



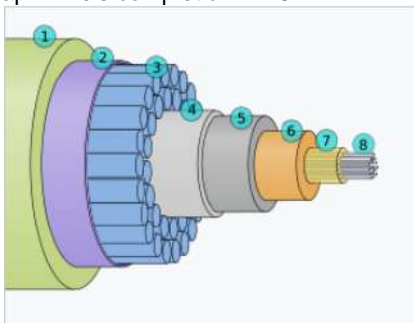
4 January, 2024

Kochi-Lakshadweep Islands Submarine Optical Fibre Connection

Context: PM Modi inaugurated the Kochi-Lakshadweep Islands Submarine Optical Fibre Connection in Kavaratti, part of over Rs 1,150 crore worth of projects spanning technology, energy, water resources, healthcare, and education.

- The KLI-SOFC project promises 100 times faster internet for Lakshadweep residents.
- It marks a significant improvement in communication infrastructure, supporting services like telemedicine, e-governance, education, digital banking, and digital literacy.
- The project is funded by the Universal Services Obligation Fund (USOF), Department of Telecommunications.
- Lakshadweep will be connected through a dedicated Submarine Optic Fibre Cable for the first time.
- PM Modi emphasized the potential for Lakshadweep's development as a logistics hub.
- Administrator of UT of Lakshadweep, Shri Praful Patel, was present during the inauguration.
- The project aligns with the government's commitment to 'Digital India' and 'National Broadband Mission.'
- Lakshadweep's population will benefit from high-speed wireline broadband connectivity, supporting future advancements in FTTH and 5G/4G mobile networks.
- PM Modi assures continued efforts for the ease of living, travel, and business in Lakshadweep.
- **Submarine Communication Cables**

- Submarine communications cables are laid on the seabed between land-based stations to transmit telecommunication signals across oceans and seas.
- The first submarine communications cables were deployed in the 1850s, primarily for telegraphy traffic. Notably, the transatlantic telegraph cable became operational in 1858, marking the first instant telecommunications links between continents.
- By 1871, submarine cables connected all the world's continents (except Antarctica), linking Java to Darwin, Australia, in anticipation of the Australian Overland Telegraph Line's completion in 1872.



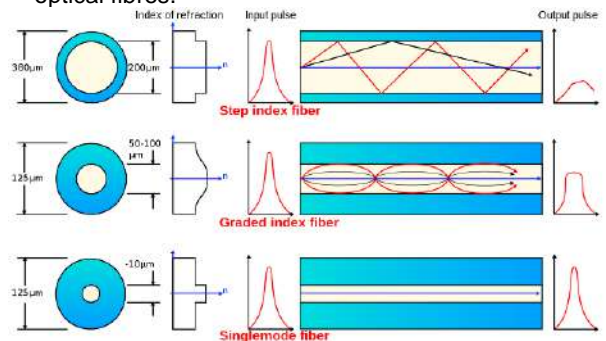
A cross section of the shore-end of a modern submarine communications cable.

- 1 — Polyethylene
- 2 — Mylar tape
- 3 — Stranded steel wires
- 4 — Aluminium water barrier
- 5 — Polycarbonate
- 6 — Copper or aluminium tube
- 7 — Petroleum jelly
- 8 — Optical fibers

- Over time, submarine cables evolved to carry telephone traffic and eventually data communications traffic.
- Early cables utilized copper wires in their cores, but modern submarine cables leverage optical fibre technology to transmit digital data, encompassing telephone, internet, and private data traffic.
- Contemporary submarine cables are typically around 25 mm (1 in) in diameter and weigh approximately 1.4 tonnes per kilometer (2.5 short tons per mile; 2.2 long tons per mile), with larger and heavier cables employed for shallow-water sections near the shore.

➤ Optical Fibre

- Optical fibres, flexible glass or plastic fibres, transmit light and are widely used in fibre-optic communications for longer distances and higher bandwidths.
- Preferred over metal wires, fibres experience less signal loss and are immune to electromagnetic interference.
- Apart from communications, fibres serve purposes like illumination, imaging, and confined-space applications.
- Glass fibres are made by drawing, while plastic fibres can be drawn or extruded.
- They consist of a core and cladding for total internal reflection, acting as a waveguide.
- Multi-mode fibres support multiple paths for short-distance communication, while single-mode fibres are ideal for longer links.
- Joining fibres involves precise cleaving, alignment, and coupling, with fusion splicing and mechanical splicing as common techniques.
- Fibre optics, coined by physicist Narinder Singh Kapany, is the field focused on designing and applying optical fibres.



Voter Verifiable Paper Audit Trail (VVPAT)

Context: On December 30, Jairam Ramesh of the Congress requested a meeting with Chief Election Commissioner Rajiv Kumar for INDI Alliance leaders to discuss their views on VVPATs.

