/her under suspension.

2. What are the rules under which the Speaker acts?

- a. Rule Number 373 of the Rules of Procedure and Conduct of Business says: "The Speaker, if is of the opinion that the conduct of any Member is grossly disorderly, may direct such Member to withdraw immediately from the House, and any Member so ordered to withdraw shall do so forthwith and shall remain absent during the remainder of the day's sitting."

- b. To deal with more recalcitrant Members, the Speaker may take recourse to Rules 374 and 374A.

c. Rule 374 says:

- i. The Speaker may, if deems it necessary, name a Member who disregards the authority of Chair or abuses rules of House by persistently and willfully obstructing the business thereof.
- ii. If a Member is so named by the Speaker, the Speaker shall, on a motion being made forthwith put the question that the Member (naming such Member) be suspended from the service of the House for a period not exceeding the remainder of the session: Provided that the House may, at any time, on a motion being made, resolve that such suspension be terminated.
- iii. A member suspended under this rule shall forthwith withdraw from precincts of the House."

d. And what does rule 374A say?

- i. This clause was incorporated in the Rule Book on December 5, 2001. The intention was to skirt around the necessity of moving and adopting a motion for suspension.
- ii. Notwithstanding anything contained in rules 373 and 374, in the event of grave disorder occasioned by a Member coming into the well of the House or abusing the Rules of the House persistently and willfully obstructing its business by shouting slogans or otherwise, such Member shall, on being named by the Speaker, stand automatically suspended from the service of the House for five consecutive sittings or the remainder of the session, whichever is less: Provided that the House may, at any time, on a motion being made, resolve that such suspension be terminated.
- iii. On the Speaker announcing the suspension under this rule, the Member shall forthwith withdraw from the precincts of the House."

3. What is the procedure for revocation of a Member's suspension?

- a. While the Speaker is empowered to place a Member under suspension, the authority for revocation of this order is not vested in her.
- b. It is for the House, if it so desires, to resolve on a motion to revoke the suspension.

4. What happens in Rajya Sabha?

- a. Like the Speaker in Lok Sabha, the Chairman of the Rajya Sabha is empowered under Rule Number 255 of its Rule Book to "direct any Member whose conduct is in his opinion grossly disorderly to withdraw immediately" from the House.
- b. "...Any Member so ordered to withdraw shall do so forthwith and shall absent himself during the remainder of the day's meeting."
- c. The Chairman may "name a Member who disregards the authority of the Chair or abuses the rules of the Council by persistently and willfully obstructing" business. In such a situation, the House may adopt a motion suspending the Member from the service of the House for a period not exceeding the remainder of the session.
- d. The House may, however, by another motion, terminate the suspension.

e. Unlike the Speaker, however, the Rajya Sabha Chairman does not have the power to suspend a Member.

5. Is suspending an MP a common practice in Parliament?

- a. In November last year, Speaker Om Birla suspended two Congress Members. And in January 2019, Birla's predecessor in the Speaker's Chair, Sumitra Mahajan, suspended a total 45 Members belonging to the TDP and AIADMK after they continuously disrupted proceedings for days.
- b. On February 13, 2014, then Speaker Meira Kumar suspended 18 MPs from (undivided) Andhra Pradesh following pandemonium in the House. The suspended MPs were either supporting or opposing the creation of the separate state of Telangana.
- c. The House witnessed unprecedented scenes that day. L Rajagopal, an expelled Congress Member, had used pepper spray in the House. A Telugu Desam Member, M Venugopala Reddy, had smashed a mike. The suspended Members belonged to the Congress, Telugu Desam and YSR Congress.
- d. Before that, on September 2, 2014, nine Members were suspended for five days.
- e. On August 23, 2013, 12 Members were suspended for five days.
- f. And on April 24, 2012, eight Members were suspended for four days.
- g. On March 15, 1989, when Rajiv Gandhi was Prime Minister, as many as 63 Members were suspended from the Lok Sabha for three days.

6. Isn't the barring of an elected representative of the people an extreme step to take in order to curb unruly behavior?

- a. A balance has to be struck. There can be no question that the enforcement of the supreme authority of the Speaker is essential for smooth conduct of proceedings. However, it must be remembered that her job is to run the House, not to lord over it.
- b. The solution to unruly behavior has to be long-term and consistent with democratic values. A previous Speaker had ordered that television cameras be focused on the demonstrating members, so that people could see for themselves how their representatives were behaving in the House.
- c. A step in that same direction could be to discontinue the practice of herding people out of the visitors' gallery when the House witnesses chaos. It has been suggested that it may perhaps be a good idea to let them be — and to also reserve a few blocks in the gallery for schoolchildren, who could see for themselves the conduct of Members.
- d. What cannot, however, be denied is that Speakers' actions are often dictated more by expediency and the stand of the party that they belong to, rather than by the Rules and principles.
- e. So, the ruling party of the day invariably insists on the maintenance of discipline, just as the Opposition insists on its right to protest. And their positions change when their roles flip.

The Suspended

BJP MP Meenakshi Lekhi, who was in the Chair, charged the seven MPs with gross misconduct and formally named Gaurav Gogoi, TN Prathapan, Dean Kuriakose, Manicka Tagore, Rajmohan Unnithan, Benny Behanan and Gurjeet Singh Aujia



Lekhi then asked them to leave the premises of the Lok Sabha

● We saw revenge politics in House today, orders were given by the government and the chairperson suspended seven Congress MPs... What happened today is a tale of embarrassment in the history of Parliament

ADHIR RANJAN CHOWDHURY
Cong leader



● Snatching papers from the Speaker's table is utmost disrespect to the Chair. We also condemn such behaviour"



PRALHAD JOSHI
Parliamentary affairs minister

● Suspend us for a year but discuss the Delhi riots and heal the wounds of people: GOGOI

