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MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

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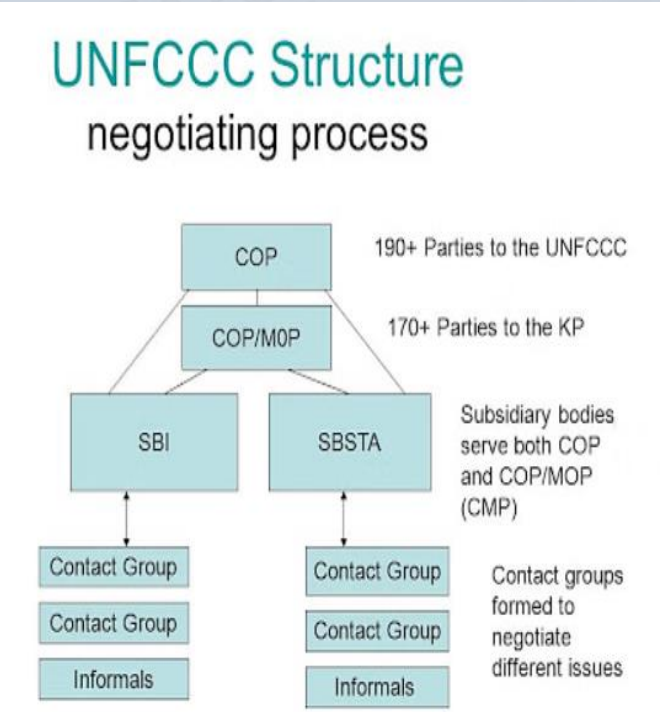
DTE

June 5

UNFCCC

(Syllabus: GS Paper 3 – Env and Eco)

Bonn Climate Conference 2024: Stage set for new climate finance goal enroute to Baku



Context: The 60th Session of the United Nations Framework Convention on Climate Change (UNFCCC) Subsidiary Bodies recently commenced, with all eyes expectedly on climate finance this year.

United Nations Framework Convention on Climate Change (UNFCCC)

- **About:** It is the **primary multilateral treaty** governing actions to combat climate change through adaptation and mitigation efforts directed at control of emission of Greenhouse Gases (GHGs) that cause global warming.
- **Also known as:** Bonn Climate Change Conference.
- **Signed**: 1992.
- **Objective:** To stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development.
- **Considered a legally non-binding agreement:** The treaty sets limits on GHG emissions in countries, but these are not binding and there are no enforcement mechanisms either.
  - However, there are provisions for updates or protocols that can be used to set legally binding emission limits on countries.
- The parties to the convention **meet annually in the Conference of the Parties** or COP to review the progress under the convention.
- **Secretariat:** Bonn, Germany
- **It is Parent treaty** of the 2015 Paris Agreement and 1997 Kyoto Protocol.
- **Established an international environmental treaty:** to combat "dangerous human interference with the climate system", in part by stabilizing greenhouse gas concentrations in the atmosphere.

TIMES OF INDIA

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WATERFALLS

(Syllabus GS Paper 1 – Gography)

China's highest waterfall gets little help from pipe

Beijing: Scenic park operators in China's Henan province were forced to acknowledge that the country's highest waterfall got a helping hand from a pipe due to a lack of rainfall.

Video from a Douyin user, or the Chinese version of Tiktok and reported by media, showed a tourist revealing a large pipe burrowed at the top

CAUGHT IN THE ACT

Yuntai Falls — the country's steepest and a popular attraction inside the Yuntai Mountain scenic area.

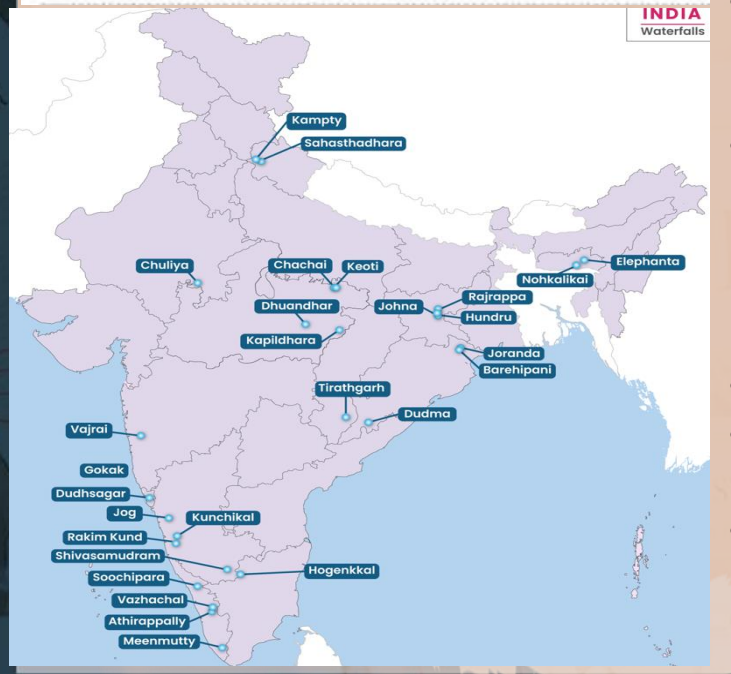
The video, which has been shared 48,000 times, unleashed a torrent of social media comments, forcing park officials on Tuesday to release a letter that blamed seasonal factors and admitting to a "small enhancement during the dry season". The move was meant to "enrich the visiting experience" and make the "trip worthwhile" for those "who have travelled a long way", operators wrote on their Weibo social media account.

