10 Nov 2019: Comprehensive News Analysis

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A. GS 1 Related

Category:GEOGRAPHY

1. Lightning Strikes- Odisha hit by over nine lakh

What is lightning?

- Lightning is a very rapid — and massive — **discharge of electricity in the atmosphere**, some of which is directed towards the Earth's surface.
- These discharges are generated in **giant moisture-bearing clouds** that are 10-12 km tall.
- The **base** of these clouds typically lies within 1-2 km of the Earth's surface, while their **top** is 12-13 km away.
- Temperatures towards the top of these clouds are in the range of minus 35 to minus 45 degrees Celsius.

How does it strike?

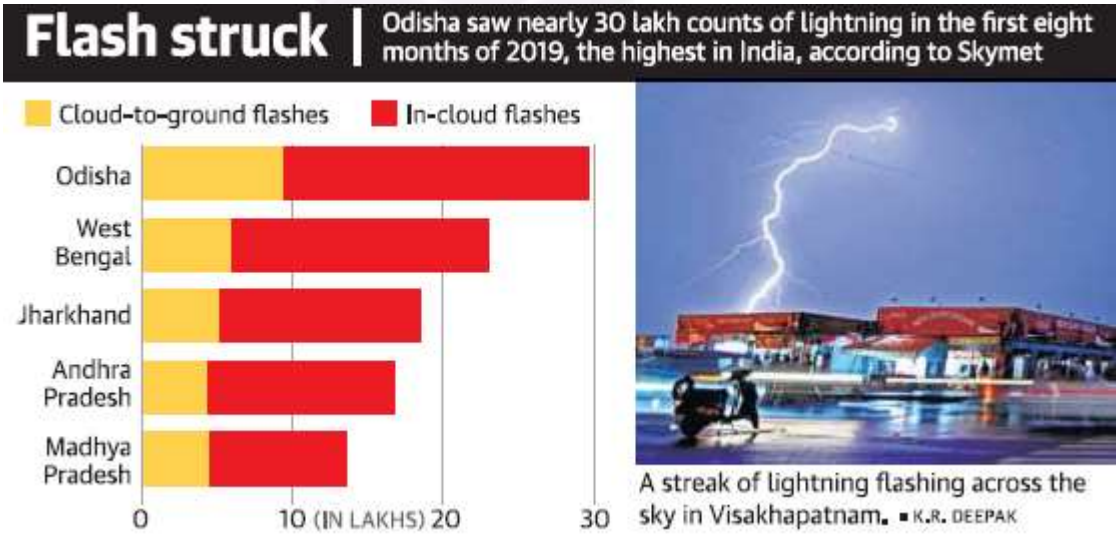
- As water vapour moves upward in the cloud, the falling temperature causes it to condense. Heat is generated in the process, which pushes the molecules of water further up.

- As they move to temperatures below zero degrees celsius, the water droplets change into small ice crystals. They continue to move up, gathering mass — until they are so heavy that they start to fall to Earth.
- This leads to a system in which, simultaneously, **smaller ice crystals are moving up and bigger crystals are coming down**.
- **Collisions follow, and trigger the release of electrons** — a process that is very similar to the generation of sparks of electricity. As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
- This process results in a situation in which the **top layer of the cloud gets positively charged, while the middle layer is negatively charged**.
    - The electrical potential difference between the two layers is huge — of the order of a billion to 10 billion volts.
    - In very little time, a massive current, of the order of 100,000 to a million amperes, starts to flow between the layers.
    - An enormous amount of heat is produced, and this leads to the heating of the air column between the two layers of the cloud.
    - This heat gives the air column a reddish appearance during lightning. As the heated air column expands, it produces shock waves that result in thunder.

How does this current reach the Earth from the cloud?

- While the Earth is a good conductor of electricity, it is electrically neutral.
- However, in comparison to the middle layer of the cloud, it becomes positively charged.
- As a result, about 15%-20% of the current gets directed towards the Earth as well. It is this flow of current that results in damage to life and property on Earth.
- There is a greater probability of lightning striking tall objects such as trees, towers or buildings. Once it is about 80-100 m from the surface, lightning tends to change course towards these taller objects.
- This happens because air is a poor conductor of electricity, and electrons that are travelling through air seek both a better conductor and the shortest route to the relatively positively charged Earth's surface.

Key Stats



- Five States accounted for half of the lightning strikes in India in 2019, led by Odisha with 9,37,462 or about 16% of the cloud-to-ground strikes.
- Odisha account for nearly 7,00,000 more total lightning strikes than the second placed West Bengal, though it had only 3,50,000 more of the cloud-to-ground strikes.

- Uttar Pradesh registered the maximum number of deaths, 224, followed by Bihar, 170, Odisha, 129, and Jharkhand, 118.

How common are deaths by lightning?

- Lightning is the biggest contributor to accidental deaths due to natural causes.
- India sees 2,000-2,500 lightning deaths every year on average.

Issue Area

- Lightning remains among the **least studied atmospheric phenomena** in the country. Just one group of scientists, at the Indian Institute of Tropical Management (IITM) in Pune, works full-time on thunderstorms and lightning.
- **Occurrences of lightning are not tracked in India**, and there is simply not enough data for scientists to work with.
- Often, **safety measures and precautions against lightning strikes do not receive as much publicity** as other natural disasters such as earthquakes.

What precautions should be taken against lightning?

- Lightning rarely hits people directly — but such strikes are almost always fatal.
- People are most commonly struck by what are called "ground currents". The electrical energy, after hitting a large object (such as a tree) on Earth, spreads laterally on the ground for some distance, and people in this area receive electrical shocks.
- It becomes more dangerous if the ground is wet (which it frequently is because of the accompanying rain), or if there is metal or other conducting material on it. Water is a conductor, and many people are struck by lightning while standing in flooded paddy fields.