TOPIC 16. CLIMATE CHANGE AND GENDER VIOLENCE

1. Women and girls can suffer terribly in extreme weather situations and during natural disasters, when societies dictate certain behaviors and prohibit others, such as being out in public alone.
2. Ntoya Sande was 13 years old when she got married — against her will. **“I was sent to be married because of a shortage of food in the house,”** she said. Her parents used to have a small piece of land, but floods wiped out their harvest. “I tried to negotiate, to tell my parents that I wasn’t ready, that I didn’t want to get married, but they told me that I had to because that would mean one mouth less at the table.”
3. Sande lives in Malawi’s Nsanje province. Her story is one of thousands of cases highlighted in a recent study from International Union for Conservation of Nature (IUCN). Two years in making, report is largest and most comprehensive study to date on effects of climate change and environmental degradation on gender-based violence.
4. “This study shows us that the damage humanity is inflicting on nature can also fuel violence against women around the world — a link that has so far been largely overlooked.”. “This study adds to the urgency of halting environmental degradation alongside action to stop gender-based violence in all its forms and demonstrates that the two issues often need to be addressed together.”
5. Malawi isn’t the only place where minors are being married against their will to help their families survive climate disasters. According to the study, **girls in Ethiopia and South Sudan are also being sold off in marriage during extreme droughts, in exchange for cattle.**
6. The rate of child and forced marriages demonstrably increases in crisis situations. **“It’s simply a survival strategy: to get rid of a daughter to relieve pressure on family, or it’s only way to generate income,”** .
7. Women living on many of Africa’s coasts and lakes have also suffered as fish have become scarcer. Fishermen peddling their wares are now not only expecting money as payment — they’re also demanding sex. According to the IUCN study, this practice is now so common in western Kenya that it has a name: ***the Jaboya system.***
8. Growing resource scarcity also increases the risk that women and girls will be victims of violence. With increasing drought and desertification in the global south, more and more water sources and wells are drying up. Fetching water is often a woman’s job, and ***if they’re forced to walk farther for that water the risk of sexual assault also increases, especially in regions characterized by armed gangs.***
9. The ***same risk applies to gathering firewood.*** “That’s why we build wells in villages directly, or nearby, and try through reforestation efforts to plant trees near settlements,”. In so doing, they often rely on farmer-managed natural regeneration (FMNR), a planting technique which uses felled tree stumps and underground root systems.
10. Environmental crimes, such as **poaching and illegal resource extraction**, can also lead to gender-based violence. According to the IUCN study, threats and sexual violence such as rape are often used to target environmental activists to undermine their status within the community, and to prevent other women from working to preserve the environment from the construction of a new mine or dam, for example.
11. Similar strategies are also used in industrialized nations, as women who work on environmental issues are **threatened with rape on social media in order to intimidate and silence them.**
12. **REMEDIES**
 - a. In addition to practical measures, aid organizations have also called for changes to traditional gender roles. “We’ve seen great success when **religious leaders** use their influence to make it clear that men have no right to inflict violence against women,”. It’s also important that **girls and women know who they can contact after an assault**, and that they’re encouraged to do so.
 - b. World Vision has tried to counteract this form of sexual exploitation, in particular in eastern African region around Lake Victoria, where women have been given opportunity to breed fish in ponds. “This way, they can now set up their own businesses and sell fish without getting into violent situations,”.

- c. **“Diversifying their sources of income is most important way to protect women,”**. “If we help women to adapt to climate change and improve their income situation, everyone benefits — including children and men,”.
13. Both World Vision and Plan International also confirmed another of study’s observations: ***In places where women are responsible for agriculture, a sudden natural disaster or extreme weather event can have a dramatic effect on their social and family standing. If harvests are threatened or wiped out altogether, this can lead to violence — often from within their own families.***
 14. Women and girls can suffer terribly in extreme weather situations and during natural disasters, when societies dictate certain behaviors and prohibit others, such as being out in public alone.
 15. **Women are also more likely to die as a result of flooding in Bangladesh.** “These shelters are very cramped, and for a Bangladeshi woman it’s not appropriate to stand there face-to-face with men, or to use same toilet,” she said. “That’s why most women prefer to barricade themselves in their huts, where they’re often simply washed away by the floods.”
 16. But men also die because of these traditional societal roles. ***“In Australia, men are much more likely to commit suicide than women if they lose their land or their job,”*** . “Men receive significantly less help than women in crisis situations, which is primarily related to the traditional view of masculinity.”
 17. The issue of gender and climate has been a prominent feature of UN climate conferences since 2012.
 18. At most recent summit in Madrid in December participating states agreed on second Gender Action Plan, with goal to put women on an equal footing on all levels of climate policy — in institutions, but also in individual climate protection projects. **The aim is to reduce structural gender inequalities around world.**
 19. These inequalities also exist in Western industrialized societies. She referred to Germany’s Climate Protection Act, which plans to introduce higher CO2 prices in the coming years — increases which will especially affect poorer people.
 20. That includes many retirees and single parents, most of whom are women. if climate protection in Germany is to be equal for both genders, the government has to offer a better compensation than a simple commuter tax relief scheme.

Gendered Impacts of Weather and Climate

- **Availability of and access to water:** huge gender imbalances
Climate change → longer distances to fetch water → higher risk of violence / less time for education



- **Agriculture:** 60-70% of women in developing countries active
- **Gaps** in education, access to technology and decision-making schemes
- **Differences in preferred mode of communication:** word of mouth, radio, extension workers

TOPIC 17. SWAMP WALLABY

1. Researchers reported that **swamp wallaby**, a marsupial related to kangaroo, is pregnant throughout its adult life. It typically conceives a new embryo days before delivering newborn from its previous pregnancy.
2. The swamp wallaby is likely **only mammal pregnant and lactating all life long**.
3. **How is it possible?**
 - a. Female wallabies and kangaroos have two uteri and two separate ovaries.
 - b. At the end of a pregnancy in one uterus, a new embryo develops in the other uterus.
 - c. Kangaroos and wallabies regularly have an embryo in the uterus, a young joey in the pouch, and third semi-dependent young at foot, still drinking its mother's milk.
4. **DIFFERENCE:** In kangaroos new embryo is conceived a day or two after previous birth. In swamp wallaby (Wallabia bicolor), new conception happens one or two days before previous joey is delivered, after having used high-resolution ultrasound to track pregnancy and mating in 10 female swamp wallabies.
5. **What happens after:**
 - a. As soon as the mature foetus is born and settles in the pouch, the swamp wallaby arrests the development of the new embryo. This is called **embryonic diapause**, which happens in many animals to pause reproduction until the conditions are right — season, climate, food availability.
 - b. For wallabies, this is also to ensure that the new one is born only when the pouch is free again. If this did not happen, the swamp wallaby would be birthing new young every 30 days — it has a short gestation period — and its pouch could not support that.
6. **The hare parallel:**
 - a. There is only one other mammal, **European brown hare** (*Lepus europaeus*), that conceives additional embryos before giving birth. There are, however, two key differences. In the hare, the new embryos are conceived in the same uterus that is already supporting foetuses in late stages — which, the researchers note, may be all the more remarkable. The other difference is that only the swamp wallaby is pregnant all its life. ***“The hare is only pregnant with the possibility of conceiving new embryos during distinct breeding seasons over about 5-6 months of the year. The rest of the time it is not pregnant or lactating at all,”***
7. **Why it matters:**
 - a. it can tell us much about the **broader evolution of reproductive trends in mammals**.
 - b. Most mammals have long pregnancies that surpass length of **oestrous cycle** —fertile period when they mate and conceive. “Here we can see there is a marsupial that has continued pregnancy through the oestrous cycle for the first time, which tells us definitely that marsupials are not constrained by this time relative to all other mammals.
 - c. It is not general pattern in mammals to conceive during active pregnancy for many reasons,”. “... So by studying swamp wallaby or animals that do things differently or uniquely, we can discover novel molecules or mechanisms that might have applications for human pregnancy or disease.”