Chinese netizens jumped on the pipe disclosure.

"The main thing is that the water pipe is so crudely installed, others at least disguise it in a superior way," wrote a user on Weibo, China's popular social media platform. "The move does not respect the laws of nature nor the visitors," wrote another netizen.

Some took a more conciliatory view on the use of the pipe, with one user saying "that it is better than seeing no water at all," and another musing, "it is a good faith effort for the scenic area to maintain the landscape during dry periods."

The waterfall is described by the scenic park officials as the highest in Asia with a 314-metre vertical drop. AGENCIES



Context: Recently, scenic park operators in China's Henan province had to admit that the nation's tallest waterfall received assistance from a pipe due to recent insufficient rainfall.

Waterfalls

- **About:** A waterfall is a river or other body of water's steep fall over a rocky ledge into a plunge pool below. Waterfalls are also called cascades.
  - The process of erosion, the wearing away of earth, plays an important part in the formation of waterfalls. Waterfalls themselves also contribute to erosion.
- **Types**: Punchbowl Waterfalls, Plunge Waterfalls, Multi-step Waterfalls, Horsetail Waterfalls, Frozen Waterfalls, Fan Waterfalls, Chutes, Cataracts, Cascades, and Block Waterfalls.
- **Largest waterfall in India by volume**: Vajrai Waterfall is the tallest waterfall of India. It is origin of river Urmodi. The waterfall is situated in district of Satara in western Maharashtra.
  - Kunchikal Falls (Shimoga district, Karnataka) is India's highest waterfall in India.
- **World's Largest waterfall:** Angel Fall, Venezuela
- **World's Tallest Waterfall:** Niagara Falls (border between the province of Ontario in Canada and the state of New York in the United States).
- **Asia's largest fall:** Ban Gioc Falls is the largest waterfall in Asia and the fourth largest waterfall along an international border, with only the Iguazu Falls, Victoria Falls and Niagara Falls larger than it.

DTE June 5

STATE OF OCEAN REPORT
(Syllabus: GS Paper 3 – Env and Eco)

UNESCO's State of Ocean Report highlights key knowledge gaps in research & data on spiking oceanic warming

Context: The UNESCO State of Ocean Report recently highlighted that while the oceans play a crucial role in climate regulation, the world's understanding remains insufficient to design solutions for multiple ocean crises and validate new technologies aimed at removing carbon dioxide from the atmosphere.

State of Ocean Report

- **About**: It collect the latest information on global ocean conditions, covering issues from pollution to biodiversity, to help key policy-makers make informed decisions on ocean protection and sustainable planning.
- **Launched by**: UNESCO
- **Objective**: To inform policymakers about the state of the ocean and to stimulate research and policy actions towards 'the ocean we need for the future we want'.

Key Highlights of the Report

- **Ocean Warming Rate**: The upper 2,000 metres (m) of oceans warmed at a rate of 0.32 ± 0.03 watt per square metre (W/m^2) from 1960 through 2023.
- **Future Warming Projections**: It is expected to warm in the future as well, leading to irreversible changes in the centennial to millennial time scales.
- **Need for Regular Data**: The report calls for the need to provide regular data on how ocean warming is evolving and its impacts. This is needed to support the decade challenge for healthy and resilient oceans.
- **Earth Energy Imbalance**: Another consequence of increased greenhouse gas emissions from human activities is increased uptake of the Earth energy imbalance (EEI) by oceans.
    - EEI is the balance between incoming energy from the Sun and outgoing energy from the Earth.
- **Impact on Ocean:** Scientists think that increased ocean heat content (OHC) prevents ocean layers from mixing, lowering the preformed oxygen content of near-surface high latitude waters reaching the deeper layers of oceans. The reduction is termed 'deoxygenation'.
- **Consequences of Deoxygenation**: It is a concern as it can have long-term negative impacts on the health of coastal and large marine ecosystems, a sustainable blue economy, and coastal communities that depend on oceans such as tourism, fisheries, aquaculture, and ecosystem services. Excess nutrients from coastal areas also cause deoxygenation.
- **Marine Carbon Dioxide Removal Technologies**: The UNESCO report also takes stock of the recent developments in marine carbon dioxide removal (mCDR) technologies. This involves techniques that capture carbon dioxide from the air and store it durably.

INDIAN EXPRESS

Page 12

SPECIAL CATEGORY STATUS

(Syllabus: GS Paper 2 – Polity)



Special Category question

TDP chief Chandrababu Naidu's earlier push for Special Category Status during 2014-18 had failed, but this time the BJP desperately needs his support. What is SCS, and why does AP want this?

