# Wildfires rage out of control near Los Angeles, killing at least two; 70,000 asked to evacuate

ENVIRONMENT

At least two people were killed as several fast-growing wildfires raged out of control on Wednesday near Los Angeles, destroying hundreds of buildings, scorching hillsides and prompting officials to order some 70,000 people to evacuate their homes.

## Types of Forest Fires

There are three basic types of forest fires: ground, surface, and crown. Wildfires often involve all three types of fire, with their proportion varying depending on fuel, topography, and weather conditions. Changes in these factors can cause a ground fire to evolve into a surface fire, a surface fire to escalate into a crown fire, or vice versa.

- **Ground fires:** Ground fires begin in deep accumulations of humus, peat, and other dead vegetation that have dried enough to ignite. They spread slowly and generate little smoke.
- **Surface fires:** Surface fires are those burning in surface fuels such as litter, downed woody debris, and low-level living plants. They can grow in intensity to scorch or even consume the forest canopy.
- **Crown fires:** Crown fires destroy forest canopy fuels, which include live and dead foliage/branches, tree lichens, and tall shrubs that are located well above the surface fuels. They are usually ignited by surface fire.

## Impacts of Forest Fires

### Positive Impacts

There are many ecological benefits of forest fires.

- **Cleaning the forest floor:** Fire removes surface litter and debris converting them into nutrients. Crown wildfires also remove foliage and leaves, thus allowing sunlight to reach the ground which results in the growth of new plants.
  - There is less competition for nutrients, sunlight, water, and space allowing fire-dependent species to thrive.
- **Nutrient cycling:** Forest fires cause the flow of nutrients from trees to the soils that can help new plants grow. In this way, fire increases the soil fertility.
  - It improves vegetation conditions and brings new growth, which decreases competition for food in an open wildlife area like a forest.

- Plant germination: Some seeds only germinate when products of combustion are present like ash and smoke. Examples include the alder trees, the Italian buckthorn, and the Clematis.
  - Some plants, like lodgepoles and jackpines, need a combination of sunlight and extreme heat to germinate. Seeds from these tree species are enclosed and must be melted by fire to be released.

**Negative Impacts**

- Reduces forest cover: Forest fires substantially reduce the vegetation cover. Whether it occurs in a forest or a savannah, fire burns most of the vegetation.
- Damage to forest's productive power: Repeated fires degenerate valuable evergreen forests into inferior deciduous or grassland.
- Valuable species disappear and their place is taken by other fire-hardy species.
- Causes floods: Fire destroys ground cover and undergrowth, causing devastating floods in forest regions.
- Loss of livelihood: Forest fires prove to be detrimental for tribal people and rural poor, who are directly dependent upon collecting non-timber forest products from the forest.

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**ENVIRONMENT**

Various organisations on Thursday protested in Indore against the plan to dispose of 337 tonnes of Union Carbide factory waste at Pithampur in Dhar district, about 30 km from the city. The protesters claim that the move poses a threat to the health of the people living in the industrial town and the environment and will also harm the residents of Indore, Madhya Pradesh's financial capital, and its surrounding areas.

**Bhopal Gas Tragedy 1984**

The Union Carbide India Limited (UCIL) owned by the Indian subsidiary of the American firm union carbide corporation was established in 1969 and the primary objective was to produce the pesticide named Sevin, with the brand name for carbaryl. The production process involved the use of methyl isocyanate (MIC) as an intermediary. The Bhopal Gas Tragedy 1984 took place on December 2nd, 1984 where around 40 tons of MIC gas leaked into the atmosphere over several hours. People woke up coughing, choking, and experiencing severe burns and irritation in their eyes and lungs.

**Bhopal Gas Tragedy Impacts**

The Bhopal Gas Tragedy was the most disturbing incident impacting thousands of lives and causing widespread damage to the environment and local infrastructure. The Bhopal Gas Tragedy Impacts are mentioned below to have a brief insight.