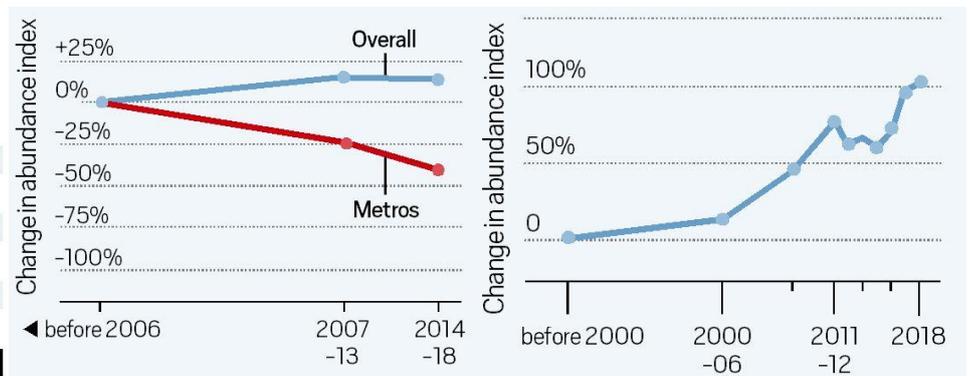


TOPIC 18. STATE OF INDIA'S BIRDS 2020 REPORT

1. The 'State of India's Birds 2020' report, first comprehensive **assessment of range, abundance and conservation status of birds in India**, has underlined concerns about some bird species and good news about a few others.
2. Released during CMS COP13, international conference held recently in Gandhinagar, report was prepared as a partnership among 10 organizations including **World Wildlife Fund, Wildlife Institute of India and Nature Biodiversity Authority-India**. Much of its data is based on citizen science — information provided by birdwatchers through various platforms.

ABUNDANCETRENDS

Category	Species: Long-term	Species: Current
Data deficient	375	185
Uncertain	226	531
Strong decline	58	72
Moderate decline	77	44
Stable	114	9
Moderate increase	5	6
Strong increase	7	15
Total	862*	862*



3. *5 of the 867 species have been combined

- **867** The number of bird species whose status was assessed. This assessment is based on three indices: long-term trend in abundance (over 25+ years); current annual trend in abundance (last 5 years); and distribution range size.
- **261** The number of species for which long-term trends could be determined. Of these, 52% species have declined since 2000 (with 22% declining strongly), 43% showed a long-term stable trend, and 5% showed an increasing trend.
- **146** The number of species for which current annual trends could be estimated. Nearly 80% are declining (almost 50% declining strongly), 6% are stable and 14% are increasing.
- **Range:** For all but 6 species, range size estimated — moderate sizes for 46% species, large/very large for 33%, restricted/very restricted for 21%.

4. Species on long-term decline

- Small minivet; common wood shrike; short-toed snake eagle; cotton teal; large cuckoo shrike; common greenshank; Rufous-tailed lark, oriental skylark, yellow-fronted pied woodpecker; Indian thick-knee; little pratincole; little stint, Sirkeer malkoha; blue rock thrush, crested treeswift, etc.

5. House Sparrow

- While the house sparrow has been in the news due to concerns about declining populations, with many people reporting seeing fewer sparrows than before, the report cites new analysis to show that the house sparrow has been fairly stable overall during the past 25+ years.
- While data do indicate a gradual decline in their abundance in urban centers, the species has an extremely large range across the country. Due to lack of evidence for countrywide decline, it is classified as of low conservation concern.

6. Indian peafowl

- The national bird since 1963, the species finds itself under the highest level of legal protection, placed in Schedule I of the Wildlife (Protection) Act, 1972 and further amendments.
- Peafowl are spread across plains and hills of India, except in extremely dry or wet regions. The abundance trend is that of a general increase, both long term and currently.
- This trend appears to result from a combination of range expansion (eg into Kerala, where it was formerly absent), and a population increase virtually throughout its distribution.

TOPIC 19. BS VI

1. The increase in pump price of fuel will partially offset cost that the oil marketing companies have paid.
2. Oil marketing company Indian Oil Corporation (IOC) said on February 28 that “there will definitely be a marginal increase in retail prices of fuels from April 1”. “we will not be burdening the consumers with a steep hike”.
3. **Why is the price of automobile fuels being raised?**
 - a. Starting April 1, Bharat Stage (BS) VI emission norms come into force. This will be an upgrade on the currently prevalent BS-IV and BS-III norms.
 - b. ***The BS emission standards are norms instituted by the Indian government to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles.***
 - c. India has been following the European (Euro) emission norms, although with a time lag.
 - d. The more stringent BS norm, lower is the tolerance for pollutants in automobile tailpipe emissions. ***In effect, as India moves up the BS scale, automobiles become cleaner and greener.***
 - e. Lower tailpipe emissions are the function of both more efficient engines, and cleaner fuels.
 - f. Oil refiners have invested heavily to upgrade their refineries to produce the cleaner, BS-VI compliant fuel.
 - g. The increase in the pump price of fuel will partially offset this cost that the oil marketing companies have paid. In effect, consumers will have to pay a little extra for auto fuel that is cleaner, and which, ultimately, is expected to lead to cleaner air.
4. **How is BS-VI fuel different from BS-IV fuel?**
 - a. The main difference between BS-IV and BS-VI (which is comparable to Euro 6) is in ***amount of sulfur in the fuel***. The lower Sulphur, cleaner fuel, so BS-VI fuel is essentially low-sulfur diesel and petrol.
 - b. BS-VI fuel is estimated to bring around an 80% reduction in sulfur content from 50 parts per million (ppm) to 10 ppm. NOx emissions from diesel cars are expected to come down by nearly 70% and, from cars with petrol engines by 25%.
5. **How will things change with the new fuels?**
 - a. Cleaner fuel alone will not make a dramatic difference to air pollution. For full benefits to be experienced, the introduction of higher-grade fuel must go hand in hand with rollout of BS-VI compliant vehicles as well.
 - b. While automakers will sell only BS-VI vehicles from April 1, all BS-IV vehicles sold before that date will stay on the road for as long as their registration is valid.
 - c. This, however, could be a concern because using BS-VI fuel in the current BS-IV engines (or conversely, running BS-VI engines on the current-grade fuel), may be both ineffective in curbing vehicular pollution, as well as damage the engine in the long run.
6. **What is the history of the adoption of emission norms in India?**
 - a. India introduced emission norms first in 1991 and tightened them in 1996, when most vehicle manufacturers had to incorporate technology upgrades such as catalytic converters to cut exhaust emissions.
 - b. Fuel specifications based on environmental considerations were notified first in April 1996, to be implemented by 2000, and incorporated in BIS 2000 standards.
 - c. Following the landmark Supreme Court order of April 1999, the Centre notified Bharat Stage-I (BIS 2000) and Bharat Stage-II norms, broadly equivalent to Euro I and Euro II respectively. BS-II was for the National Capital Region and other metros; BS-I for the rest of India.
 - d. From April 2005, in line with Auto Fuel Policy of 2003, BS-III and BS-II fuel quality norms came into existence for 13 major cities, and for rest of country respectively. From April 2010, BS-IV and BS-III norms were put in place in 13 major cities and rest of India respectively.
 - e. As per Policy roadmap, BS-V and BS-VI norms were to be implemented from April 1, 2022, and April 1, 2024 respectively.
 - f. But in November 2015, Road Transport Ministry issued a draft notification advancing the implementation of BS-V norms for new four-wheel vehicle models to April 1, 2019, and for existing models to April 1, 2020. The corresponding dates for BS-VI norms were brought forward to April 1, 2021, and April 1, 2022, respectively.