SREENIVAS JANYALA
HYDERABAD, JUNE 5

TELUGU DESAM PARTY (TDP) president N Chandrababu Naidu has emerged as a key player in national politics after his party won 16 seats in the Lok Sabha election.

Naidu's support is critical for the BJP, which has only 240 seats. In return, Naidu is likely to extract several promises and assurances, the most important of which will be Special Category Status for Andhra Pradesh.

What is Special Category Status (SCS)?

In 1969, the Fifth Finance Commission introduced the mechanism of SCS to assist certain states in their development if they faced historical economic or geographical disadvantages. Factors such as difficult terrain, low population density and/ or a sizeable tribal population, location along borders, economic and infrastructural backwardness, etc. were typically considered to accord SCS.

The system was scrapped on the recommendation of the 14th Finance Commission, which suggested that the resource gap of states should be filled by increasing the devolution of tax to 42% from the existing 32%.

SCS was accorded to 11 states, including the entire Northeast, and J&K, Himachal Pradesh, and Uttarakhand. Besides AP, SCS has been demanded by Bihar, whose Chief Minister Nitish Kumar is another key NDA ally, and Odisha, where the BJP will now form the government.

Why does AP want SCS?

When the undivided state was bifurcated through the AP Reorganisation Act, 2014, the UPA government had promised to grant SCS to AP to compensate for the loss of revenues, and of Hyderabad, where much of the development was concentrated.

After the NDA government took charge, both Naidu who was CM from 2014 to 2019, and Y S Jagan Mohan Reddy (2019-24), repeatedly appealed for SCS to overcome the "distressing" financial situation of the state.

According to presentations made by the AP government to NITI Aayog, the 14th Finance Commission estimated that the post-devolution revenue deficit for AP for the period 2015-20 would be Rs 22,113 crore, but in fact, this figure was Rs 66,362 crore. The state's debt had reached Rs 2,58,928 crore by 2018-19, and is more than Rs 3.5 lakh crore now.

AP argues that the undivided state was bifurcated in an unjust and inequitable manner — the successor state inherited nearly 58% of the population, debt, and liabilities of the original state, but only 47% of its revenues. For example, of the Rs 57,000 crore of software exports from AP for the year 2013-14, Hyderabad city — with Telangana after the bifurcation — alone accounted for Rs 56,500 crore.

Today's AP is essentially an agrarian state, with low economic buoyancy, leading to huge revenue disabilities. This is evident from that fact that the per capita revenue of Telangana for 2015-16 was Rs 14,411, while it was only Rs 8,397 for AP.

According to the AP government, the UPA had assured it of SCS for a five-year period as a precondition to bifurcation, and that the residuary state would be adequately compensated through development interventions, investments, and direct financial assistance.

What would getting SCS mean for AP?

SCS would mean higher grants-in-aid to the state government from the Centre. Annual per capita grants to Special Category States is Rs 5,573 crore, whereas AP receives Rs 3,428 crore.

SCS states enjoy special industrial incentives such as Income-tax exemptions, custom duty waivers, reduced excise duty, corporate tax exemption for a certain period, concessions and exemptions relating to GST, and lower state and central taxes. In SCS states, the Centre funds central schemes up to 90%, compared to 70% in non-SCS states.

The AP government has argued that special incentives are vital for rapid industrialisation, and would lead to improved employment opportunities for the youth and overall development of the state. SCS would encourage a range of investments in the state, it has argued.

What have Naidu and Jagan done to press the demand?

Naidu has been vocal and emotional about SCS, and it vexed him through his 2014-19 tenure as CM. The TDP was part of the first Modi government when it took power in 2014, and Naidu was frustrated by his failure to persuade the Centre of his case.

In March 2018, expressing anguish over the Centre's refusal to listen to his pleas, Naidu asked his two ministers at the Centre — P Ashok Gajapati Raju (Civil Aviation) and Y Satyanarayana Chowdary (MoS, Science & Technology and Earth Sciences) — to resign. He then quit the NDA and launched an anti-BJP campaign for the Assembly election of May 2019.

When Naidu mentioned in the Legislative Assembly that he had gone to Delhi 29 times to meet NDA ministers to seek SCS, Jagan and his YSRCP MLAs had laughed, and peeled fun at him. During the election campaign, Jagan attacked Naidu and TDP for their failure to get SCS for AP. However, after winning a landslide and becoming the CM in 2019, Jagan faced similar attacks and insults himself.

In February 2024, during the last Assembly session before the elections, Jagan expressed frustration over the issue, saying that he wished that no party gets an absolute majority in Lok Sabha, so that the state can bargain for SCS. Naidu now has that opportunity.

How feasible is it for the Centre to yield to this demand?

The BJP has very few options in its negotiations with Naidu. The Congress has already sent him feelers — senior leader Jairam Ramesh has said that SCS for AP was part of the party's manifesto in the state, and the INDIA bloc would accept the demand if it comes to power at the Centre.

Giving Naidu what he wants to the exclusion of other states — notably Bihar and Odisha — will be difficult for the BJP. Also, the 14th Finance Commission had stated that SCS was a burden on the Centre's resources — this has been used by the NDA to reject Naidu's pleas.