Therefore taking shelter under a tree is dangerous. Lying flat on the ground too, can increase risks. People should move indoors in a storm; however, even indoors, they should avoid touching electrical fittings, wires, metal, and water.

B. GS 2 Related

Category:POLITY

1. Ayodhya Verdict

Context

- The Supreme Court delivered a landmark judgment in the Ayodhya land dispute case
- The five-judge Supreme Court bench led by Chief Justice Ranjan Gogoi read out a unanimous judgment and ruled in favour of the Ram Janmabhoomi and said there will be Ram Mandir at the disputed site and Muslims will be given an alternate 5 acre land for their mosque.

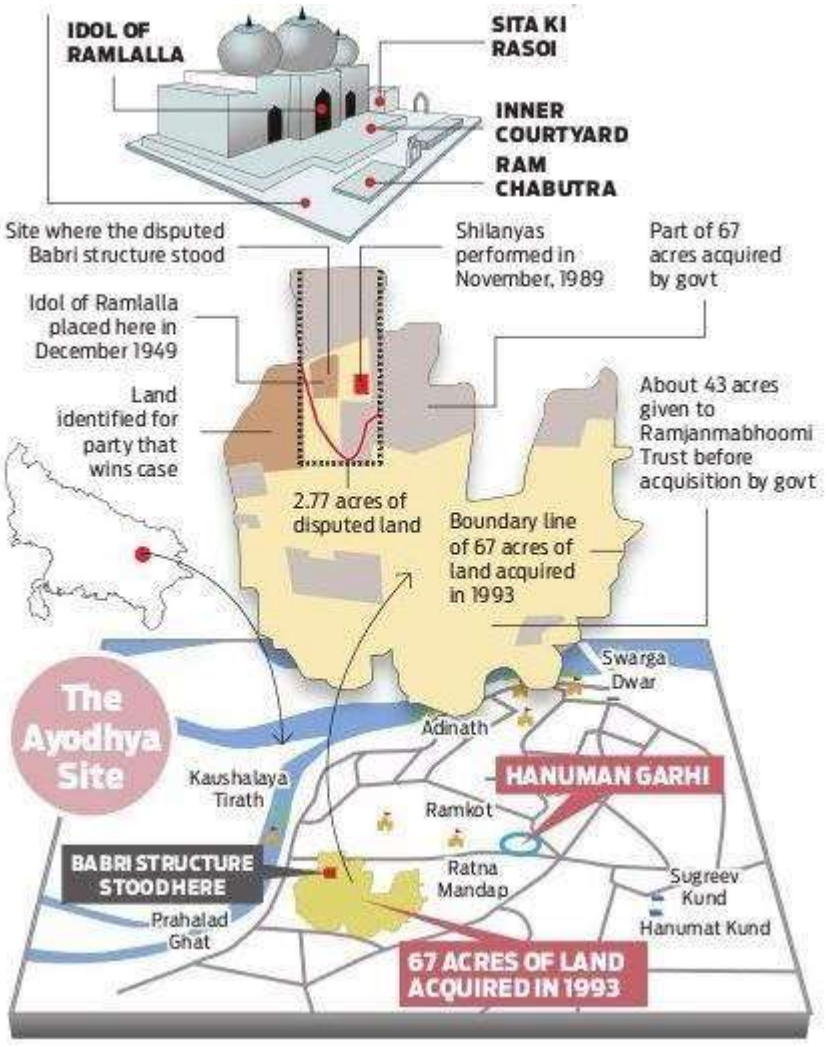
What is the crux of the dispute?

- At the crux of the matter is the belief among sections of **Hindus** that the Babri Masjid, named after Mughal emperor Babur, was built in Ayodhya **after destroying a Ram Temple that marked the birthplace of the deity**.
    - The Hindu parties **wanted the land to themselves**, contending that Lord Ram was born at a spot on which later the central dome of the mosque was built.
- The **Muslim parties**, however, contended that the mosque was constructed in 1528 by Mir Baqi, a commander of Babur's army, **without demolishing any place of worship** and since the land rights had not been transferred to any other party, the space was rightfully theirs.

Chronology of the Ayodhya dispute

1528	First Mughal Emperor Babar is believed to have constructed Babri Masjid • The three-domed mosque built by Mir Baqi commander of Mughal emperor Babur in 1528 is in the Jaunpuri style
1885	Mahant Raghbir Das moves Faizabad court seeking permission to construct a temple in the vicinity of the Babri Masjid. The plea is declined.
1949	Idols of Lord Ram is mysteriously found inside the mosque • The Muslim side claimed it was the handiwork of the Hindus, while the Hindus wanted to worship the idol. • Violence broke out, and the administration locked the premises with the idol inside.
1950	Gopal Visharad and Ramachandra Das moved to Faizabad court for permission to worship the idols • Though one of the first civil suits in this matter was filed in the 1950s, **the legal battle can be traced back to the British era**. o In a bid to quell communal clashes between Hindus and Muslims, the colonial administration even built a fence to allow both communities to worship in the area.
1959	Nirmohi Akhara files plea seeking possession of the disputed land.
1961	Central Sunni Waqf Board, U.P., moves court for declaration of title of the disputed land and removal of the idols inside the mosque.
1986	Faizabad court allows Hindus to worship the idols. • No parties were allowed inside the premises until February 1, 1986, when the Faizabad district administration allowed Hindus to offer darshan alone. • They were not allowed to perform any other ritual.
1989	Allahabad High Court takes over the title dispute. Orders status quo.
1989	The Rajiv Gandhi government allows Vishwa Hindu Parishad (VHP) to perform puja near the disputed site.
1992	Kar sevaks demolish Babri Masjid. Justice Liberhan Commission appointed to probe.
1993	P.V. Narasimha Rao government acquires 67 acres of land adjoining the disputed site. The Supreme Court upholds the acquisition in its Dr. Ismail Faruqui judgment.
2002	Allahabad High Court commences hearing the title suits. • The Allahabad High Court directed the Archaeological Survey of India (ASI) to conduct excavations at the disputed site.