Mechanics of BS-VI

▶ Bharat Stage VI (BS-VI) norms will take effect in India from **1 April 2020**

▶ BS-VI is the **most advanced emission standard** for automobiles and is equivalent to Euro-VI norms

▶ In order to **reduce vehicular pollution**, the government decided to leapfrog from BS-IV to BS-VI

▶ The new norms make on-board diagnostics (**OBD**) **mandatory** for all vehicles



▶ The OBD unit can identify likely **areas of malfunction** by means of default codes stored on a computer

▶ For two-wheelers, manufacturers will introduce a **fuel injection system**—a first in India

What needs to be done to upgrade from BS-IV

BS-V requires a key fitment in the engine; BS-VI needs one more, but each comes with its set of problems

FOR BS V: DIESEL PARTICULATE FILTER

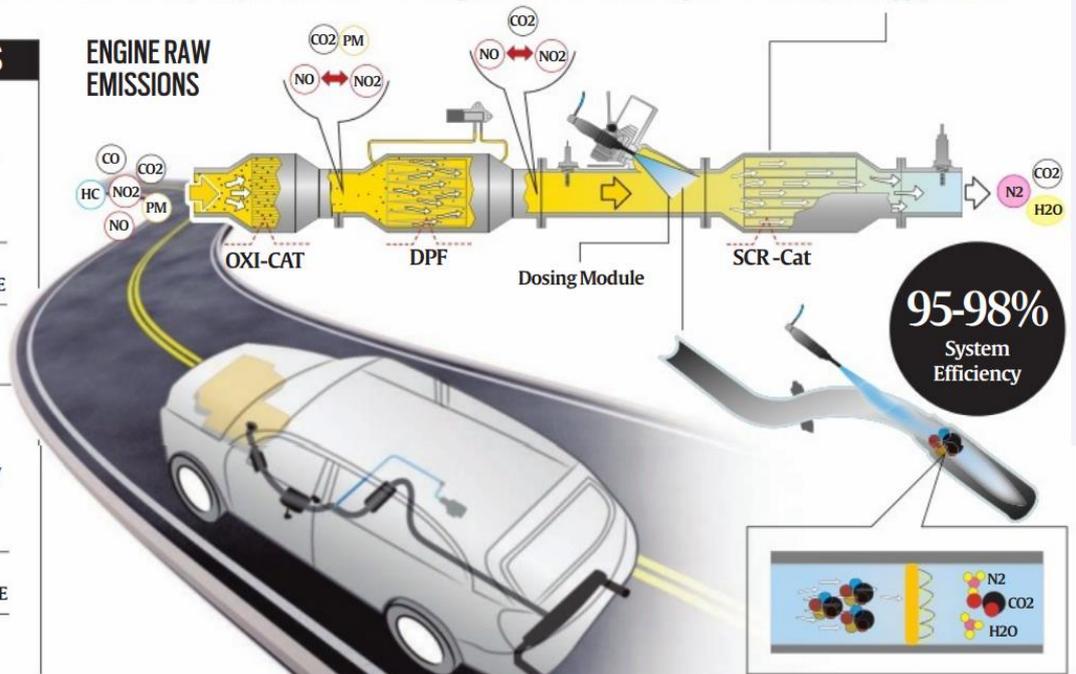
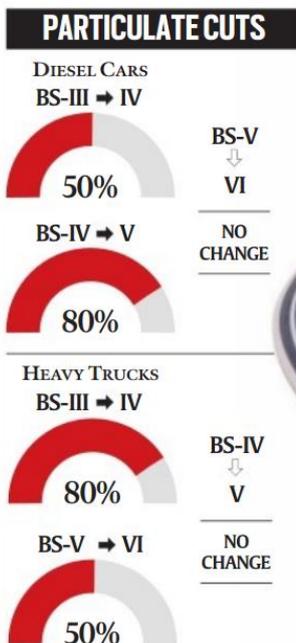
WHAT: DPF is a cylinder mounted vertically inside the engine compartment. Its function is to remove particulate matter, or soot, from the diesel exhaust. It needs temperatures of 600°C – difficult in Indian conditions

WHY A PROBLEM: Small cars (popular in India) with limited bonnet space would need major re-design to accommodate DPF. Making bonnet bigger may lead to car breaching the sub-4m mark, losing excise benefits

FOR BS VI: SELECTIVE CATALYTIC REDUCTION TECHNOLOGY

WHAT: SCR, or selective catalytic reduction module reduces oxides of nitrogen by injecting an aqueous solution (AUS 32) into the system. AUS 32 contains ammonia, for which a separate container needs to be put

WHY A PROBLEM: An anti-defect mechanism is needed to put the vehicle into limp mode if AUS 32 is not re-filled. Separately, infrastructure is needed for countrywide supply of AUS 32.