As a compromise, the NDA could make a promise similar to the one the UPA made: to give SCS for a specific period — say, five years. The UPA had hoped it would assuage the people's anger and create some breathing space.

Naidu's earlier push for SCS had failed, and he had suffered a crushing defeat in the state as well. This time is different — the BJP is dependent on him, and he has just won a landslide in the state. From his position of strength, he could settle for a compromise with favourable terms — perhaps several Central projects in AP, a halt to the privatisation of the Vizag steel plant, increased assistance to backward districts, setting up of SEZs where the Centre would be able to waive taxes, etc.

THE DEMANDS...

THE BIHAR GOVERNMENT has been raising the demand for Special Category Status (SCS) since 2008. Before the 2009 election, Chief Minister Nitish Kumar said that he would support any alliance that agreed to give Bihar special status.

IN FEBRUARY this year, Bihar Energy Minister Bijendra Prasad Yadav said in the Assembly that the Prime Minister should give Bihar SCS. "We have achieved a lot from our limited resources... If we get a boost from the Centre, we will be able to pull more people out of poverty," he had said. Earlier on January 24, the birth anniversary of socialist icon Bihar Karpoori Thakur, the CM himself had iterated the demand for SCS.

THE ODISHA GOVERNMENT first demanded SCS in 1979. The state continued to push for it in the 1990s, and the 10th (1990) and 11th Assemblies (1995) passed unanimous resolutions asking the Government of India for SCS. After coming to power in 2000, Naveen Patnaik used the issue to accuse the UPA government at the Centre of neglecting Odisha. The state's demand was based mainly on the presence of hilly and tribal areas, and vulnerability to natural disasters such as floods and cyclones.

THE CENTRE REJECTED the demand in May 2013 — when Deputy Chairman of the Planning Commission Montek Singh Ahluwalia said the state did not qualify for SCS — and again in January 2016, when NITI Aayog vice-president Arvind Panagariya said the demand for SCS could not be considered in view of the recommendations of the 14th Finance Commission, which made no distinction between general and SCS states in distribution of shareable taxes.

Naidu, Nitish on Wednesday. AM

...AND RESPONSE

TWO FINANCE MINISTERS, the late Arun Jaitley in 2015, and Nirmala Sitharaman in February 2023, have ruled out granting SCS to Andhra Pradesh or Odisha. The Centre has said the provision of SCS no longer exists, and the mechanism for devolution of taxes proposed by the 14th Finance Commission is in place. The Centre is offering Rs 1,050 crore per annum as Special Development Assistance to seven backward districts in AP.

SUJIT BISOYI & SANTOSH SINGH

Context: Recently, the Telugu Desam Party (TDP) president has risen as a pivotal figure in national politics, prompting expectations of numerous concessions, notably the assurance of Andhra Pradesh's Special Category State status.

Special Category Status

- **About:** It is a classification given by the Centre to assist in the development of those states that face geographical and socio-economic disadvantages.
- The Constitution does not have any provision for categorisation of any state as a Special Category Status (SCS) State.
- **Introduced by**: In 1969, the Fifth Finance Commission of India.
- **Objective**: To provide certain disadvantaged states with preferential treatment in the form of central assistance.
- This formula (Gadgil formula) was named after the then Deputy Chairman of the Planning Commission, Dr Gadgil Mukherjee and is related to the transfer of assistance to the states by centre under various schemes.
- **Recommendation of the 14th Finance Commission**: They suggested that the resource gap of the states should be filled by increasing the devolution of tax to 42% from the existing 32%.
- **Criteria for special category status:**
  - Hilly and difficult terrain
  - Low population density or sizeable share of tribal population
  - Strategic location along borders with neighbouring countries
  - Economic and infrastructural backwardness
  - Non-viable nature of state finances
- The decision to grant special category status was with the National Development Council, composed of the prime minister, union ministers, chief ministers and members of the planning commission, who guide and review the work of the commission.
  - SCS was accorded to 11 states, including the entire Northeast, and the border hill states of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand. Subsequently, other states too demanded SCS — including Andhra Pradesh and Bihar.

BOEING'S STARLINER

(Syllabus: GS Paper 3 – Sci and Tech)



Lift-off finally: Boeing launches its 1st crewed space flight on third try

PIO Sunita Williams, Another Astronaut Head To ISS Aboard Starliner, Stepping Up Co's Race With SpaceX

Washington: Boeing's new Starliner astronaut capsule was launched from Florida on Wednesday in a much-delayed first test flight carrying a crew, a milestone in the aerospace giant's ambitions to step up its competition with Elon Musk's SpaceX. The CST-100 Starliner, with Nasa astronauts Butch Wilmore and Indian-origin Sunita Williams aboard, lifted off from the Cape Canaveral Space Force Station in Florida, strapped to an Atlas V rocket furnished and flown by Boeing-Lockheed Martin joint venture United Launch Alliance.

The gumdrop-shaped capsule and its crew headed for a rendezvous with the International Space Station (ISS), following years of technical problems, delays and a 2022 test mission to the orbital laboratory without astronauts aboard.