	• In August 2003, the ASI submitted the report stating that remains of a large structure existed before the Babri Masjid.
2010	High Court delivers a majority judgment for three-way partition of the disputed property among Hindus, Muslims and Nirmohi Akhara.
2011	SC stays the high court judgment on cross-appeals filed by the parties.
2019	• A Constitution Bench of five judges led by Chief Justice of India Ranjan Gogoi resumes hearing the title appeals but suggests mediation first. • Mediation committee led by former Supreme Court judge, Justice F.M.I. Kalifulla fails to draw a consensus and court hearing commences.



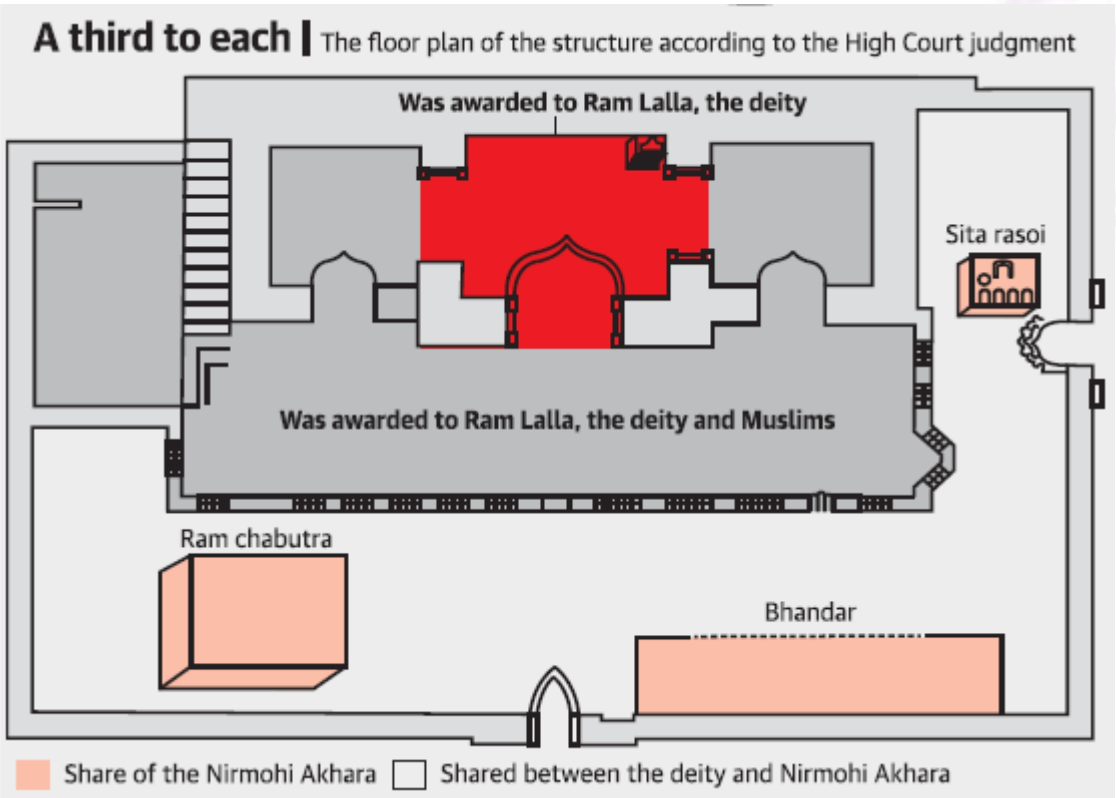
Allahabad High Court Judgment

The Allahabad high court's verdict on the Ram Janmabhoomi-Babri Masjid land title case was passed by a three-judge bench

- The judgment which was pronounced with majority decision of 2:1 held that the 2.77 acres land located in Ayodhya will be divided into a three-way division — one-third for the Sunni Waqf Board, one-third

for the Nirmohi Akhara and one-third to the party for 'Ram Lalla' or infant Ram represented by the Hindu Maha Sabha

- According to the judgment the central dome of the three domed structure, where the makeshift idol was kept was the "place of birth of Lord Ram as per faith and belief of the Hindus" and so was **allotted to the Hindus.**
- The **Nirmohi Akhara, a religious denomination**, who was seeking the construction of Ram temple and wanted the complete management rights of the premises, was allotted the Ram Chabutra, Bhandar and Sita Rasoi structures located in the outer courtyard.
- The **Muslim party** had sought directions for the restoration of the Babri Masjid as it was before it was demolished in 1992. They were allotted the remaining area amounting to the share of 1/3 both from the inner and outer courtyard.
- The order had also clarified that all the three parties have been allotted one third share each, however if while allotting exact portions some minor adjustment in the share is to be made then the same will be made and the adversely affected party may be compensated by allotting some portion of the adjoining land which has been acquired by the Central Government.



- As one can see, in the 2.77 acre of disputed land, both **Ram Chabutra and Sita Rasoi** are outside of the inner courtyard of Babri Masjid structure.
    - **Sita ki Rasoi** is temple turned royal kitchen of Goddess Sita.
- The **Ram Lalla idol** placed at the site where dome of Babri Masjid once stood.
    - The Muslims worshipped inside the mosque, while the Hindus prayed at Ram Chhabutra, a platform built within the mosque compound.

Takeaways from the landmark judgment by Supreme Court in the Ayodhya case:

1. The Supreme Court said the Allahabad High Court's remedy of a three-way bifurcation of the disputed premises among the Ayodhya deity, Sri Bhagwan Ram Virajman, Nirmohi Akhara and the Sunni Central Waqf Board "defied logic". It did not "secure a lasting sense of peace and tranquillity".
2. The court said that the faith of the **Hindus** that Lord Ram was born at the disputed site where the Babri Masjid once stood cannot be disputed.