1. Within the first few hours, thousands of people lost their lives due to direct exposure to the toxic gas. Victims experienced choking, acute respiratory failure which led to sudden death.
2. Tens of thousands suffered from health issues, including, Respiratory problems, Chemical burns on exposed skin, Eye damage, permanent blindness.
3. Bhopal's hospitals were unequipped to handle the sudden increase of patients. Doctors lacked knowledge about treating MIC poisoning, resulting in delayed or inappropriate medical interventions.
4. The leaked gas, along with other toxic chemicals at the plant, polluted the soil and groundwater. The

water sources became contaminated, affecting the health of people and animals who relied on them.
5. Local industries and livelihoods were disrupted as businesses shut down, many victims were unable to return to work, resulting in poverty.

# Stubborn water level affects coal mine rescue operations

GEOGRAPHY

The unchanged level of murky water has affected the operations to rescue at least eight miners trapped inside a rat-hole coal mine in Dima Hasao district of Assam since Monday morning. Rescue workers from multiple agencies retrieved the body of one miner, identified as Ganga Bahadur Sresth from Nepal, on Wednesday. Deep divers from the Indian Navy, and personnel from the Army, National Disaster Response Force, State Disaster Response Force, ONGC, Coal India Limited, and the district administration were engaged in the operation.


**India's coal sector**

- India is rich in ancient coal fields like Gondwana coalfields (250 million years old) and tertiary coalfields (15-60 million years old).
- Coal mining was started during the rule of the East India Company in 1774 in the Raniganj coalfield along the western bank of the Damodar river.
- To increase coal production, the focus of the Government is on accelerating domestic production of coal through the allocation of more coal blocks, pursuing with the State Government for assistance in land acquisition, and coordinated efforts with Railways for the movement of coal.
- In addition, the following actions have been taken by Government to further enhance the production of coal in the country.

Commercial Auction of coal on revenue share mechanism: Since the launch of the auction of coal mines for commercial mining in June 2020, a total of 4 rounds of auctions have been conducted in which a total of 292 coal mines were offered.

Allowed sale of excess coal production: The Ministry of Coal has amended Mineral Concession Rules, 1960 to allow the sale of coal or lignite, on payment of an additional amount to the State Government.

- The Mines and Minerals (Development & Regulation) Act had been amended and is applicable for both the private and public sector captive mines.
- With this amendment, the Government has paved the way for releasing additional coal in the

market by greater utilization of mining capacities of captive coal and lignite blocks, which were being only partly utilized owing to limited production of coal for meeting only their captive needs.

# India releases compilation of 10,000 human genomes from 83 population groups

**SCIENCE AND TECH**

India has completed and made available a year-long compilation of 10,000 human genomes representing 83 population groups, making up about 2% of the country's 4,600 population groups, as a database. This collection will serve as a template of future investigations into disease and drug therapy. The 'Genome India' database, as it is known, will now be available to researchers across the world for investigation and is housed at the Indian Biological Data Centre (IBDC), in Faridabad, Haryana.

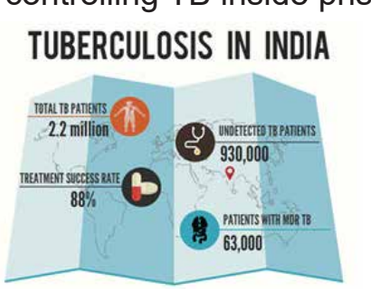
**About Genome India Project**

- It is a pan-India initiative focused on the whole genome sequencing of representative populations across India.
- Goal: The goal is to start with and execute whole genome sequencing and subsequent data analysis of 10,000 individuals representing the country's diverse population.
- This is a mission-mode, multi-institution consortium project, the first of its kind in India, supported and funded by the Department of Biotechnology, Government of India.
- The specific aims of the project are:
  - Create an exhaustive catalog of genetic variations (common, low frequency, rare, single nucleotide polymorphisms, or SNPs, and structural variations) in Indians.
  - Create a reference haplotype structure for Indians. This reference panel can be used for imputing missing genetic variation in future studies.
  - Design genome-wide arrays for research and diagnostics at an affordable cost.
  - Establish a biobank for DNA and plasma collected for future use in research.

# Centre intensifies campaign against TB in prisons

**HEALTH**

The Union Ministry of Home Affairs (MHA) has written to all the States and the Union Territories (UTs) to organise a 100-day intensified campaign on tuberculosis (TB) elimination in prisons and correctional institutions as part of the Union government's commitment to eliminating the disease from India. The Home Ministry has asked states and UTs to organise screening camps (Nikshay Shivir) in all prisons, covering all prison inmates in consultation with the state health department, state TB officers and district TB officers. It maintained that inadequate screening and lack of awareness are among the key challenges in controlling TB inside prisons.