Last-minute issues had nixed the Starliner's first two crewed launch attempts. But on Wednesday, the Atlas V's engines thundered to life in flaming clouds of exhaust and coolant-water vapour as the spacecraft roared off its launch pad into sunny skies from Florida's Atlantic Coast.

The rocket's upper stage separated from its lower section about four minutes into flight, followed by Starliner's separation from the second stage. Now on its own, the spacecraft fired its onboard thrusters to start pushing itself into orbit, mission managers said, a process that will kick off its 24-hour catch-up journey with the ISS, the orbiting research outpost some 400 km above Earth. Starliner will need to execute precise manoeuvers to dock with ISS as planned on Thursday, demonstrate it can stay docked for eight days, then safely return the two astronauts.

Boeing intends for Starliner to compete with SpaceX's Crew Dragon capsule, which since 2020 has been Nasa's only vehicle for sending ISS crew members to orbit from US soil.

The inaugural crew for the seven-seat Starliner includes two veteran astronauts: Wilmore, 61, a retired US Navy captain and fighter pilot, and Williams, 58, a former Navy helicopter test pilot with experience flying more than 30 different aircraft. They have spent a combined 500 days in space over the course of two ISS missions each. Wilmore is the designated commander for the flight, with Williams in the pilot seat. Williams made history as the first woman to embark on such a mission. And it won't be her first entry in the history books. In 2012, during a prior trip to the ISS, Williams became the first person to finish a triathlon in space, during which she simulated swimming using a weight-lifting machine and ran on a treadmill while strapped in by a harness so she wouldn't float away. That came after she ran the Boston Marathon from the space station in 2007. REUTERS, PTI

CST-100 Starliner, with Nasa astronauts Butch Wilmore & Sunita Williams aboard, lifted off from the Cape Canaveral Space Force Station in Florida

Context: Boeing's new Starliner astronaut capsule was recently launched from Florida on a much-delayed first test flight carrying a crew, marking a significant milestone in the company's competition with Elon Musk's SpaceX.

Boeing's Starliner

- **About:** It is designed to transport astronauts to and from space. It is more than 4 meters wide and can accommodate up to seven astronauts.
- **Purpose:** To support NASA's efforts to transport astronauts to the International Space Station (**ISS**).
  - Alongside **SpaceX's Dragon crew capsule**, Starliner will alternate launching astronauts to the ISS, ensuring continued access to space until the ISS is decommissioned next decade.
  - After NASA shut its Space Shuttle programme in 2011 and before **SpaceX's Dragon capsule got ready in 2020,** only **Russia's Soyuz rocket** and capsule could ferry astronauts to and from the ISS.
- **Flight Test Profile:** Starliner's first crew flight test will be piloted by **veteran astronauts Barry Wilmore and Sunita Williams.**
  - They will be launched by an **Atlas V rocket** and spend eight days aboard the ISS before returning to Earth, likely landing in New Mexico.

Sunita Williams

- **About**: She is an American astronaut who set records on her three flights to the International Space Station.
- **NASA Career**: Selected as an astronaut candidate by NASA in June 1998
- **Participated in two space missions**: Expeditions 14/15 (December 9, 2006, to June 22, 2007) and 32/33 (July 14 to November 18, 2012)
- **Achievements**: During her time aboard the ISS, Williams achieved a significant milestone for female astronauts by conducting four spacewalks, totalling 29 hours and 17 minutes.
  - In total, Williams has spent 322 days in space across her two missions.
  - She reclaimed the title of the female astronaut with the highest cumulative spacewalk time,, though this record was later surpassed by Peggy Whitson, who completed 10 spacewalks.

BUSINESS STANDARD

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CENTRAL EXCISE BILL, 2024

(Syllabus: GS Paper 3 – Economy)

No exemption for SEZ units in draft Central Excise Bill

Officials may be allowed to audit businesses

SHRIMI CHOUDHARY
New Delhi, 5 June

The proposed Central Excise Bill, 2024, does not exempt excisable goods produced or manufactured in a Special Economic Zone (SEZ) and brought to any other place in India from duty. Any exemption will need to be notified separately by the Central government, if deemed fit, says the Bill.

The move, if implemented, could curb misuse of incentives and alleged duty evasion at SEZ units. However, according to a senior government official, the Bill is not expected to be a part of the upcoming full Budget of the new government.

Currently, central excise duty is levied on a select list of goods — tobacco, crude oil, gasoline, diesel, natural gas, and air turbine fuel — while the majority of goods have transitioned to the goods and services tax (GST) regime.

SEZ units enjoy special incentives and tax benefits, including exclusion from central excise duty. "...where the central government, having regard to the nature of the process of manufacture or production of excisable goods of any specified description, the extent of evasion of the duty of excise in regard to such goods or such other factors as may be relevant, is of the opinion that it is necessary to safeguard the interest of revenue, specify, by notification, such goods as notified goods and there shall be levied and collected duty of excise on such goods in accordance with the provisions of this section in such manner as may be prescribed," the Bill reads.

