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Current Affairs - 28 September 2024

ABHED BULLETPROOF JACKET

Defence Research & Development Organisation (DRDO), along with researchers of Indian Institute of Technology (IIT) Delhi has developed Light Weight Bullet Proof Jackets named ABHED (Advanced Ballistics for High Energy Defeat).



- ABHED (Advanced Ballistics for High Energy Defeat) developed by DRDO and IIT Delhi.
- These jackets have been created from polymers and indigenous boron carbide ceramic
- The design configuration is based on characterisation of various materials at high strain rate followed by appropriate modelling and simulation.
- The new jackets are capable of **mitigating the highest threat levels** and are lighter than the maximum weight limits stipulated for the Army.
- It will enhance soldier **protection and mobility**.
- With a minimum possible weight of 8 kg and 9.3 kg for different BIS levels, these modular-design jackets, featuring front and rear armour, provide 360-degree protection.
- The jackets have been **classified as BIS level 5** and BIS level 6, by the Bureau of Indian Standards (BIS), which issues standards for bullet-resistant jackets and ballistic shields for the Indian Army.
- The design ensures 360-degree protection through modular armour plates that can be adapted for different mission requirements, providing soldiers with flexibility in various combat scenarios.



SASTRA RAMANUJAN PRIZE

Alexander Dunn has been awarded the prestigious 2024 SASTRA Ramanujan Prize.



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- It was instituted in the **year 2005**.
- It is awarded every year **by the SASTRA University** on its campus near Kumbakonam in Tamil Nadu, on Ramanujan's birth anniversary, December 22.
- **Eligibility:**
 - The prize is conferred **annually to mathematicians** from across the world who is less than 32 years of age, working in an area influenced by the Srinivasa Ramanujan.
 - The age limit is 32 years to commemorate the fact that Ramanujan accomplished a phenomenal body of work in this short span.
- **Cash prize:** It carries a citation and an **award of \$10,000**.
- This award has gained global repute ever since it was instituted.
- **Other recipients:** Manjul Bhargava and Akshay Venkatesh

Contribution of Dunn

- Dunn is being recognized for his outstanding contributions to **analytic number theory**, particularly his joint work with Maksym Radziwill in solving the Kummer-Patterson Conjecture on bias related to cubic Gauss sums.
 - His work represents a significant breakthrough in the field.
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GLOBAL INNOVATION INDEX



India has moved up to 39th place among 133 global economies in the Global Innovation Index (GII) 2024.

- It is published by the **World Intellectual Property Organization**.
- It is a reliable tool for governments across the world to **assess the innovation-led social and economic changes** in their respective countries

Key Highlights of the Global Innovation Index 2024



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- India has been **ranked first among 10 economies** in Central and Southern Asia, further emphasizing its regional dominance in innovation.
- India has also secured the 4th position in the World Intellectual Property Organization (WIPO) Science and Technology (S&T) Cluster Ranking.
- Major cities like Mumbai, Delhi, Bengaluru, and Chennai are listed among the world's **top 100 S&T clusters**, which are hubs for research, development, and technological advancements.
- India has achieved the **7th rank globally in intangible asset intensity**, which measures the strength of non-physical assets like patents and trademarks, essential for driving innovation.

Key points about the World Intellectual Property Organisation

- It works with the vision of encouraging creative activity and promoting the protection of Intellectual Property throughout the world.
- WIPO is one of the 15 **specialised agencies of the United Nations**.
- Currently, there are 193 members of the World Intellectual Property Organisation.
- **Headquarter:**

MANAS NATIONAL PARK AND TIGER RESERVE



Assam's Manas National Park and Tiger Reserve will reopen for tourists following the end of the monsoon closure period as mandated by the Government of India.

- It is located in the **foothills of Himalayas in Assam**. It is **contiguous with the Royal Manas National Park in Bhutan**.
- The area has a unique distinction of being a **Natural World Heritage Site, a Tiger Reserve, an Elephant Reserve, a Biosphere Reserve** and an **Important Bird Area**.
- It is one of the first reserves included in the tiger reserve network under project tiger in 1973.