- The court held there was both oral and documentary evidence to support the Hindus' faith that the Janma Asthan was located where the Babri Masjid was constructed.
- The court said there was proof of extensive worship offered by the Hindus, especially in the outer courtyard where the Ram Chabutra and Sita Rasoi are located, even before the annexation of the Oudh by the British in 1857.
- What tipped the scales in favour of the Hindu parties seems to be the prevalence of worship by Hindu pilgrims from a much earlier era, whereas, the offering of namaaz has been established only from around 1856-57.

3. The Supreme Court also said that the 1992 demolition of the 16th century **Babri Masjid Mosque** was a violation of law.
    - But while reading out its judgment, the Supreme Court said that the UP Sunni Central Waqf Board had failed to establish its case in Ayodhya dispute case and Hindus have established their case that they were in possession of outer courtyard of the disputed site.
    - The five-judge Constitution Bench that delivered the judgment in the Ayodhya case said that while Muslims never lost possession of the disputed land, **they could not assert the right of adverse possession**.
        - The Muslim side had claimed that the mosque was built 400 years ago by Babar – and that even if it is assumed that it was built on the land where a temple earlier existed, Muslims, by virtue of their long exclusive and continuous possession – beginning from the time the mosque was built, and up to the time the mosque was desecrated – they had perfected their title by adverse possession.
        - This argument has now been rejected by the Supreme Court
            - In fact, a similar view was taken by the two judges of the Allahabad High Court.
                - Justice D V Sharma had said that Muslims cannot claim adverse possession against the said property because it was an open place and everybody was visiting including Muslims.

4. Hence the Supreme Court has granted the entire 2.77 acre of disputed land in Ayodhya to deity Ram Lalla. As compensation of sorts for the destruction of the mosque in 1992, the Muslim parties are set to get a five-acre plot elsewhere.

- The Supreme Court, implicitly referring to the demolition of the Babri Masjid at the disputed site, said that it was **invoking Article 142** "to ensure that a wrong committed must be remedied".
    - The provision that vests sweeping powers in the Supreme Court for the end of ensuring "complete justice" has been used generally in cases that involve human rights and environmental protection.
    - This was the **first time that the court invoked this power in a case involving a civil dispute** over an immovable property, involving private parties.
    - It said that while the court's power under Article 142 "is not limitless", it "embodies both the notion of justice, equity and good conscience as well as a supplementary power to the court to effect complete justice".
- In fact, it wasn't just for the Muslim parties that the SC invoked Article 142. The same article was invoked in the case of the Nirmohi Akhara, who were party to the case.

5. The court dismissed the Akhara's petition as time-barred and rejected its suit claiming shebaiti (managerial rights) over the property.

- However, the court invoked its extraordinary powers to ask the government to give Nirmohi Akhara, considering the sect's historical presence at the disputed site, to provide it with an "appropriate role in the management" of the property.

Directions to the centre and the state Govt

- Supreme Court has directed the **Centre and Uttar Pradesh government to allot an alternative 5 acre land** to the Muslims at a prominent place to build a mosque.
- Supreme Court has directed the Union government to set up a trust in 3 months for the construction of the Ram mandir at the disputed site where Babri Masjid was demolished in 1992.
- The court has asked Centre to consider granting some kind of **representation to Nirmohi Akhara in setting up of trust**.
    - Nirmohi Akhara was the third party in the Ayodhya dispute.
    - The Supreme Court dismissed the plea of Nirmohi Akhara, which was seeking control of the entire disputed land, saying they are the custodian of the land.

What else did the Judgment say?

- The judges declared that the demolition of the 16th century Babri Masjid on December 6, 1992, was "an **egregious violation of the rule of law**" and "a calculated act of destroying a place of public worship".
- The Muslims have been wrongly deprived of a mosque which had been constructed well over 450 years ago, the Bench said.
- The Court referred to the **Places of Worship (Special Provisions) Act of 1991**, which prohibits the conversion of the status any place of worship, to say that all religions are equal.
- After giving the disputed land to Hindus and a separate five acres for construction of a mosque in Ayodhya, the SC shut the door for fresh litigation to alter status quo of sites such as those in Kashi and Mathura, which have also seen discord over worship.
    - "The Constitution does not make a distinction between the faith and belief of one religion and another. All forms of belief, worship and prayer are equal,"
    - The Bench said the Act "speaks to the future by mandating that the character of a place of public worship **shall not be altered**".
    - "Places of Worship Act is an affirmation of the solemn duty which was **cast upon the State to preserve and protect the equality of all faiths as an essential constitutional value**, a norm which has the status of being a basic feature of the Constitution," the Supreme Court addressed the government.

Concerns and Hope

- Ayodhya in the past was the centre stage for communal politics and a tool for polarization before elections. The high-pitched events not only disrupted daily life and business, but also endangered communal harmony in the region.
- Lack of jobs and investment, poor infrastructure and an underdeveloped tourism economy have kept Ayodhya far behind other important Hindu religious centres like Mathura and Varanasi.
- In the future with the acrimony between communities settled by the intervention of the Supreme court and the Democratic institutions supporting this landmark judgment, a new era of Economic progress in the region, exploration of tourism and giving wings to business development should be the priority of the Govt and all the stakeholders in the region.

Conclusion

- Chief Justice of India Ranjan Gogoi said "Law must stand apart over political considerations, religion and beliefs"
- The judgment will be remembered for the victory of faith over the rule of law as the Supreme Court considered religious beliefs even in deciding a property dispute, and despite conceding that faith cannot confer title, it still went ahead to give property to worshippers on the basis of faith

Doctrine of Adverse Possession

- Under the "doctrine of adverse possession", under which a person who is not the original owner becomes the owner because of the fact that he has been in possession of the property for a minimum of 12-years, within which the real owner did not seek legal recourse to oust him.
- Adverse possession is possession of a property – which has to be **continuous, uninterrupted and peaceful**.