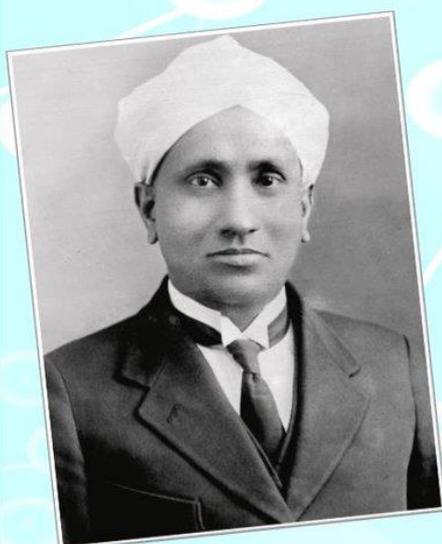


TOPIC 20. RAMAN EFFECT

1. In 1986, Government of India designated **February 28 as National Science Day**, to commemorate announcement of discovery of “Raman effect”.
2. The Raman effect won scientist Sir CV Raman the **Nobel Prize for physics in 1930**. It was also designated as an International Historic Chemical Landmark jointly by the American Chemical Society (ACS) and the Indian Association for the Cultivation of Science (IACS).
3. The theme of this year’s science day is “**Women in Science**”.
4. ***In 1928, Raman discovered that when a stream of light passes through a liquid, a fraction of the light scattered by the liquid is of a different color.***
5. Raman conducted his Nobel-prize winning research at IACS, Calcutta.
6. While he was educated entirely in India, Raman travelled to London for the first time in 1921, where his reputation in the study of optics and acoustics was known to physicists such as JJ Thomson and Lord Rutherford. A commemorative booklet prepared jointly by IACS and ACS on Raman mentions that his specialty was the study of vibrations and sounds of stringed instruments such as the Indian veena and tambura, and Indian percussion instruments such as the tabla and mridangam.
7. While Raman was returning from London aboard the SS Narkunda in a 15-day voyage, he started thinking about the color of the deep blue Mediterranean Sea.
8. Subsequently, ***Raman was able to show that the blue color of the water was due to the scattering of the sunlight by water molecules.*** By this time, he was obsessed with the phenomenon of light scattering.
9. Significantly, it notes that the Raman effect is “very weak” — this is because when object in question is small (smaller than a few nanometers), light will pass through it undisturbed. But a few times in a billion, light waves may interact with the particle. This could also explain why it was not discovered before.
10. ***In general, when light interacts with an object, it can either be reflected, refracted or transmitted. One of the things that scientists look at when light is scattered is if the particle it interacts with is able to change its energy. The Raman effect is when the change in the energy of the light is affected by the vibrations of the molecule or material under observation, leading to a change in its wavelength.***

National Science Day

28th February



National Science Day is celebrated to mark the discovery of the Raman Effect by Indian physicist Sir C.V. Raman

Raman Effect is a change of wavelength exhibited by some of the radiation scattered in a medium. The effect is specific to the molecules which cause it, and so can be used in spectroscopic analysis.

The basic objective of observation of National Science Day is to spread the message of importance of science and its application among the people.

The theme for the year 2017 is
“Science and Technology for Specially Abled Persons”

   /AkashvaniAIR

TOPIC 21. LEAP YEAR

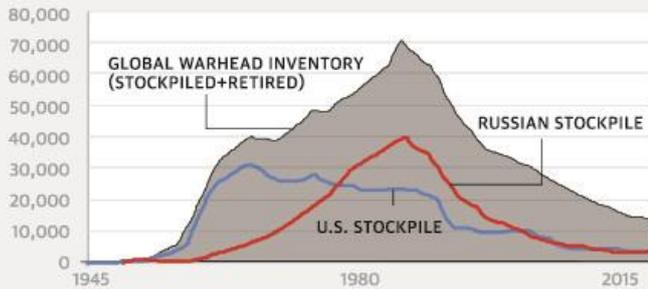
1. Leap years were introduced because calendar year was short, but they ended up making average calendar year longer than solar year. The difference: a small matter of 11 minutes and 14 seconds.
2. Saturday is February 29, a date that comes approximately once every four years. Approximately, not exactly, for there are exceptions to the leap year's cycle of four years.
3. **Rules and exceptions**
 - a. Leap years are always multiples of four **2016, 2020, 2024** but a year that is a multiple of four is not always a leap year.
 - b. There are exceptions, such as **1900 and 2100**, both multiples of four, yet neither a leap year.
 - c. **A year ending with 00 is obviously a multiple of four but is usually not a leap year.** These are exceptions. But again, there are exceptions to such exceptions. For example, 2000 ended with 00 but remained a leap year. As a result, many people alive today except some who are very young are likely to spend their lifetimes without skipping a leap year. Our ancestors skipped a leap year in 1900, while our descendants will skip one in 2100.
4. **Why have leap years?**
 - a. Our solar calendar is supposed to reflect one orbit of Earth around Sun. This helps in **anticipating seasons, maintaining crop cycles, setting school schedules**, etc.
 - b. Earth takes 365 days and a few hours to orbit Sun, which is why a year is usually 365 days long.
 - c. The actual period of orbit is close to (not exactly) 365 days and 6 hours, which means that calendar year is about 6 hours shorter than actual solar year. **To compensate, we have leap years.**
 - d. The leap year was introduced by scholars engaged by **Julius Caesar in 46 BC**, and made more precise from 12 AD. The reasoning went thus: if the calendar year is 365 days long, it is missing 6 hours. These 6 hours keep adding up, year after year. By end of 4 years, calendar years will have missed a total of 24 hours, or one full day. So, why not add an extra day once every four years.
 - e. Thus, Julian calendar had a year that was usually 365 days long, with a 366th day added once every four years. It appeared to make sense. Only, it was never going to work in long run.
 - f. This is because 365 days and 6 hours is an approximation. It is a very small approximation, but even these tiny errors were going to add up one day.
5. **The errors pile up**
 - a. To be more precise than earlier, Earth completes one orbit in 365 days, 5 hours, 48 minutes and 46 seconds. However, with three years of 365 days and one leap year of 366 days, average length of a year in Julian calendar was 365 days and 6 hours. This was longer, if ever slightly so, than 365 days, 5 hours, 48 minutes and 46 seconds.
 - b. In effect, leap year formula was an overcompensation. Leap years were introduced because calendar year was short, but they ended up making average calendar year longer than solar year. The difference: a small matter of 11 minutes and 14 seconds.
6. **What is a leap year? The leap year was introduced by scholars engaged by Julius Caesar in 46 BC, and made more precise from 12 AD.**
 - a. Minute by minute, second by second, the errors piled up, year after year, century after century. In 16th century, it was calculated that calendar years until then had accumulated 10 extra days. In 1582, Pope Gregory XIII ordered a drastic compensation by dropping 10 days from calendar, and October 4 that year was followed by October 15 very next day.
 - b. The need was for further reform, so that minutes and seconds would not accumulate again in future. The obvious thing to do was to reduce some leap years —about one leap year every century. And obvious candidates were years ending with 00. But if all "00 years" ceased to be leap years, calculations showed, it would result in another over-compensation. Therefore, some "00 years" needed to remain leap years.
 - c. Eventually, reform led to **Gregorian calendar**, which we follow today. The formula:
 - i. A year that is a multiple of 4 is a leap year; except:
 - ii. A year ending with 00 is not a leap year; except:
 - iii. A "00 year" in which 00 is preceded by a multiple of 4 (1600, 2000, 2400 etc.) remains a leap year.
 - iv. That is why 1900 and 2100 are not leap years, but 2000 is one.
7. **Is that it, finally?**
 - a. It can never be perfect. We try to clock Earth's orbit precisely down to last second, yet we follow a calendar with a whole number of days.
 - b. The calendar today is about 26 seconds off from Earth's orbital period, which adds up to one full day in 3,320 years.
 - c. There have been proposals for a future correction remove a leap year once every 4,000 years, or once every 3,200 years. Years 3200 and 4000, however, are still a long way away. As of 2020, not everyone is bothered.