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- It forms part of a large tiger conservation landscape which includes Buxa-Nameri-Pakke-Namdapha tiger reserves and protected areas of Bhutan and Myanmar.
 - The name of the park originates from the **Manas River**, which is named after the serpent goddess Manasa.
 - The Manas River is a **major tributary of Brahmaputra River**, which passes through the Manas National Park.
 - **Flora:** In general, the vegetation comprises of **Sal (Shorea robusta)**, **scrub forests**, old plantations (in buffer areas), semi-evergreen and mixed deciduous forests, interspersed with grasslands and riparian vegetation (in core area).
 - **Fauna:** The Park is known for its rare and endangered endemic wildlife such as the **Hispid Hare, Pygmy Hog, Golden Langur, Indian Rhinoceros, Asiatic Buffalo** etc.
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THREE GORGES DAM



NASA scientists suggested that China's largest hydroelectric dam, "Three Gorges Dam" has been shifting huge amounts of water, which is affecting the spinning of Earth.

- It is located on the **Yangtze River** in **China's Hubei Province**.
- It is the **world's largest hydroelectric power station**.
- The dam was completed in 2012 after nearly two decades of construction.
- Its staggering dimensions—2,335 metres (7,660 feet) long and 185 metres (607 feet) high—make it the **largest dam ever built**.
- The dam's reservoir has a capacity of 40 cubic kilometres (about 10 trillion gallons) of water, which can **produce up to 22,500 megawatts of electricity**.
- The dam **uses the flow of water from the three closest gorges**, known as **Qutangxia, Wuxia, and Xilingxia**, for spinning the turbine and generating electricity



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- Beyond its hydroelectric capabilities, the dam is intended to **increase the Yangtze River's shipping capacity** and **reduce the potential for floods** downstream by providing flood storage space.

Key Facts about Yangtze River:

- It is the **longest river in both China and Asia** and **third longest river in the world**, with a length of 3,915 miles (6,300 km).
- It is also considered the **longest river to exclusively flow within** the borders of a **single nation**.
- Its basin drains an area of 698,265 square miles (1,808,500 sq.km).
- From its **source on the Plateau of Tibet to its mouth on the East China Sea**, the river traverses or serves as the border between 10 provinces or regions.
- More than three-fourths of the river's course runs through mountains.
- The Yangtze has eight principal tributaries. On its left bank, from source to mouth, these are the Yalung, Min, Jialing, and Han rivers; those on the right bank include the Wu, Yuan, Xiang, and Gan rivers.

WHAT IS THE GST COMPENSATION CESS?



The Goods and Services Tax (GST) Council recently set up a 10-member GoM to decide on the taxation of luxury, sin, and demerit goods once the compensation cess ends in March 2026.

- It is levied under Section 8 of The Goods and Services Tax (Compensation to State) Act, 2017.
- Why is GST Cess Levied?
 - As GST is a **consumption-based tax**, the state in which the consumption of goods and supply happen would be eligible for the indirect tax revenue.
 - Hence, **after GST comes into effect**, some states that are **net exporters of goods** and/or services are expected to **experience a decrease in indirect tax revenue**.

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- To **compensate the States for the loss in tax revenue**, the GST Compensation Cess has been declared by the Central Government.
- **Usage of GST Cess:**
 - **All the proceeds** received from the GST compensation cess would be **credited to a non-lapsable fund** known as the **GST Compensation Fund**.
 - The funds would then be **used for compensating tax revenue loss to States** on account of GST implementation.
 - **If any funds are unutilized**, then at the end of the transition period, it would be **shared in half by the Central Government and all State Governments**.
 - The State government's share would be distributed in the ratio of their total revenues from the State tax or the Union territory goods and services tax, in the last year of the transition period.

Applicability:

- GST Cess would be applicable **to both the supply of goods or services** that have been **notified by the Central Government**.
- Also, **both intrastate supplies** of goods or services and **interstate supplies** of goods or services would attract GST cess.
- **All taxable persons under GST, except taxpayers registered under the GST composition scheme** is expected to **collect and remit GST cess**.
- In the GST regime, compensation cess at varied rates is **levied on luxury, sin, and demerit goods** (cigarettes, pan masala, gutkha, and other tobacco products, soft drinks, cars, etc.).
- In 2022, the **GST Council decided to extend the levy till March 2026** to repay the interest and the principal amount of the Rs 2.69 lakh crore worth loan taken in the 2021 and 2022 fiscal years to make good states' revenue loss during Covid years.