- Voter Verifiable Paper Audit Trail (VVPAT) is a machine attached to the Electronic Voting Machine (EVM) that prints a paper slip indicating the voter's choice.
- The printed slip remains visible for seven seconds behind glass, allowing voters to verify their choices before it falls into a box.

Face to Face Centres



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- The human body, consisting of trillions of cells, can be affected by cancer, which can initiate in various locations.
- Normal cell growth involves controlled division to create new cells as needed, with aging or damaged cells naturally undergoing death.
- Disruptions in this orderly process can lead to the inappropriate growth and multiplication of abnormal or damaged cells, forming tumors.
- Tumors can be cancerous (malignant) or non-cancerous (benign), with cancerous tumors showing aggressive growth and the potential to invade surrounding tissues and spread.
- Cancer can originate in any part of the body where cells are present.
- The breakdown of the normal cell cycle can result in tumor formation and the progression of cancerous cells.

NEWS IN BETWEEN THE LINES

Nritya Kalanidhi Award



Recently, the dancer and expert in both Bharatanatyam and Kuchipudi choreographer Vasanthalakshmi Narasimhachari was presented with the 'Nritya Kalanidhi' award at the 17th Dance Festival of the Music Academy in Chennai.

About Nritya Kalanidhi Award:

- The Nritya Kalanidhi award is a **dance award** given by the Madras Music Academy.
- It is considered the highest honor in Carnatic music and was established in **1942**.
- The award includes a **gold medal** and a **citation**.
- The Madras Music Academy also gives out other awards, including the **TTK (Tiruvellore Thattai Krishnamachari), Sangita Kala Acharya** and **Sangita Kalanidhi awards**.

Bharatanatyam:

- Bharatanatyam is a **classical Indian dance** form that originated in the Tanjore district of **Tamil Nadu**.
- It is one of the eight classical dances of India and is considered to be over **2,000 years old**.
- It is **performed by both men and women**.
- Bharatanatyam is known for its symbolism and three important features-**Nritta, Natya** and **Nritya**.
- It is also known as **Ekaharya**, where one dancer performs multiple roles in a single performance.

World Braille Day



The World Braille Day is celebrated across the globe on January 4th every year.

About World Braille Day:

- The **United Nations designated January 4th as World Braille Day** to recognize the role of Braille in education, communication and social inclusion.
- The day also marks the birthday of **Louis Braille, the inventor of the Braille script**, who was born in France in 1809.
- Braille is a **tactile representation of alphabetic and numerical symbols using six dots** that can be used to write almost any language, including **Arabic, Chinese, Hebrew** and **Spanish**.
- It is **used by blind and partially sighted people** to read the same books and periodicals as those printed in a visual font.
- The theme for World Braille Day 2024 is "**Empowering Through Inclusion and Diversity**".
- Braille is essential in the context of education, freedom of expression and opinion, as well as social inclusion, as reflected in **article 2 of the Convention on the Rights of Persons with Disabilities**.

Buxa Tiger Reserve



Recently, a tiger reappeared after 23 years, seen on cameras crossing a riverbed on December 28 and again on December 31 after two years in Buxa Tiger Reserve.

About Buxa Tiger Reserve:

- The Buxa Tiger Reserve (BTR) is also known as Buxa National Park, located in the Alipurduar district of **West Bengal**.
- It was established in **1983** as the **15th tiger reserve** in India and declared a **national park in 1992**.
- Its northern boundary borders **Bhutan**, and its eastern boundary borders **Assam**.
- Buxa Fort is a historic fort sited midst the dense forest used by the British rulers of India as a **high security prison and detention camp in the 1930s**.
- The rivers **Sankosh, Raidak, Jayanti, Churnia, Turturi, Phashkhawa, Dima** and **Nonani** flow through this National Park.
- It has the **second highest mammal diversity** of all tiger reserves in India.
- **Flora:** The flora comprises over 300 tree types, 250 **shrubs**, 400 herbs, 9 canes, 10 bamboos, 150 orchids, 100 grasses, 130 aquatic plants (including 70+ sedges), and 160+ other **monocotyledons** and **ferns**.
- **Fauna:** The reserve consists of **Asian Elephant, Tiger, Gaur, Wild boar, Sambar, Wild dog (Dhole)**, Indian Tiger, Asian Elephant, One-Horned Rhino, **Clouded Leopard**, Bengal florican, **Regal python**, Chinese Pangolin, Hispid hare, Hog deer etc.

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Snow Leopard



Recently, Kyrgyzstan has acknowledged the snow leopard as a national symbol.