SC Says Nirmohi Akhara Not a Shebait

- The Nirmohi Akhara — a group of Hindu ascetics who worship Ram wanted a temple to be built at its location.
- The group have been devotees of Lord Ram for centuries and wanted shebait rights over the temple (the one in which the property of temple is vested) and argued that they had rights in the capacity of a manager of the deity's property.
- But the Supreme Court said in its verdict that the Nirmohi Akhara suit was barred by limitations and the Akhara is not a shebait or devotee of the deity Ram Lalla.

Places of Worship (Special Provisions) Act of 1991

- The law was intended to deter politico-religious movements to change the nature of existing religious places elsewhere.
- 2 (c). “Place of worship” means a temple, mosque, gurudwara, church, monastery or any other place of public religious worship of any religious denomination or any section thereof, by whatever name called.
- 3. Bar of conversion of places of worship.—No person shall convert any place of worship of any religious denomination or any section thereof into a place of worship of a different section of the same religious denomination or of a different religious denomination or any section thereof
- Offences under the act are punishable with a jail term which may extend up to three years as well as a fine. Even making an attempt to change any place of worship, abetting it, or being party to a conspiracy to do so would invite a jail term.

A new chapter for ‘New India’: Modi

‘Unity in diversity’

- “The whole world already knew that India was the largest democracy, but today it has been proven that it is also vibrant and strong,” he said.
- “The way all sections of people have accepted the verdict with open hearts, it shows the strength of our unity and national character. Even after thousands of years, unity in diversity is very much in evidence and today’s verdict, and the whole event, will be referred in this context for years to come.”

‘Fall of Berlin Wall’

- The date on which the verdict had been delivered, November 9, was particularly significant as it was on that day that the Berlin Wall, dividing East and West Germany, had been brought down “and people on opposite sides reconciled”, Mr. Modi said.
- “We also saw the opening of the Kartarpur Sahib Corridor. Ayodhya verdict on this day, therefore, is telling us that the message from the **date is to be united in harmony and amity**,” he added.

Who is the author of the judgment?

The judgment is unanimous, with the Bench headed by Chief Justice of India Ranjan Gogoi and comprising Justices SA Bobde, DY Chandrachud, Ashok Bhushan and S Abdul Nazeer all concurring. But, just who among the five judges has actually authored the judgment?

- In a departure from general practice, Ayodhya Verdict does not specify who the author is.
    - The established practice is to specify the name of the judge who has authored the judgment on behalf of a bench.
- There is nothing in law saying that a judgment must bear the name of the author. The **Supreme Court Rules, 2013** are silent on this aspect.
- The name of the author has probably been withheld in order to prevent judges from being singled out. The Ayodhya Case, after all, is perhaps the most sensitive case that has been adjudicated by the Supreme Court

What is a Swayambhu Deity?

- A Swayambhu deity is the **revelation of God in a material form** which is subsequently worshipped by devotees.
- The recognition of a Swayambhu deity is based on the notion that God is omnipotent and may manifest in some physical form. This manifestation is worshipped as the embodiment of divinity. In all these cases, the very attribution of divinity is premised on the manifestation of the deity in a material form.
- Undoubtedly, a deity may exist without a physical manifestation, example of this being the worship offered to the Sun and the Wind.
- But a **Swayambhu is premised on the physical manifestation of the Divine** to which faith and belief attaches.

Category:HEALTH

1. Superbug crisis: Are doctors to blame?

Context:

Globally, thousands are succumbing to untreatable superbug infections on a daily basis, making antimicrobial resistance (AMR), one of the most significant challenges the world faces today.

Details:

- Excessive and irrational usage of antibiotics is one of the leading reasons for rising AMR.
- Over two-thirds of the antibiotics manufactured by the pharmaceutical industry are used as growth promoters for poultry and cattle. Research shows that globally 73% of all antimicrobials sold are used in animals raised for food.
- The remaining one-third is used to treat human ailments. Of this, the common public purchases more than half without a doctor's prescription, according to WHO.
- Antibiotic stewardship is considered to be the most important intervention to tackle the superbug crisis. A remarkable, though unachievable, 100% success of antibiotic stewardship among doctors to rationalize antibiotic use still correct only one-tenth of the global antibiotic misuse.

- Antibiotic stewardship efforts by various stakeholders including the Chennai Declaration have significantly raised awareness of the superbug problem among the medical community but it is doubtful whether this awareness translated into rational antibiotic usage.

Need to change priorities:

Unless we correct the root causes of irrational usage of antibiotics, it is very unlikely that in India with a million doctors and half a million pharmacies, rational antibiotic usage can ever be implemented.

- In countries with high existing superbug rate and sanitation issues, rational antibiotic use, unless it is comprehensive, may not help reverse the rate or halt its progression. There is no conclusive evidence to support antibiotic stewardship as an effective measure to reduce the Gram-negative superbug bacteria, such as E. coli and Klebsiella, the most prevalent group in South Asia.
- Rational antibiotic use is choosing the right drug at the right dose at the right time. Successful antibiotic stewardship programmes may make some impact in countries with good sanitation standards. However, it is doubtful whether this component will make any real difference in the superbug rate in developing countries. Improving cleanliness in hospitals and sanitation in the community is much more important than antibiotic stewardship.
- Lack of infrastructure and inadequate diagnostic facilities in our health-care sector is one of the major triggers of irrational antibiotic use by doctors and the public. We need to improve this.

Way forward:

Along with antibiotic stewardship programmes, there is an urgent need to work on improving the overall sanitation conditions to limit the increasing rate of AMR. We need to work towards a more integrated approach rather than just focusing on only rational antibiotic usage.

