DAILY PT POINTERS

4th April, 2024

HEADLINES OF THE DAY

The Hindu-Art and Culture(GSI)-Page 4

Restrictions imposed on pilgrims visiting Ahobilam temple

A.D. Rangarajan
NANDYAL

The Forest Department and Sri Lakshmi Narasimha Swamy Devasthanam at Ahobilam have imposed certain restrictions on visitors arriving at the shrine, which is composed of nine different temples, situated in the Nallamala forest.

The forest area covers the Nagarjunasagar-Srisailam Tiger Reserve, which was declared a tiger reserve in 1983, extendING up to 3,727.82 sq km., including the core and buffer areas. The Ahobilam National Tiger Conservation Authority, constituted as per the provisions of the 1972, by the Ministry of Forests, Environment and Climate Change, oversees the rare flora and fauna specific to the region. The forest area around the Pavana Narasimha temple is home to red sanders, leopards and deer. Five tigers also inhabit the area.

The restrictions have been imposed in the wake of the intense heatwave that can impact the movement of wild animals.

Further, overnight stay in the region has been prohibited given the likelihood of man-animal conflict. As this shrine is known for the conduct of animal sacrifice, the department has said such practices are ex-

- Ahobilam is a town and holy site in the Allagadda mandal of Kurnool district in the Indian state of Andhra Pradesh. It is surrounded by picturesque hills of the Eastern Ghats with several mountain hills and gorges.
- Situated amidst dense Nallamala Forest, Ahobilam is one of the 108 Divya Desams
- It is the centre of worship of Narasimha, the lion-headed avatar of Vishnu, to whom the nine Hindu temples and other shrines all dedicated.
- Ahobilam is traditionally regarded as the place where Vishnu in the form of Narasimha killed the Rakshasa Hiranyakashipu in order to save his devotee Prahlada

HEADLINES OF THE DAY

The Hindu-GS3(Energy)Page 12

Nuclear power is key to development, says study

India must prioritise investment in this energy sector and expand related infrastructure if it is to be on track to become developed nation by 2047 and achieve net zero by 2070, says IIM-A report

Jacob Koshy
NEW DELHI

Larger goals: Currently, nuclear energy makes up only 1.6% of India's energy mix. FILE PHOTO

For India to be a developed country by 2047 and be on track to achieve net zero – or effectively zero carbon dioxide emissions by 2070 – it must significantly prioritise investments in nuclear energy and expand related infrastructure, says a study by academics at the Indian Institute of Management, Ahmedabad.

The results of the study, funded by the Office of the Principal Scientific Adviser and the Nuclear Power Corporation of India, were made public on Wednesday. Currently, nuclear energy makes up only 1.6% of India's energy mix.

The report postulates several scenarios. These are a high-, medium-, and low-economic growth scenario, a scenario where there is a "thrust" on nuclear energy, another with a thrust on expanding fossil fuel use along with employing carbon capture and storage, a scenario with an emphasis on renewable energy (solar, wind), and finally one that combines all of these.

The authors used mathematical models to estimate what proportion of various sources of energy would be required by 2030 and 2050 to arrive at an ideal scenario of net zero emissions by 2070. This was further tempered by scenarios of India's population achieving a human development index like Western European countries and the price of access to energy going down.

The best case, their calculations showed, were where emissions in 2070 fell to 0.55 billion tonnes of carbon dioxide ('net zero' scenario). This translated to nuclear power rising five-fold from today's levels to 30 GW (gigawatt) by 2030 and 265 GW by 2050. To put in perspective, it means nuclear power contributing 4% of India's total energy by 2030 and sharply rising to 30% by 2050. In the same scenario, the share of solar power falls from 42% in 2030 to 30% in 2050.

Uranium availability

Currently, figures from the Central Electricity Authority say solar energy accounts for 16% of India's installed generation capacity and coal 49%. To achieve these idealistic figures for nuclear energy would require a doubling of investments as well as the assumption that uranium, a critical fuel but restricted by international embargo, is available in necessary quantities.

The authors, led by Professor Amit Garg of IIM, Ahmedabad, said at a press conference that there was no "silver bullet" to achieve net zero and "myriad technologies needed to coexist" in India's energy basket.

Coal would likely be the "backbone" of the Indian energy system and if the country has to phase down coal in the next three decades, it would need to build adequate infrastructure for alternative sources such as nuclear power, in addition to flexible grid infrastructure and storage to support the integration of renewable energy.

Overall, India would need close to ₹150-200 lakh crore between 2020-2070 to finance these transitions, the report added.