FACT 1. NPT

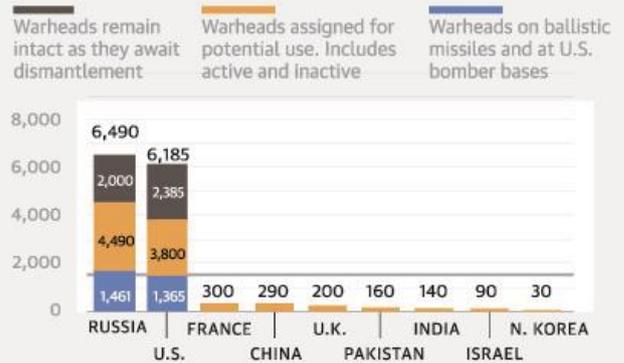
Nuclear race, slow but steady

The Non-Proliferation of Nuclear Weapons Treaty which became effective on March 5, 1970 has achieved much in the last 50 years, though the pace of change has dwindled recently. The initial progress was rapid, reducing the nuclear weapons in the world by around 90% from Cold War levels, but the final goal of complete disarmament is not on the horizon

AT A LESSER PACE | The number of nuclear weapons declined rapidly from the Cold War peak of 70,300 nuclear warheads in 1986 to around 14,000 as of mid-2019. But the rate of reduction has been progressively slowing in the past 25 years. The graph plots estimated global nuclear warhead inventories



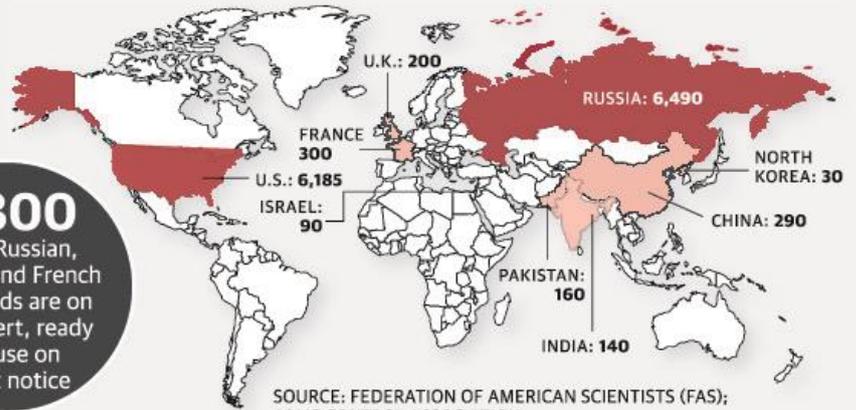
ACTION READY | Of the 14,000-odd estimated warheads, only around 9,500 are in military service with the rest awaiting dismantlement. The graph shows warheads that has been retired, stockpiled and strategically deployed



THE NINE NATIONS | Notwithstanding the former U.S. President John F. Kennedy's prediction that by 1975, there will be 10 to 20 nuclear states, the NPT has helped confine the count to nine. The map plots the number of estimated warheads possessed by these countries as of mid-2019.

- The U.S, Russia, and the U.K. are reducing their inventories, France and Israel have relatively stable inventories, while China, Pakistan, India, and North Korea are increasing their warheads

1,800
U.S., Russian, British and French warheads are on high alert, ready for use on short notice



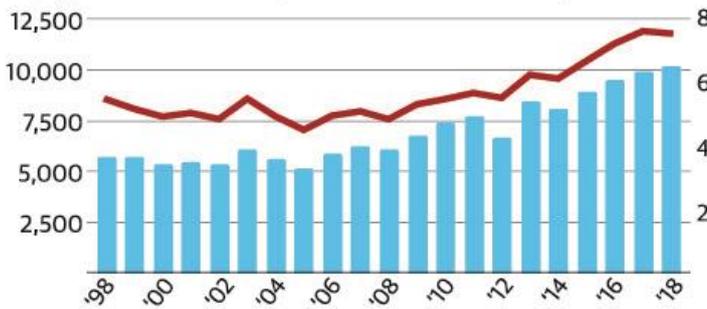
SOURCE: FEDERATION OF AMERICAN SCIENTISTS (FAS); ARMS CONTROL ASSOCIATION

FACT 3. STUDENT SUCIDES

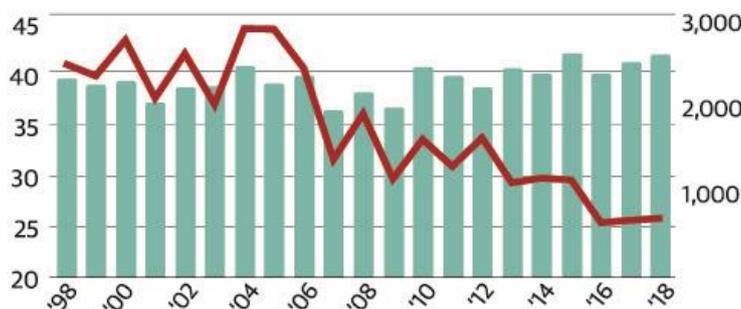
Student suicides

Compared to the early 2000s, the number of students who committed suicide nearly doubled in the late 2010s in India. Back then, while the main reason for student suicides was poor performance in examinations, lately other reasons such as family issues, illnesses and love affairs have become major factors. Between 2014 and 2018, most student suicides occurred in Maharashtra. By **Naresh Singaravelu** and **Vignesh Radhakrishnan**