Even though the excise duty basket has only a few goods, it is a source of significant revenue for both Centre and states. States tax them via value added tax, rather than state GST. In FY24, the central excise collection was over ₹3 trillion. The proposed Bill also outlines the conditions, restrictions, and manner of availing and utilising excise duty credit. It proposes to replace the CENVAT (central value added tax) credit under the current regime with a specific section dealing with duty credit, namely central excise duty credit. Unutilised credit balances of duty paid under the existing act will be allowed to be transferred in the proposed act as transitional credit.

The Bill also advocates for certain powers to central excise officers, including a structured framework for audit. This is a departure from the current scenario where no formal audit is conducted by the excise officials. Other notable proposals include extending the time limit for the recovery of duties to three years, from the existing two years, and shifting the onus of registration onto the person desiring to avail Central Excise Duty Credit. The time period for granting a refund of duty by the department has also been reduced to 60 days from the existing three months. Saurabh Agarwal, partner at EY, believes that by streamlining processes and clarifying regulations, the Bill seeks to create a more conducive environment for businesses.

"Key provisions, such as the transferability of unutilised credit balances and an extended time frame for duty recovery underscore the government's commitment to facilitating smoother operations for enterprises," he said.

ILLUSTRATION: BINAY SINHA



REVAMP ON CARDS

- Structured framework for utilising excise duty credit proposed
- CENVAT credit to be replaced by central excise duty credit
- Definition of "related persons" simplified
- Time limit for recovery of duties extended to 3 years, from the existing 2 years
- Time period for granting a refund of duty now 60 days from the existing 3 months

Context: The proposed Central Excise Bill, 2024, does not exempt excisable goods produced or manufactured in a Special Economic Zone (SEZ) and brought to any other place in India from duty.

Central Excise Bill, 2024

- **About:** The Bill aims to enact a comprehensive modern central excise law with a focus on facilitating ease of doing business and eliminating outdated provisions.
  - The Bill also advocates for certain powers to central excise officers, including a structured framework for audit.
- **Key provisions**: Transferability of unutilised credit balances and an extended time frame for duty recovery underscore the government's commitment to facilitating smoother operations for enterprises
- **Replacement:** Once enacted, the Bill will supersede the Central Excise Act of 1944, ushering in a contemporary regulatory framework.
- **Structure:** The Bill consists of twelve chapters, delineating various aspects of central excise regulation, along with 114 sections and two schedules

Special Economic Zone

- **Definition**: It is a territory within a country that is typically duty-free (Fiscal Concession) and has different business and commercial laws chiefly to encourage investment and create employment
- **Origin**: The Special Economic Zone (SEZ) policy in India first came into inception on April 1, 2000.
  - from 2000 to 2006 under the provisions of the Foreign Trade Policy and fiscal incentives were made effective through tSEZs in India functioned he provisions of relevant statutes.
- **Prime objective:** to enhance foreign investment and provide an internationally competitive and hassle free environment for exports.
- **SEZ act**: The Special Economic Zones Act was passed in 2005 and came into force along with the SEZ Rules in 2006.

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MINUTEMAN III

(Syllabus: GS Paper 3 – Sci and Tech)

On Cam: Nuclear-capable Minuteman III ICBM Lights Up U.S. Skies Amid Tensions With Russia

Context: The US recently conducted an unarmed Minuteman III intercontinental ballistic missile test from the Californian Vandenberg Space Force Base.

Features:

- **Three-Stage:** The Minuteman III features a three-stage, solid-fuel propulsion system, ensuring reliability and ease of deployment.
- **Dimensions and Weight:** With a length of 18.2 meters, a diameter of 1.85 meters, and a launch weight of 34,467 kilograms, it stands as a substantial piece of military hardware.
- **Range**: 13000 Km.
- **Payload Capacity:** It can carry a payload of three reentry vehicles, enhancing its versatility.
- **Arms Control Agreements:** In compliance with arms control agreements, the Minuteman III now carries a single nuclear warhead, reflecting diplomatic efforts to limit nuclear proliferation.

Minuteman III

- **About:** The LGM-30G Minuteman III is a solid-fueled, intercontinental ballistic missile (ICBM) first deployed by the United States Air Force (USAF) in the 1960s.
- **Land-based Component:** It serves as the sole land-based component of the U.S. nuclear triad, complementing the sea-based and air-based components.
- **Manufactured by:** The Minuteman III was designed and manufactured by the Boeing Corporation, a major aerospace company.
- **Modernization:** Originally planned for a ten-year service life, the Minuteman III has been modernized over the years, with its replacement, the Ground-Based Strategic Deterrent (GBSD), expected in 2029.
- **Pioneer of MIRV Technology:** It was the first U.S. missile equipped with multiple independently targetable reentry vehicles (MIRVs), enhancing its strategic capabilities.
    - The United States currently maintains an estimated arsenal of 440 Minuteman III missiles, bolstering its nuclear deterrent capabilities.

LIVE SCIENCE June 5

BLAZE STAR

(Syllabus: GS Paper 3 – Sci and Tech)

A 'new star' could appear in the sky any night now. Here's how to see the Blaze Star ignite.