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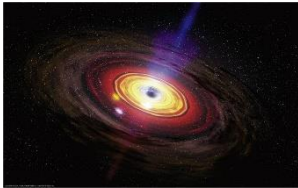
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WHAT IS AN ACTIVE GALACTIC NUCLEUS (AGN)?



Researchers from the Indian Institute of Astrophysics (IIA) recently found evidence of an interaction between a radio jet emitted from a special kind of galaxy called Active Galactic Nuclei (AGN) and the surrounding interstellar medium.

- An AGN is an **extremely bright central region of a galaxy** that is dominated by the **light emitted by dust and gas as it falls into a black hole**.
 - The extremely luminous central region emits higher radiation that can **outshine the rest of the galaxy altogether**.
 - AGNs **emit radiation across the entire electromagnetic spectrum**, from radio waves to gamma rays.
 - This radiation is produced by the **action of a central supermassive black hole** that is devouring material that gets too close to it.
 - A **galaxy hosting an AGN is called an ‘active galaxy’**.
 - AGNs are the **most luminous, persistent sources of electromagnetic radiation** in the Universe. This means they can be used to discover distant objects.
 - Astronomers have also classified different types of AGN based on their observed characteristics.
 - The **most powerful AGNs are known as quasars**, which give rise to extremely luminous galactic centres.
 - A **blazar** is an AGN with a **jet of light and energy that is pointed toward the Earth**.
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PHILADELPHI CORRIDOR

Israel has been under intense pressure to give up control of the Philadelphi corridor.



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- It is a ribbon of land about 14kms in length and 100 metres wide along **Gaza's border with Egypt**.
- It was designated as a **demilitarised border zone** after the withdrawal of Israeli settlements and troops from Gaza in 2005 and runs from the **Mediterranean to the Kerem Shalom** crossing with Israel.
- The Corridor was **originally established** under the 1979 **Israel-Egypt peace treaty** as a 100-meter-wide buffer zone.
- The zone was later expanded beginning during the Second Intifada to be several hundred meters wide. It covers the entire 8.7-mile-long border.
- The **Rafah crossing** between Egypt and Gaza is within the Philadelphi Corridor.
- In 2005, as part of Israel's unilateral withdrawal from Gaza, Egypt and Israel signed an agreement by which Egypt would secure the border between Egypt and Gaza to prevent the smuggling of weapons into the Strip.
- Egypt maintains a one-kilometer-wide buffer zone on its side of the border, with plans to expand it.

WHY DIGITISATION IS NOT ENOUGH TO REFORM LAND LAWS

- **India's land governance system is deeply entangled in a complex network of legal, institutional, and administrative challenges** that have hampered the country's economic and social development.
- As highlighted in the Economic Survey 2023-24, **these challenges are barriers to achieving multiple developmental goals**.
- **While the 2024 Budget proposed technological solutions to modernise India's land administration, such initiatives do not address the deeply rooted legal and institutional barriers** that hinder effective land governance.

An Analysis of Barriers in Land Governance

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- **Unclear Land Titles and Insecure Tenure**
 - **Ownership of land in India is often ambiguous** due to outdated records, poor maintenance of land registries, and overlapping claims.
 - This **problem is especially prevalent in rural areas** where the majority of landholdings are informal and not officially registered.
 - **Fragmented and Conflicting Legal Framework**
 - **India's land governance is subject to a myriad of conflicting laws** that vary across states and regions, adding to the complexity and inefficiency of the system.
 - **These laws regulate land ownership, transfers, leasing, and land use** in ways that are **often contradictory or overlapping**.
 - **Fragmentation of Land Holdings**
 - Land fragmentation is one of the most pressing challenges in India's agricultural sector.
 - **Over time, as land is passed down through generations, it is divided into smaller and smaller parcels.**
 - **Gender Inequality in Land Ownership**
 - Despite several legal provisions that aim to improve women's access to land ownership, **gender inequality remains a pervasive issue in India's land governance.**
 - **While legal reforms such as the Hindu Succession Act have been introduced to grant women equal inheritance rights,** in practice, women are often pressured to forgo their claims to family property in favour of their male relatives.
 - **Land Use Restrictions and Regulatory Barriers**
 - Many laws in India impose restrictions on how land can be used, particularly in the agricultural sector.
 - **These land use regulations are often rigid and outdated,** preventing landowners from converting their land for more economically viable purposes.
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