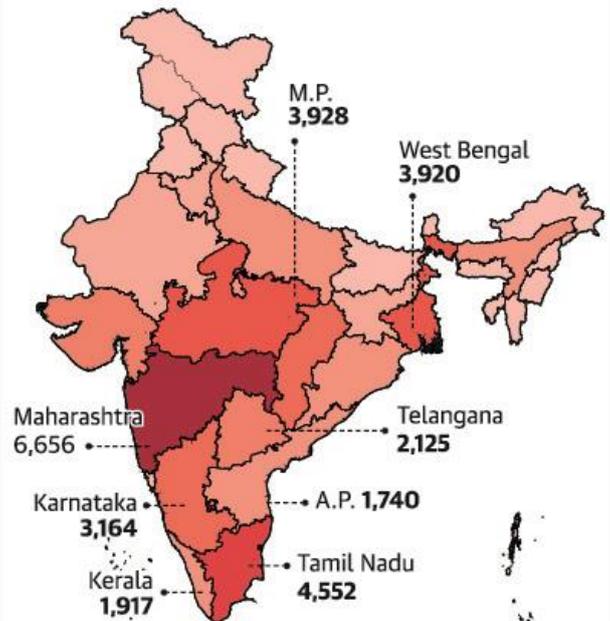
WORRYING RISE | An increasing number of students are committing suicide in India, with their share among all such deaths steadily going up over the years. The chart plots the number of student suicides (■, left axis) and its % share among all suicides (—, right axis). Since 2016, >7% of all suicides were by students



EXAM PRESSURE | The number of suicides due to poor performance in exams has remained stagnant over the years, with the share among student suicides* steadily going down. In 1998, suicides due to failure in exams formed about 41% of all student suicides, while in 2018, the share came down to 26%. The chart plots the number of suicides due to failure in exams (■, right axis) and its share among student suicides (—, left axis)



STATE OF AFFAIRS | The map depicts the total number of student suicides recorded between 2014 and 2018 across States. The darker the colour, the higher the number of student suicides. One in every four students who committed suicide in this period belonged to either Maharashtra or Tamil Nadu



Assistance for overcoming suicidal thoughts is available on Sneha's suicide prevention helpline 044-24640050 and iCALL (022-25521111 - available from Monday to Saturday 8 a.m. to 10 p.m.)

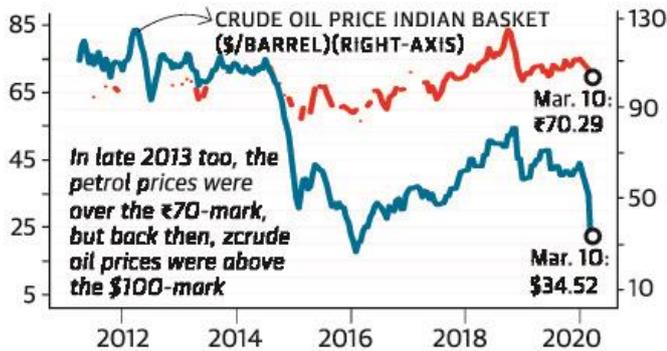
Source: National Crime Records Bureau

FACT 4. PETROL PRICING

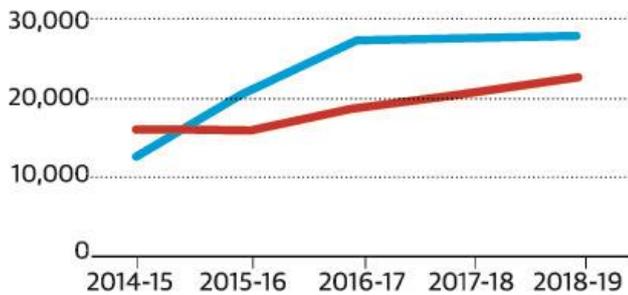
Not passing the buck

The dynamic pricing of petrol has not resulted in a fall in retail prices commensurate with crude oil price crashes. Crude oil prices have fallen again lately, coinciding with an economic slowdown, but the high share of central excise duties have resulted in retail prices remaining relatively high. By **Vignesh Radhakrishnan and Sumant Sen**

1. LOST IN TRANSLATION | Petrol prices in Delhi (—, left-axis) remained above the ₹70/litre mark on March 10. Since late-2014, crude oil has experienced price crashes on many occasions. But this has rarely translated into a reduction in retail petrol prices. This is largely due to the rupee's depreciation and a high share of excise duties

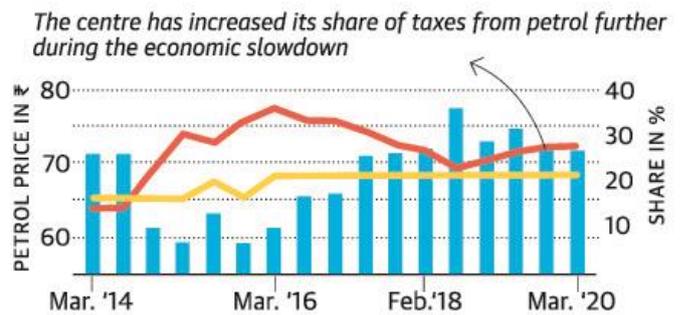


3. TAX AND CESS ACCRUAL | Due to an ever-increasing share of the central excise duty on petrol products, the government's revenue soared while that of the States' also gradually increased. Graph shows revenue earned by the Centre (—) and the States (—) in ₹crore



Source: PPAC, Indian oil corporation limited

2. CENTRE'S HIGH SHARE | The graph shows retail petrol price in Delhi (—) and the States' (—) and the Centre's share of revenue from it. While the States' share has remained constant, the Centre's has increased many times after late 2014, peaking in mid-2016. This explains why the retail price never dropped despite a huge crash in oil prices



4. STATES OF VAT | Telangana charges the highest VAT/ Sales Tax on petrol as of March 2020. Gujarat, Punjab and Arunachal Pradesh levy the least. The table shows VAT/ Sales tax range for various States as of March 2020