Context: The rare celestial event of the upcoming explosion of "Blaze Star" (T Coronae Borealis) will be visible to the naked eye for the first time since 1946, emphasizing the dynamic nature of the universe and the intricate processes underlying stellar evolution.

Blaze Star

- **About:** It is officially known as T Coronae Borealis (T CrB), is a dim star located 3,000 light-years away from our solar system.
- **Location:** It is found in the constellation Corona Borealis (the “Northern Crown”).
    - Blaze Star is a rare example of a recurrent nova, occurring once in every 80 years.
- **Components**: The nova involves a binary star system comprising a white dwarf and a red giant.
- **Explosive Brightness**: The white dwarf draws material from the red giant, leading to periodic explosive increases in brightness.
- **Mechanism of Explosion**: The explosion occurs when the red giant’s surface temperature escalates dramatically, causing it to shed material onto the white dwarf, which then ignites a thermonuclear explosion.
- **Prediction:** NASA predicts this event to occur sometime between now and September 2024.
- **Historical Eruptions**: Past notable eruptions of T CrB were recorded in the years 1946 and 1866, with earlier documented observations dating back to 1787 and 1217.

THE HINDU Page 8

TB IN INDIA

(Syllabus: GS Paper 2 – Health)

Health Ministry reworks protocol as country's TB elimination drive plateaus

Bindu Shajan Perappadan
NEW DELHI

India's goal to achieve rapid decline in the burden of tuberculosis (TB) morbidity and mortality, while working towards the elimination of TB in the country by 2025, has plateaued, a senior Health Ministry official said.

The Indian Council of Medical Research (ICMR) is looking at reworking the protocol, the official added, specifically TB medication and its duration, to reboot the TB-free initiative for eliminating deaths, disease, and poverty resulting from the infection.

According to the Health Ministry, India has been engaged in TB control activities for more than 50 years, yet the disease continues to be the country's severest health crisis.



Tuberculosis kills an estimated 4,80,000 Indians every year.

TB kills an estimated 4,80,000 Indians every year or over 1,400 patients every day.

Additionally, the country also has more than a million 'missing' TB cases annually, which are not notified. Most remain either undiagnosed, or inadequately diagnosed and treated in the private sector.

Better preparation

"We are sure that this tragic loss of life, and continued suffering and poverty, needs to end. There are several new technologies which help in early detection and we are also better prepared to address TB. We now have advanced and effective interventions and technologies for diagnosis, treatment and care of TB," the official said.

The Ministry, however, maintains there is a need to recognise that more needs to be done to drastically reduce the incidence of TB in India.

Context: Recently, the Indian Council of Medical Research (ICMR) officials have announced plans to revamp the protocol, particularly focusing on TB medication and its duration, aiming to relaunch the TB-free initiative, striving for zero deaths, disease, and poverty associated with tuberculosis.

TB in India

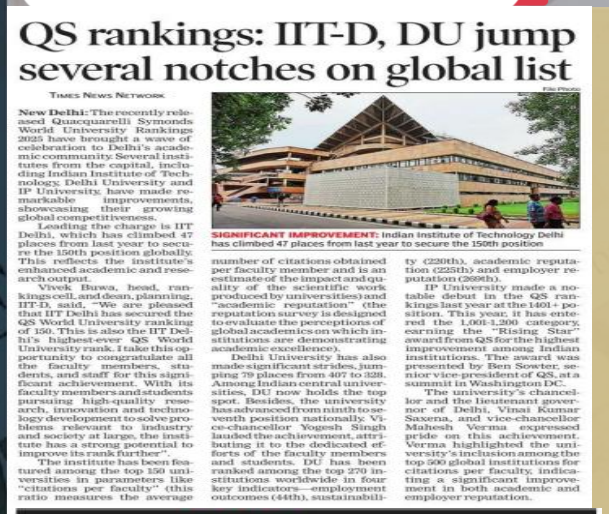
- **About:** It is caused by a bacterium called Mycobacterium tuberculosis. The bacteria usually attack the lungs.
- **Transmission:** TB bacteria spread through the air from one person to another. When a person with TB disease of the lungs or throat coughs, speaks, or sings, TB bacteria can get into the air. People nearby may breathe in these bacteria and become infected.
- **Symptoms:** Bad cough that lasts 3 weeks or longer, Pain in the chest, Coughing up blood or sputum, Weakness, Fatigue, Weight loss
  - Fever and Night sweats.
- **Treatment:** The standardized treatment regimen for MDR TB in India is a 6-drug regimen, with an intensive phase of 6–9 months and a continuation phase of 18 months; the total duration of treatment is about 24–27 months.
    - The six drugs are kanamycin, levofloxacin, cycloserine, ethionamide, pyrazinamide, and ethambutol also used to treat TB.