About Snow Leopard:

- Snow Leopard is often termed as **Ghost of Mountains**, closely related to Tiger species (**Panthera Tigris**).
- It boasts **whitish to gray fur** with black spots near its head and neck, a pale belly and striking green or grey eyes.
- The **spots are called rosettes** which is unique to every snow leopard.
- It is found in **12 countries**, including Afghanistan, Bhutan, China (largest Population), India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russian, Tajikistan and Uzbekistan.
- The snow leopard holds a vulnerable status on the **IUCN List of Threatened Species**.
- Schedule I under the Wildlife (Protection) **Act of 1972** safeguards the most protected wildlife species.

Alrosa

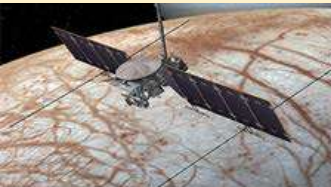


Recently, the European Union imposed sanctions on Russia's state-run diamond giant Alrosa and its CEO as part of a ban on imports of the precious stones over the Ukraine war.

About Alrosa:

- Alrosa is a **Russian B2B diamond mining company** that explores, mines, manufactures and sells diamonds.
- Alrosa's history dates back to **1954**, when the first primary deposit of diamonds in the Soviet Union was found.
- Its headquarters are located in **Mirny** (Sakha Republic) and **Moscow**
- It accounts for over **90% of all Russian diamond production**.
- The **US imposed sanctions on Alrosa in April 2022**, soon after Russia's invasion of Ukraine in March.

Europa Clipper



Recently, the NASA has announced that it will launch Europa Clipper, to explore one of Jupiter's largest moons, Europa.

About Europa Clipper:

- NASA's Europa Clipper is an **interplanetary mission** that will **study Jupiter's moon Europa**.
- The spacecraft will orbit Jupiter and **perform flybys of Europa**.
- Europa is slightly **smaller than the earth's moon**, with a surface **made of ice**.
- The mission is scheduled to **launch on October 6, 2024**, atop a SpaceX Falcon Heavy rocket.
- It will **arrive in 2030** and is the first dedicated mission to explore a world besides Earth with a global ocean.
- The scientists want to investigate whether Europa's ocean could be a **suitable habitat for extraterrestrial life**.
- Europa has strong evidence of an **ocean of liquid water beneath its icy crust**.
- The Europa Clipper will be the **first spacecraft** designed to observe Europa exclusively and thoroughly.

Highly Pathogenic Avian Influenza



Recently, the first recorded case of a polar bear dying from Highly Pathogenic Avian Influenza (HPAI) was confirmed in the Arctic region.

About Highly Pathogenic Avian Influenza:

- Highly Pathogenic Avian Influenza (HPAI) is a **virus** that mainly **affects birds and can be deadly**.
- It is caused by subtypes **H5 and H7 of type A**.
- It can cause **serious illness in birds** that can spread quickly, resulting in high death rates.
- It can also infect other mammals, such as **minks, ferrets, seals and domestic cats**.
- The initial outbreak of HPAI H5N1 in India occurred in **2006** in Navapur, **Maharashtra**.
- The main risk factor for transmission from **birds to humans is direct or indirect contact** with infected animals or with environments.
- Exposure to avian influenza viruses can lead to infection and disease in humans, ranging from mild, **flu-like symptoms or eye inflammation**.
- **World Health Organisation data indicate 60% of cases** classified as H5N1 resulted in death.

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Place in News

Iran

Recently, in Tehran, Iran's Supreme Leader, Ali Khamenei, promised a strong response against both the instigators and executors of the terrorist attack in Kerman, which tragically took nearly 100 lives.



Iran (Capital: Tehran)

Location: Iran also known as Persia and officially the Islamic Republic of Iran, is a country situated in Western Asia.

Boundaries: Iran shares its border with **Pakistan** and **Afghanistan** (East), **Turkey** and **Iraq** (West), **Azerbaijan**, **Armenia**, **Turkmenistan** and the **Caspian Sea** (North) and **The Persian Gulf** and the **Gulf of Oman** (South).

Physical Features:

- **Karun River** is the most significant river of Iran, flowing through the Zagros Mountains and supporting agricultural activities.
- **Mount Damavand is an active volcano**, considered a stratovolcano, situated in the Alborz mountain range.
- Iran holds substantial reserves of **oil and natural gas**, influencing its economy and global geopolitics.

POINTS TO PONDER

- Which country signed an agreement with India in July 2022 for payment in rupees for crude oil? - **UAE**
- Recently, at which national park the three cubs born to Namibian Cheetah Aasha? - **Kuno National Park, Madhya Pradesh**
- Who established the Karman Line and in which decade? - **Fédération Aéronautique Internationale (FAI) in the 1960s**
- Under the Bharatiya Nyay Sanhita (BNS), what is the maximum penalty for a driver who causes a serious road accident due to careless driving and then leaves without informing the police or any official? - **Up to 10 years in jail and a fine of Rs 7 lakh**
- Which larger national project does the River Devika Project fall under? - **National River Conservation Project (NRCP)**

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