**About Tuberculosis (TB)**

- Tuberculosis (TB) is a bacterial infection spread through inhaling tiny droplets from the coughs or sneezes of an infected person.
- It mainly affects the lungs, but it can affect any part of the body, including the tummy (abdomen), glands, bones and nervous system.
- TB is a potentially serious condition, but it can be cured if it's treated with

the right antibiotics.

**Symptoms of TB**

- Persistent cough that lasts more than 3 weeks and usually brings up phlegm, which may be bloody,
- Weight loss,
- Night sweats,
- High temperature,
- Tiredness and fatigue,
- Loss of appetite,
- Swellings in the neck.

**Types of TB**

- **Pulmonary TB:**
  - TB that affects the lungs (pulmonary TB) is the most contagious type, but it usually only spreads after prolonged exposure to someone with the illness.
  - In most healthy people, the body's natural defence against infection and illness (the immune system) kills the bacteria and there are no symptoms.
- **Latent TB:**
  - Sometimes the immune system cannot kill the bacteria, but manages to prevent it spreading in the body.
  - You will not have any symptoms, but the bacteria will remain in your body. This is known as latent TB.
  - People with latent TB are not infectious to others.
- **Active TB:**
- If the immune system fails to kill or contain the infection, it can spread within the lungs or other parts of the body and symptoms will develop within a few weeks or months. This is known as active TB.
  - About one-quarter of the world's population is estimated to be infected by TB bacteria but out of these only 5-15% of people will fall ill with active TB disease.
- Latent TB could develop into an active TB disease at a later date, particularly if your immune system becomes weakened.
- **Tuberculosis in India**
- The total number of incident TB patients (new and relapse) notified during 2021 in India were 19.33 lakh as opposed to that of 16.28 lakh in 2020.
- In 2022, 24.22 lakh case s of TB were registered in the country.
- India continues to have the largest share of the global TB burden.
- India's National TB Elimination Programme is strengthened to meet the goal of ending the TB epidemic by 2025 from the country, five years ahead of the Sustainable Development Goals (SDG) for 2030.
- The National Strategic Plan for Tuberculosis Elimination(2017-2025) was developed to achieve the goal.
- Though the National Strategic Plan for Tuberculosis Elimination (2017-2025) outlined a paradigm shift in approach and strategy to achieve the ambitious goal, by 2020, it became clear that the NSP will not be able to meet these objectives.
- A new National Strategic Plan for Tuberculosis Elimination (2020-2025) to end TB was launched.

*"If you invest more in your education, then you are likely to get more interest in it."*

*–Benjamin Franklin*

# ‘United States will always be a reliable NATO partner’

**INTERNATIONAL RELATIONS**

The United States will “always be a reliable partner” in NATO, U.S. defence chief Lloyd Austin said on Thursday, after remarks by President-elect Donald Trump sparked concerns among members of the military alliance. “The United States of America has always been a reliable partner. We will always be a reliable partner in the future,” Mr. Austin told journalists at the U.S. Ramstein air base in Germany. “Our values don’t change. Our commitment to allies and partners doesn’t change either.”


**What is NATO?**

- Formed in 1949 with the signing of the Washington Treaty, NATO is a security alliance of 30 countries from North America and Europe.
  - Recently, Finland joined the alliance as 31st member.
- NATO’s fundamental goal is to safeguard the Allies’ freedom and security by political and military means.
- It is a system of collective defence where independent member states agree for mutual defence in case of any attack by external party.
  - Article 5 of the Washington Treaty states that an attack against one Ally is an attack against all.
  - This article forms the core of the Alliance, a promise of collective defense.
- Headquarter - Brussels, Belgium.

**What are the functions of NATO?**

- Political
  - NATO promotes democratic values and enables members to consult and cooperate on defence and security-related issues to solve problems, build trust and, in the long run, prevent conflict.
- Military
  - o NATO is committed to the peaceful resolution of disputes.
  - o If diplomatic efforts fail, it has the military power to undertake crisis-management operations.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