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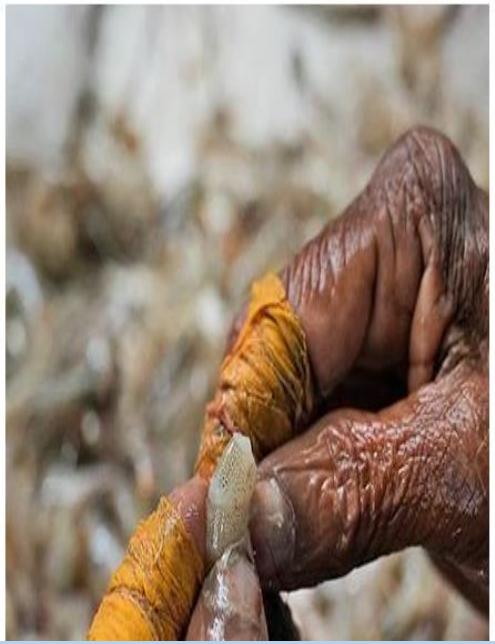
  - Currently, nuclear energy makes up only 1.6% of India's energy mix.
- Nuclear energy is a form of energy released from the nucleus, the core of atoms, made up of protons and neutrons. This source of energy can be produced in two ways: fission – when nuclei of atoms split into several parts – or fusion – when nuclei fuse together.
- The nuclear energy harnessed around the world today to produce electricity is through nuclear fission, while technology to generate electricity from fusion is at the R&D phase

HEADLINES OF THE DAY

The Hindu-Economy/Environment(GSIII)-Page 12

India rejects report on abusive conditions at shrimp hatcheries



- India has strongly refuted allegations of human rights and environmental abuses raised by a Chicago-based human rights group.
- In 2022-23, India's seafood exports stood at $8.09 billion, or ₹64,000 crore, and shrimps accounted for a bulk of these exports at $5.6 billion. India has emerged as one of the world's largest shrimp exporters and its share in the U.S. market has risen from 21%, or $1.3 billion, to 40% in 2022-23,
- About a lakh shrimp farms in Andhra Pradesh alone account for almost 70% of India's shrimp output

HEADLINES OF THE DAY

Indian Express-Polity and Governance(GSII)-Page 1

Restricted by surrogacy laws, Indians are going abroad to become parents

Single men, women, same sex and even straight couples are opting for commercial surrogacy in the US, Canada, East European and Latin American countries.

What is surrogacy?

It is a contractual process by which a woman carries and delivers a child for a couple/individual after an embryo is implanted in her through in-vitro fertilisation (IVF).

Commercial surrogacy is banned in India. Would-be parents can only pay for an altruistic surrogate's insurance coverage and medical expenses in India.

- The Union government modified the Surrogacy (Regulation) Rules, 2022, to permit married couples to use donor eggs or donor sperm for surrogacy
- The notification outlines that the child to be born through surrogacy must have at least one gamete from the intended parents
- The regulatory change is however not applicable for single women as it specifies that a widow or a divorcee undergoing surrogacy must use self-eggs and donor sperm
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HEADLINES OF THE DAY

Indian Express-Geography/Environment-Page 12

Risk from glacial lake floods

Rising temperatures have increased the risk of glacial lake bursts of the kind that devastated the Kedarnath valley in 2013 and parts of Chamoli in 2021. Uttarakhand has commissioned a GLOF risk-assessment study

AVANEESH MISHRA
& ALIND CHAUHAN
DEHRADUN, NEW DELHI, APRIL 3

THE UTTARAKHAND government has constituted two teams of experts to evaluate the risk posed by five potentially hazardous glacial lakes in the region. These lakes are prone to Glacial Lake Outburst Floods (GLOFs), the kind of events that have resulted in several disasters in the Himalayan states in recent years.

The goal of the risk assessment exercise is to minimise the possibility of a GLOF incident and provide more time for relief and evacuation in case of a breach.

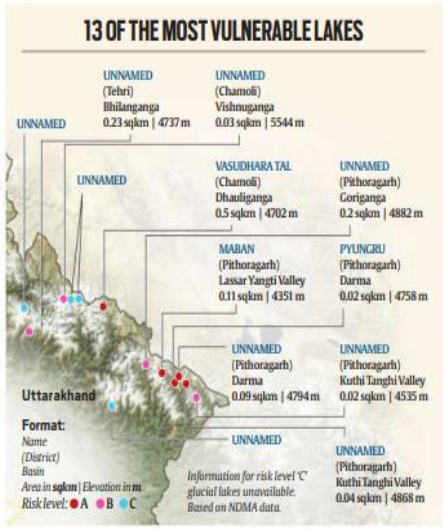
The National Disaster Management Authority (NDMA), which operates under the Union Ministry of Home Affairs, has identified 188 glacial lakes in the Himalayan states that can potentially be breached because of heavy rainfall. Thirteen of them are in Uttarakhand.

Rising surface temperatures across the globe, including India, have increased the risk of GLOFs. Studies have shown that around 15 million people face the risk of sudden and deadly flooding from glacial lakes, which are expanding and rising in numbers due to global warming.

What are GLOFs?

GLOFs are disaster events caused by the abrupt discharge of water from glacial lakes — large bodies of water that sit in front of, on top of, or beneath a melting glacier.

As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.



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around a glacial lake, leading to its failure, and the rapid discharge of water.

GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity. The floodwaters can submerge valleys, obliterate in-

Glacial Lake Activity Threatens Numerous Communities and Infrastructure in the Third Pole', published in the journal *Nature* in 2023. The analysis was done by Taigang Zhang, Weicai Wang, Baosheng An and Lele Wei — all from the Institute of Tibetan Plateau

Tom Robinson of the University of Canterbury, New Zealand, and Matthew Westoby of Northumbria University, the UK.

"While the number and size of glacial lakes in these areas (India and Pakistan) isn't as large as in places like the Pacific Northwest or Tibet, it's that extremely large population and the fact that they are highly vulnerable that mean Pakistan and India have some of the highest GLOF danger globally," Tom Robinson, co-author of the study and lecturer in Disaster Risk & Resilience at the University of Canterbury, told *The Indian Express* in February last year.

What is the situation in Uttarakhand?

Uttarakhand has witnessed two major GLOF events in the past few years. The first took place in June 2013, which affected large parts of the state — Kedarnath valley was the worst hit, where thousands of people died. The second occurred in February 2021, when Chamoli district was hit by flash floods due to the bursting of a glacier lake.

As mentioned earlier, Uttarakhand has 13 glacial lakes which are prone to GLOF. Based on the analysis of available data and research from various technical institutions, these lakes have been categorised into three risk levels: 'A', 'B', and 'C'.

Five highly sensitive glacial lakes fall into the 'A' category. These include Vasudhara Tal in the Dhauliganga basin in Chamoli district, and four lakes in Pithoragarh district — Maban Lake in Lassar Yangti Valley, Pyungru Lake in the Darma basin, an unclassified lake in the Darma basin, and another unclassified lake in Kuthi Yangti Valley.

The areas of these five lakes range be-

- GLOFs are disaster events caused by the abrupt discharge of water from glacial lakes — large bodies of water that sit in front of, on top of, or beneath a melting glacier.
- As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.
- The more the glacier recedes, the bigger and more dangerous the lake becomes.
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HEADLINES OF THE DAY

Indian Express-Geography-Page 12

RING OF FIRE

Taiwan is in a seismically active zone ringing the Pacific. Most of the world's earthquakes happen in this Ring

ALIND CHAUHAN
NEW DELHI, APRIL 3

NINE people were killed and more than 00 injured after Taiwan was hit by the iggest earthquake in at least 25 years on Wednesday morning. Taiwan's earth- uake monitoring agency said the mag- itude of the quake was 7.2; the US eological Survey (USGS) put it at 7.4.

The epicentre of the quake was 18 ilometres south-southwest of Hualien ounty in eastern Taiwan. Multiple after- hocks were experienced, one of which as of 6.5 magnitude, USGS said.

Taiwan lies on the Pacific "Ring of ire", where 90% of the world's earth- uakes take place. The island and its sur- ounding waters have registered about ,000 earthquakes of magnitude 4.0 or reater since 1980, and more than 100 arthquakes of magnitude more than 5.5, ccording to the USGS.

What is the Ring of Fire?

The Ring of Fire is essentially a string f hundreds of volcanoes and earth- uake-sites that runs along the fringes of he Pacific Ocean. The horseshoe-shaped ing is nearly 40,250 km long, and traces he meeting points of many tectonic lates, including the Eurasian, North merican, Juan de Fuca, Cocos, Caribbean, azca, Antarctic, Indian, Australian

The earthquakes are triggered as tec- tonic plates constantly slide past, collide with, or move above or below each other along the ring. The rough edges of the plates get stuck to each other, while the rest of the plate keeps moving. An earth- quake occurs when the plate has moved far enough and the edges get unstuck along one of the faults.

The quakes in Taiwan are due to the in- teraction of two tectonic plates — the Philippine Sea Plate and the Eurasian Plate.

Why are there so many volcanoes in the Ring of Fire?

The volcanoes in the Ring of Fire are also due to the movement of tectonic plates. Many of these volcanoes have been formed through a process known as subduction, which takes place when two plates collide, and the heavier plate is shoved under an- other, creating a deep trench.

"Basically, when a 'downgoing' oceanic

What is the Ring of Fire?

- The Ring of Fire is essentially a string of hundreds of volcanoes and earthquake-sites which runs along the Pacific Ocean. It is a semicircle or horse shoe in shape .
- The Ring of Fire traces the meeting points of numerous tectonic plates, including the Eurasian, North American, Juan de Fuca, Cocos, Caribbean, Nazca, Antarctic, Indian, Australian, Philippine, and other smaller plates, which all encircle the large Pacific Plate, according to a report by National Geographic.
- It runs through 15 more countries including the USA, Indonesia, Mexico, Japan, Canada, Guatemala, Russia, Chile, Peru, and the Philippines.

Why is the Ring of Fire vulnerable to earthquakes?

The Ring of Fire witnesses so many earthquakes due to constant sliding past, colliding into, or moving above or below each other of the tectonic plates. As the edges of these plates are quite rough, they get stuck with one another while the rest of the plate keeps moving

- Taiwan experiences earthquakes due to the interactions of two tectonic plates — the Philippine Sea Plate and the Eurasian Plate.