C. GS 3 Related

Category:ENVIRONMENT

1. Geochemical Baseline Atlas of India

Context

- To understand and assess the environmental damage and help policy makers to devise a strategy a ‘Geochemical Baseline Atlas of India’ developed by CSIR-National Geophysical Research Institute (NGRI) was released

Details

- The atlas **consisting of 45 maps** of metals, oxides and elements present in top and bottom soils across India will serve as a reference against which future generations would be able to assess the chemical compositional changes on Earth’s surface.
- These maps help in assessing the contamination by industries or other polluting sources.

How was it developed?

- To develop the maps, the globe was divided into 5,000 cells of 160 km by 160 km each. Of it, India has 122 cells.
- The work was started in 2007 from cell number 1 which is in Kanyakumari.
- The last cell is in Arunachal Pradesh. Soils from uninhabited places were collected.
- The work ended in 2011.
- In one glance, the atleas will help us know regions with high and low concentrations of a metal

2. India's efforts towards mitigating climate change

Context:

The effects of climate change and India's efforts to overcome this biggest challenge facing humankind.

Background:

- The Paris agreement, formally known as the Conference of Parties (CoP) protocol on combating climate change, is the world's first comprehensive regime on tackling climate change within the United Nations Framework Convention on Climate Change (UNFCCC). Adopted by 195 countries in Paris in December 2015, it was ratified by India in 2016.
- A major goal of the Paris agreement, is to keep global temperature increase "well below" 2 degrees Celsius and to pursue efforts to limit it to 1.5 degrees Celsius.
- The pact and its progress will be reviewed every five years. In addition, the developed countries have pledged $100 billion a year in climate finance for developing countries by 2020 with a commitment to further raise it in the future. While there is no penalty for countries that miss their targets, the agreement has transparency rules to help encourage countries do achieve their obligations.
- The significance of India's support to the climate pact and its active participation lies in the fact that India accounts for over 4% of global emissions.
- India has tried to balance its carbon emissions with its economic growth objectives by not setting an outright pollution reduction goal. But, being a part of the global climate change regime, India will have significant obligations to meet under the treaty.
- The first round of national climate action plan submitted by India in 2015 under the Paris Agreement set targets that will have to be achieved by 2030. India set three major goals to be achieved for the period between 2020 and 2030—increase the share of non-fossil fuels to 40% of the total electricity generation capacity, to reduce the emission intensity of the economy by 33 to 35% by 2030 from 2005 level, and to create additional carbon sink of 2.5 -3 billion tonnes of CO_2 equivalent through additional forest and tree cover. This requires India to increase its forest cover by five million hectares along with an improvement in the quality of the green cover of an equal measure.

India's challenge:

India's efforts to mitigate climate change and its adverse impacts pose four big challenges.

Energy Mix:

- Most of India's emissions come from energy (largely coal-based) production (68%). India has promised to cut its emission intensity by 33-35% by the year 2030, as compared to 2015 levels. This reduction of emission intensity, which basically is the volume of emissions per unit of gross domestic product (GDP) will need India to move towards non-fossil fuels. The country will have to diversify its power generation sources and shift them significantly towards renewable energy sources to reduce volumes of emissions per unit of GDP. In numbers, by 2025, India will need a 175 gigawatt-power production capacity from non-fossil fuel sources.

Agricultural sector:

- Since agriculture, food and land use changes constitute 10% of the carbon emission there is an urgent need to focus on the agricultural sector.
- Present practices like the minimum support price, subsidies, free 24-hour electric power supply, and water-intensive crops are leading to practices that are aggravating the problem of climate change. There are political compulsions which resist changes from the present status quo. Need to overcome these.
- There is an urgent need to work on innovative techniques like drip irrigation, aerobic cultivation, better and more nutritious grains which will drastically reduce water use and hence reduce corresponding carbon emission. Focusing attention on rice which is a major water-guzzling plant would definitely aid in water conservation.
- More nutritious varieties should be promoted among farmers which will reduce the need for higher production of food grains.
- Stubble burning must stop and need to find better ways of handling this biomass. Stubble burning increases the PM concentration in air. Need to find more climate-friendly and economical ways of disposing of stubble.

Afforestation:

- Bringing down atmospheric CO2 levels through natural means should be prioritized. Forestation and planting of local varieties of trees must increase. Land availability, lack of scientific planning and resorting to monoculture plantation and lack of efforts in this direction have had a dampening effect on this front.

Health challenge:

- Climate change and global warming have gradually become injurious to health. Research has shown that as we burn more fossil fuel, the temperature rise, associated heat waves and heavier rain make perfect conditions for insects (and the germs/viruses they host) to thrive.
- Due to warmer climate, water-borne diseases such as cholera, diarrhoea, as well as malaria, dengue, and chikungunya have increased in numbers and in geographical spread across hilly, cold as well as warm deserts and sea coasts. This becomes all the more challenging for India given the high population density.
- Research also points out how rising sea surface temperatures lead to increased instances of tropical cyclones and storm surges, leading to polluted water, unsanitary conditions, population displacement, toxic exposures, hunger and malnutrition across the Bay of Bengal and the Arabian Sea coast. Some are transmitted from animals to humans and of course human-to-human. The latest example is the Nipah virus, transmitted by bats to humans.

India's progress:

- The Biennial Update Report, part of a report that India submits to the UN Framework Convention on Climate Change, notes that India is well on the trajectory to achieve two of its three commitments under the Paris Agreement ahead of the 2030 deadline.
- India is already on the path of the clean energy revolution and is making significant accomplishments in achieving its pledge to the Paris Agreement. As a strategy to reduce its emission, India has embarked on a massive renewable energy program. Upscaling the National Solar Mission, India has set a target of 100 gigawatts (GW) of installed solar energy capacity by 2022. India also recently became the fourth largest producer of wind energy in the world and announced plans to cancel 14 GW of coal plants. Indeed, India is currently in a strong position not only to meet but exceed its Paris climate targets of meeting 40% energy demands through renewable means and reduce carbon intensity.