Indian government initiative:

- **Nikshay Poshan Yojana (Nutritional Support to TB Patients)**: Financial incentive of ₹500/- per month for each notified TB patient for the duration for which the patient is on anti-TB treatment.
  - In-kind where the total value of the food basket being distributed must not be less than ₹500 per month.
- **The Pradhan Mantri TB Mukt Bharat Abhiyan:**
  - Provide additional patient support to improve treatment outcomes of TB patients
  - Augment community involvement in meeting India's commitment to end TB by 2025
  - Leverage Corporate Social Responsibility (CSR) activities
- **Revised National Tuberculosis Control Programme:** The goal of TB control Programme is to decrease mortality and morbidity due to TB and cut transmission of infection until TB ceases to be a major public health problem in India.
- **National Framework for a Gender-Responsive approach to TB in India:** Outline the influences and impact of gender on the TB burden and response, based on available literature and data.
- **The National Strategic Plan (NSP) for TB Elimination 2017–25:** It is a bold strategic framework to drive the acceleration of progress toward TB Elimination, achieving the Sustainable Development Goals (SDG) and the End TB targets for India.

QS RANKINGS 2025

(Syllabus: GS Paper 2 – Education)



QS rankings: IIT-D, DU jump several notches on global list

TIMES NEWS NETWORK

New Delhi: The recently released Quacquarelli Symonds World University Rankings 2025 have brought a wave of celebration to Delhi's academic community. Several institutes from the capital, including Indian Institute of Technology, Delhi University and IP University, have made remarkable improvements, showcasing their growing global competitiveness.

Leading the charge is IIT Delhi, which has climbed 47 places from last year to secure the 150th position globally. This reflects the institute's enhanced academic and research output.

Vivek Buwa, head, rankings cell, and dean, planning, IIT-D, said, "We are pleased that IIT Delhi has secured the QS World University ranking of 150. This is also the IIT Delhi's highest-ever QS World University rank. I take this opportunity to congratulate all the faculty members, students, and staff for this significant achievement. With its faculty members and students pursuing high-quality research, innovation and technology development to solve problems relevant to industry and society at large, the institute has a strong potential to improve its rank further".

The institute has been featured among the top 150 universities in parameters like "citations per faculty" (this ratio measures the average number of citations obtained per faculty member and is an estimate of the impact and quality of the scientific work produced by universities) and "academic reputation" (the reputation survey is designed to evaluate the perceptions of global academics on which institutions are demonstrating academic excellence).

Delhi University has also made significant strides, jumping 79 places from 407 to 328. Among Indian central universities, DU now holds the top spot. Besides, the university has advanced from ninth to seventh position nationally. Vice-chancellor Yogesh Singh lauded the achievement, attributing it to the dedicated efforts of the faculty members and students. DU has been ranked among the top 270 institutions worldwide in four key indicators—employment outcomes (44th), sustainability (220th), academic reputation (225th) and employer reputation (269th).

IP University made a notable debut in the QS rankings last year at the 1401+ position. This year, it has entered the 1,001-1,200 category, earning the "Rising Star" award from QS for the highest improvement among Indian institutions. The award was presented by Ben Sowter, senior vice-president of QS, at a summit in Washington DC.

The university's chancellor and the lieutenant governor of Delhi, Vinai Kumar Saxena, and vice-chancellor Mahesh Verma expressed pride on this achievement. Verma highlighted the university's inclusion among the top 500 global institutions for citations per faculty, indicating a significant improvement in both academic and employer reputation.

SIGNIFICANT IMPROVEMENT: Indian Institute of Technology Delhi has climbed 47 places from last year to secure the 150th position

PREMIER LEAGUE

CHANGE	2025 RANK	2024 RANK	INSTITUTION
↑31	118	149	IIT-Bombay
↑47	150	197	IIT-Delhi
↑14	211	225	IISC
↑49	222	271	IIT-Kharagpur
↑58	227	285	IIT-Madras
↑79	328	407	Delhi university
↑3	801-850	951-1000	BITS, Pilani
0	801-850	801-850	Hyderabad university
↑1	901-950	951-1000	Manipal Academy of Higher Education
0	1001-1200	1001-1200	BHU

Context: The recently released Quacquarelli Symonds World University Rankings 2025 have brought a wave of celebration to Delhi's academic community, highlighting several institutes from the capital.

QS Quacquarelli Symonds

- **About:** It is a prominent global provider of services, analytics, and insight to the higher education sector worldwide.
- **Focus**: On delivering valuable support and resources to the global higher education community.
- **Mission**: To empower individuals from all over the world to achieve their full potential by facilitating educational success, promoting international mobility, and aiding in career development.
- **Indicators**: Academic reputation, citations per faculty, faculty student ratio, international relation network, international faculty, students, and outbound exchange students etc.

India's Performance

- **Delhi University:** It has surged 79 places in global rankings, climbing from 407th to 328th position.
  - **Top Position in India**: Among Indian central universities, DU now holds the premier spot, marking a notable achievement.
  - **Global Recognition in Key Indicators**: DU has been recognized globally, securing positions among the top 270 institutions worldwide in crucial indicators like employment outcomes (44th), sustainability (220th), academic reputation (225th), and employer reputation (269th).
- **IP University:** It entered the QS rankings last year at the 1401+ position, and this year, it has significantly improved, entering the 1,001-1,200 category.
  - **Rising Star Award**: QS awarded IP University the "Rising Star" accolade for the most substantial improvement among Indian institutions, highlighting its remarkable growth.

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