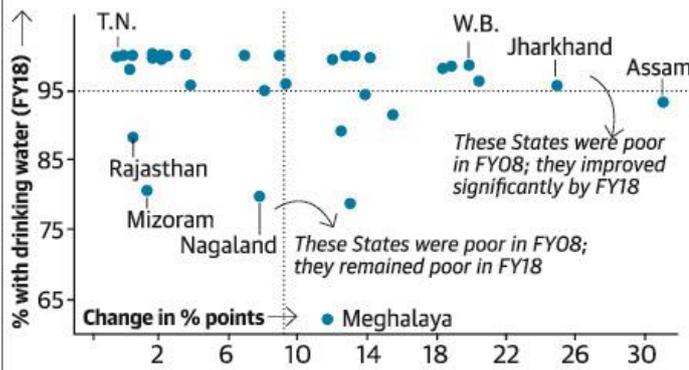
VAT (% range)	States
<20	Gujarat, Punjab, Arunachal
>=20 & <25	J & K, Tripura, Haryana, Bihar, Jharkhand, Meghalaya, Goa, Mizoram
>=25 & <30	Delhi, U.P, Maharashtra, Odisha, Chhattisgarh, H.P., Manipur, Nagaland, Sikkim, Uttarakhand, W.B.
>=30 & <35	T.N., M.P., Assam, Karnataka, A.P., Kerala, Rajasthan
>35	Telangana

FACT 5. STATE OF SCHOOL

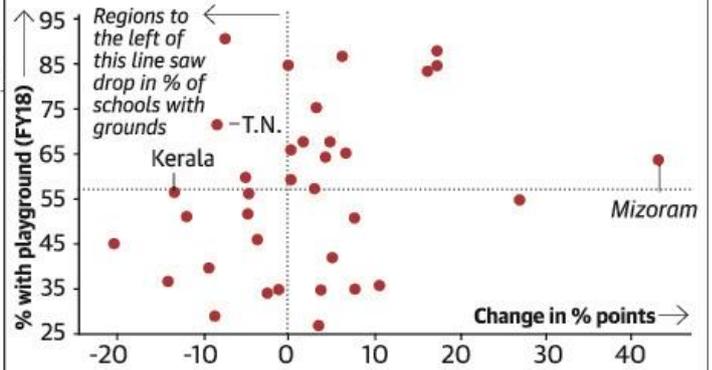
The poor state of schools

In many States, the share of schools with playgrounds came down in FY18 compared to FY10, according to data cited in a Parliamentary Standing Committee report. Many States, mostly located in the Northeast, continued to have a low proportion of schools with electricity connection. By **Naresh Singaravelu & Sumant Sen**

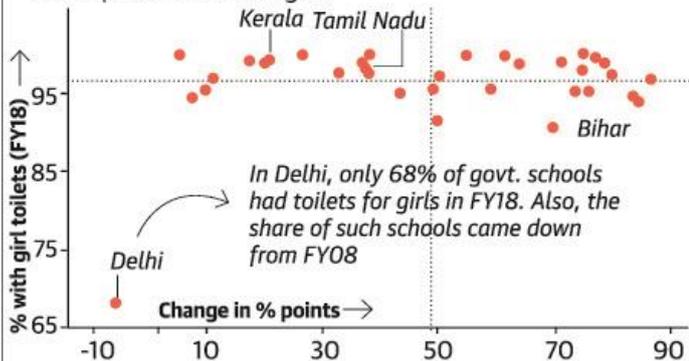
DRINKING WATER | The chart plots the share of govt. schools with drinking water facility as of FY18 against the change since FY08. For instance, 95% of schools in Jharkhand had the facility in FY18, a 25% points increase from FY08



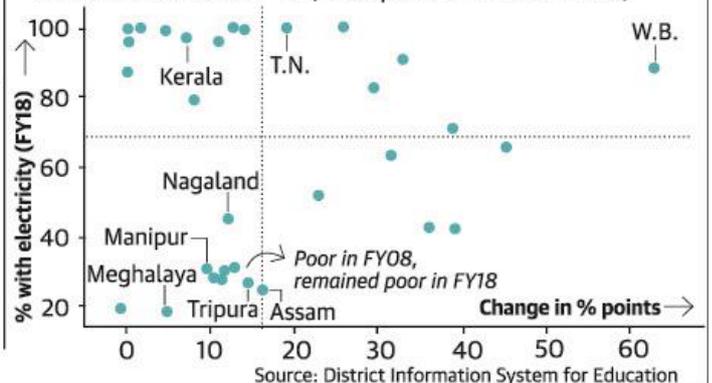
PLAYGROUNDS | The chart plots the share of govt. schools with playgrounds as of FY18, against the change since FY10. Notably, in at least 14 States/UTs, the share of schools with playgrounds came down in FY18 compared to FY10



GIRL'S TOILETS | The chart plots the % of govt. schools with toilets for girls as of FY18, against the change since FY08. More than 90% schools in all States/U.T.s except Delhi had separate toilets for girls



ELECTRICITY | The chart plots the share of govt. schools with electricity connection as of FY18, against the change since FY08. West Bengal saw the biggest improvement (88% schools electrified in FY18, 63% points more than FY09)



Source: District Information System for Education

MODEL ANSWER

Q 1. Recent increase in incidents of mob violence in India is an indicator of the dysfunctional criminal justice system. Critically Analyse. [15 Marks, 200 words]

Understanding Keywords

- a. Mob violence
- b. Criminal justice system

Way of writing

- c. Critically analyse

Approach

- d. Relate how dysfunctional criminal justice system is major cause for increase in mob violence.

ANSWER

Introduction

- Mob violence disrupt core of our established legal principles resulting in chaos, injustice and lawlessness.
- Recent incidents of mob violence in Dadri and death of Aklaq, death of ASP in Mathura and death of SHO Subodh kumar Singh has undermined the link between crime and punishment, which is foundation of rule of law.

Body

Dysfunctional criminal justice system such as below give rise Mob Violence in India

1. Absence of law regarding mob violence and lynching.
2. Overburdened, understaffed, under-resourced police department.
3. political patronage vigilantes or perpetrators of violence (even the ruling government of the states.)
5. Actual strength of the police is around 137 per Lakh persons against the recommended standard of 222 per Lakh persons by U.N.
6. Prisons are overcrowded, serving as functional offices of gangsters to run their business and get trained.
7. Poor conviction rate results in no fear of punishments.
8. The Police is victim of casteism, corruption, frequent transfers etc.
9. It seems that the Police now has become only the servant of the ruling parties and serve their interest only.
10. The recommendations of 2nd ARC report on police reforms, the Supreme Court's directives in Prakash Singh case have become closed files and ignored by Governments.

Conclusion

- To establish the rule of law, it is necessary that there must be a transparent and efficient criminal justice system and the law enforcement agencies must be well equipped.
- Also, the State must act positively and responsibly to safeguard and secure the constitutional values and to ensure the rule of law.