- India has restated in an official statement that it would step up its nationally determined climate action plans. Taken together - the promise of a long-term strategy by 2020 and updating the country's nationally determined climate actions provide a clear indication of India's serious and steadfast commitment to global effort to tackle climate change.
- The Indian story sours when the report turns to India's Green India mission. Under the mission, the government is to ensure an additional 'carbon sink' of 2.5 to 3 billion tonnes of Co2 equivalent by greening India's forests and enhancing the tree cover beyond the forest. On this front, India is receding further from its target rather than improving.
- Data from India's draft Biennial Update Report shows that the carbon sequestration from forests has actually got worse in 2010-2014. Carbon removed from the atmosphere by forests is included in the emissions inventory as part of a broader category called, "Land use, land-use change, and forestry" or LULUCF.

Way forward:

- India has to consider the fact that in spite of having contributed little to the cause of climate change, India would be one of the most affected countries due to climate change.
- As a signatory to the Paris Agreement, India had agreed that each successive round of nationally determined contribution to tackle climate change must represent a progression over its previous commitment. India should adhere to this even while it tries to balance its developmental imperatives in a warming world.
- Given the present global climate leadership impasse, the world would be keenly following India's role in climate action. Between the US withdrawal from climate deal and China's dubious climate credentials, immense opportunities exist for India to fill the leadership void in global climate change governance.
- Need to make the mitigation of climate change a people's movement. It is worth emulating the steps taken by the Philippines government. Each student there must plant and nurture 10 locally-suited trees before he/she gets a school certificate/ college degree.

3. Seaweed extract shows anti-retroviral activity

Context:

The compounds of the class called sulphated polysaccharides, extracted from seaweed have been shown to have an anti-retroviral property which makes them potential drugs against HIV.

Details:

- The medicinal properties of compounds extracted from seaweed have been used for medicinal purposes previously.
- These compounds belonging to a class called sulphated polysaccharides have been shown to have anti-inflammatory and antiviral properties. Of interest, in this case, is their anti-retroviral activity which makes them potential drugs against HIV.
- Research has shown that, in vitro, this bioactive compound inhibits the functioning of the HIV-1 strain of the human immunodeficiency virus to a degree that is comparable to the drug tenofovir that is presently in vogue for antiretroviral action.
- The idea that sulphated polysaccharides can inhibit the activity of viral strains and arrest their growth has been known for some time now. The research group's effort has been in identifying and extracting such a compound in two species of algae that are common and available at low cost.

Additional information:

- Seaweed, or macroalgae, refers to several species of macroscopic, multicellular, marinealgae.
- Seaweed has a variety of uses, for which it is farmed or foraged.
- Seaweed as a source of food. Seaweed is consumed across the world, particularly in East Asia and South East Asia.
- Alginate, agar, and carrageenanare gelatinous seaweed products collectively known as hydrocolloids or phycocolloids used as food additives.
- Seaweed as a source of Medicine. Alginates are used in wound dressings (see alginate dressing), and dental molds.
- Algae's for Bioremediation. Algae's strong photosynthesis creates a large affinity for nutrients; this allows the seaweed to be used to remove undesired nutrients from the water. Seaweed also generates oxygen, which benefits hypoxic dead zones.
- Seaweeds to help mitigate climate change. "Ocean afforestation" is a proposal for farming seaweed for carbon removal. After harvesting the seaweed decomposes into biogas, in an anaerobic digester. Seaweed grows quickly and takes no space on land. Afforesting 9% of the ocean could sequester 53 billion tons of carbon dioxide annually.
- Seaweeds are used as animal feeds. They have long been grazed by sheep, horses, and cattle in Northern Europe. They are valued for fish production. Adding seaweed to livestock feed can substantially reduce methane emissionsfrom cattle.
- Seaweed is under consideration as a potential source of bioethanol.
- Seaweed may be used as fertilizer, compost for landscaping, or to combat beach erosion through burial in beach dunes.
- Alginates are used in industrial products such as paper coatings, adhesives, dyes, gels, explosives and in processes such as paper sizing, textile printing, hydro-mulching, and drilling. Seaweed is an ingredient in toothpaste, cosmetics, and paints. Seaweed is used for the production of bio yarn (a textile).
- Seaweed species such as kelps provide essential nursery habitat for fisheries and other marine species and thus protect food sources; other species, such as planktonic algae, play a vital role in capturing carbon, producing up to 90% of Earth's oxygen.

4. Meghalayan rainforests similar to equatorial ones

Context:

Studies pointing out the similarity between the Meghalaya rainforests and the equatorial rainforests.

Details:

- Rainforests usually occur near the Equator and about five degrees North and South latitudes from the Equator are considered the real home of the lowland tropical rainforest.
- A new study shows that the rainforest in the northeastern state of Meghalaya, the northernmost in the world, is similar in structure and diversity to the other rainforests found near the Equator.
- The extreme spread of tropical rainforests in northern limits in the world has been found in the northeastern region of India where high rainfall-receiving habitats with a hot and humid climate, especially in Meghalaya and Namdapha in Arunachal Pradesh are now known to boast species-rich rainforests.

Findings of the study:

- The study was conducted in the Namdapha rainforests in Arunachal Pradesh and in the Meghalaya rainforests.

- The study found that the climatic conditions in the region — high rainfall and humidity, and perfect annual mean temperature — were conducive for the survival of the rainforests.
- The biodiversity study noted that tropical Asian species made up 95% of the species diversity in these forests pointing out the similarity in species distribution.
- The region had a high density of 467 trees per hectare. Though this is lower compared with equatorial rainforests, it fell in the intermediate category for rainforests around the Tropic of Cancer.
- Also, the richness of species per hectare was the highest among all lowland rainforests near the Tropic of Cancer.
- These rainforests had fewer species and individuals of liana or woody climbing plants, the levels of beta diversity were high.

In ecology, beta diversity (β-diversity or true beta diversity) is the ratio between regional and local species diversity. The term was introduced by R. H. Whittaker together with the terms alpha diversity (α-diversity) and gamma diversity (γ-diversity). The idea was that the total species diversity in a landscape (γ) is determined by two different things, the mean species diversity at the habitat level (α) and the differentiation among habitats (β).

- Compared to Equatorial rainforests, these rainforests had a higher proportion of rare species.
- Though the species diversity was similar to the other rainforests, the Meghalaya rainforest trees showed short stature. While the trees in the Equatorial region are known to grow from 45 to 60 m in height, the highest ones in Meghalaya could reach only up to about 30 m. This adaptation might be in order to survive at this higher latitude.

Significance of the findings:

- Though the Meghalaya rainforests and Namdhapa rainforests have so many special aspects, this region has been virtually ignored on the world maps of tropical rainforests hence withholding the necessary attention they deserve in the global efforts to conserve the ecologically sensitive rainforests.
- The efforts for the conservation of these rainforests are all the more important given that recent developmental and tourist activities have started to degrade patches of these rainforests.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Editorials has been covered under GS 2: Ayodhya Verdict

F. Tidbits

1. WHO initiative to expand access to affordable insulin

Context

- The World Health Organisation (WHO) is launching an initiative to expand access to affordable insulin, ahead of the World Diabetes Day on November 14

What was the need?

- 420 million people worldwide, mostly in low- and middle-income countries, live with diabetes but **many who require insulin do not have access, often due to high costs**.
- The global report on diabetes shows that essential medicines and technologies, including insulin, are **generally available in only 1 in 3 of the poorest countries**.
    - It has recommended that access to insulin should be treated as a matter of life or death and that improving access to medicines in general should be a priority.

Key Stat

- According to the International Diabetes Federation Diabetes Atlas (7th Edition), China has the largest number of patients(11.43 cr.) followed by India (7.29 cr.) in 2017.

2. First batch of 562 pilgrims all praise for Kartarpur facilities

Context

- Prime Minister Narendra Modi flagged off the first batch of over 500 pilgrims to the Kartarpur Sahib Gurudwara in Pakistan through the newly built corridor linking two important Sikh shrines — Dera Baba Nanak in Gurdaspur and Gurudwara Darbar Sahib in Kartarpur in Pakistan.

Background

Click here: To read about the Topic

For more information : **Click Here**

3. 'Bulbul' batters several coastal districts of Odisha, Bengal

Click here: to read about the topic

G. Prelims Facts

1. Nagarjunasagar Srisailam Tiger Reserve (NSTR)

- The NSTR is one of the largest tiger reserves in the country and is spread over 3,800 sq.km. covering Guntur, Prakasam, and Kurnool districts in **Andhra Pradesh** and Nalgonda and Mahabubnagar in **Telangana**.

- Nagarjuna Srisailam Tiger Reserve is also known as Srisailam Wildlife Sanctuary
- River Krishna flows across the tiger reserve
- It got the recognition under the Project Tiger in 1983.

H. UPSC Prelims Practice Questions

Q1. Bhimili Utsav is a Cultural festival organised in the state of

a) Andhra Pradesh
b) Karnataka
c) kerala
d) Tamilnadu

Answer: a

Explanation:

- It is a two-day carnival aimed at popularising the tourist spots of the 17th century Dutch township in the state of Andhra Pradesh

Q2. Consider the following statements with respect to Ain-i-Akbari

1. It is a detailed document recording the administration of the Mughal Empire under Emperor Akbar
2. It was written by his court historian Abdul Hamid Lahori

Which of the above statements is/are incorrect?

a) 1 only
b) 2 only
c) Both
d) None

Answer: b

Explanation:

- The Ain-i-Akbari, was written by **Abul Fazl,** Akbar's biographer and minister in the Persian language
- **Abdul Hamid Lahori** was a traveller and historian during the period of Mughal Emperor Shah Jahan who later became a court historian of Shah Jahan
    - He wrote the book Padshahnama also called Badshahnama, about the reign of Shah Jahan.

Q3. With reference to Babri Masjid, which of following statement is/are correct?

1. The Babri Masjid is recognizably built in the Sharqi style of architecture
2. The domes, though large, are flattish and heavy.

Options:

a) 1 only
b) 2 only
c) Both
d) None

Answer: c

Explanation:

- The Babri Masjid is recognisably built in the Sharqi style of architecture (seen noticeably at Jaunpur) with the characteristic form given to the propylon.
- The domes, though large, are flattish and heavy.
- The main feature of Sharqi mosques is the huge rectangular pylon (gateway) with arches.

Q4. Ramcharitmanas was composed by

a) Kabir
b) Mirabai
c) Chaitanya Maha Prabhu
d) Tulsidas

Answer: d

Explanation:

- Tulsidas also known as Goswami Tulsidas was a Hindu Vaishnava saint and poet, renowned for his devotion to the deity Rama
- Tulsidas wrote several popular works in Sanskrit and Awadhi; he is best known as the author of the epic Ramcharitmanas, a retelling of the Sanskrit Ramayana based on Rama's life in the vernacular Awadhi dialect of Hindi.
- The practical end of all his writings is to inculcate bhakti addressed to Rama as the greatest means of salvation and emancipation from the chain of births and deaths
- He was a contemporary of **Akbar**

I. UPSC Mains Practice Questions

1. Lightning strikes kill many people in India but they go largely unnoticed. What are the problems associated with lightning Strikes? Explain the tools and measures to tackle them. **(15 marks 250 words)**
2. The peaceful resolution of Ayodhya dispute brings to light the tolerant nature of India, the Idea of Unity in diversity and respect for law of land. Analyze. **(15 marks 250 words)**
3. Considering that India is a major stakeholder and a player in a fight against climate change discuss Indian efforts in this direction and the impacts therein. **(10 marks, 150 words)**