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ANALYSIS**



LAKSHYA ACADEMY®

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1 - Article 371A and Its Effect on Nagaland's Coal Mining Industry:

GS III

Internal Security

- **Context:**
- The Indian Constitution's Article 371A presents a significant barrier to coal mining regulation in Nagaland. Upholding Naga traditional law, as this provision does, makes it more difficult for the government to regulate small-scale mining—especially in light of the recent deaths caused by an explosion in a rat-hole mine.
- **What does the Indian Constitution's Article 371A mean?**
- As part of the 13th Amendment in 1962, Article 371A (Part XXI) was added to the Constitution, giving Nagaland (then known as Naga Hills and Tuensang Area) specific protections.
- According to Article 371A, unless the Nagaland Legislative Assembly decides otherwise by a resolution, no act of Parliament shall apply to Nagaland with regard to the religious or social practices of the Nagas, the Naga customary law and procedure, the administration of civil and criminal justice involving decisions made in accordance with the Naga customary law, and the ownership and transfer of land and its resources.
- This indicates that the land and its resources are owned and managed by the local people and are subject to their own set of customary laws and practices, giving the state government limited jurisdiction and power over them.
- **How is Nagaland's Rat-Hole Mining Regulated?**
- **Mining of Coal in Nagaland:**
- Nagaland has substantial coal deposits totaling 492.68 million tonnes, although they are unevenly and sporadically distributed throughout a wide region in small pockets.
- Because the coal reserves are dispersed and large-scale operations are not viable, the 2006 Nagaland Coal mining policy allows for rat-hole mining.
- The process of mining coal from rat-holes, which are small, horizontal tunnels generally excavated by hand and full of environmental risks and accidents, is known as rat-hole mining.
- Small pocket deposit licences, sometimes referred to as rat-hole mining licences, are only given to private landowners under particular circumstances and for a restricted amount of time.
- As per the provisions of Section 6.4(ii) of the Nagaland Coal Policy (First Amendment) of 2014, the mining areas covered by these permits cannot be larger than 2 hectares. Additionally, the yearly output of coal is limited to 1,000 tonnes, and the use of heavy machinery is prohibited.

- In order to ensure compliance with environmental standards, rat-hole mining operations require approval from relevant ministries, such as Forest and Environment.
- In Nagaland, illicit rat-hole mining continues even after the State government has given detailed mining plans and the necessary clearances.
- The fact that local communities rely on coal mining for their subsistence adds to the difficulty of enforcing regulations because strict rules may have an adverse effect on livelihoods and call for a careful balancing act between environmental concerns and economic interests.
- **Regulating Rat-Hole Mining in Nagaland through Article 371A:**
- Nagaland is granted unique rights over its resources and territory under Article 371A, which makes it difficult for the governments to enact laws that could be interpreted as violating these rights.
- Because of the restrictions imposed by Article 371A, the Nagaland government finds it difficult to adequately control small-scale mining operations, especially those carried out by individual landowners.
- The latest rat-hole mine deaths serve as a reminder of the safety hazards connected to uncontrolled mining operations. These tragedies underscore the need for efficient rules and raise questions about the absence of appropriate safety precautions.
- Rat hole mining was outlawed in 2014 by the Supreme Court and the National Green Tribunal (NGT) because to its detrimental effects on the environment and potential danger to miners' lives. Referred to as unscientific, the Tribunal said.
- **The Way Ahead:**
- In order to put a stop to illicit mining operations, strengthen enforcement and monitoring strategies. This may involve stepping up surveillance, conducting inspections, and fining offenders.
- Organise outreach initiatives to inform the community about the negative impacts of uncontrolled mining, stressing the significance of adhering to safety and environmental regulations.
- To create comprehensive plans for sustainable and ethical mining operations, encourage cooperation between governmental entities, nearby communities, owners of mining licences, and environmental groups.

Source → The Hindu

2 – Nitrogen Pollution:

GS III

Environmental Conservation

- **Context:**

- According to recent research, nitrogen pollution is expected to cause severe water scarcity in one-third of the world's river sub-basins by 2050.

- **What is pollution with nitrogen?**

- About: Excessive nitrogen molecules in the environment, especially in water bodies like rivers and lakes, are referred to as nitrogen pollution.
- Eighty percent of the total amount of reactive nitrogen—200 million tonnes annually—is lost to the environment, according to the United Nations Environment Programme (UNEP).
- Nitrogen contamination has been primarily caused by the increasing use of nitrogen-based fertilisers, which doubled worldwide between 1978 and 2014.
- Reactive nitrogen generated by natural processes is currently outnumbered by that produced by people.

- **Sources of pollution with nitrogen:**

- Agricultural Activities: The increased use of fertilisers containing nitrogen, which can seep into groundwater or discharge into surface water bodies, has been one of the primary causes of nitrogen pollution.
- Industrial Processes: Manufacturing operations discharge nitrogen compounds into the environment, especially those that produce chemicals and fertilisers based on nitrogen.
- In addition, companies that use fossil fuels release nitrogen oxides (NO_x) into the atmosphere.
- Livestock farming: Ammonia and other nitrogen compounds are found in the waste produced by livestock, mostly in the form of manure and urine.
- Livestock dung that is not properly managed or stored can cause nitrogen runoff, which contaminates waterways and causes eutrophication.
- Currently, the cattle industry contributes one-third of the current human-induced nitrogen emissions, or 65 teragrams (Tg) of nitrogen emissions annually.
- Burning biomass releases nitrous oxide (N₂O) and nitrogen oxides (NO_x) into the atmosphere. Wildfires and the burning of cow dung cake as fuel both emit these gases.
- These emissions can affect atmospheric chemistry and climate on a regional and global scale, in addition to contributing to air pollution.

- **Significant Effects of Nitrogen Pollution:**

- Eutrophication: An overabundance of nitrogen fertilises aquatic plants, causing an overabundance of algae and other aquatic vegetation to develop. Eutrophication is the term for this event, which causes algal blooms.
- This results in areas that are low in oxygen, or "dead zones," where aquatic life suffocates and perishes.
- Impacts on Human Health: Both direct and indirect effects on human health may result from nitrogen pollution.
- Elevated atmospheric nitrogen dioxide (NO₂) concentrations can worsen respiratory ailments like asthma and raise the risk of respiratory infections.
- 77% of persons are thought to breathe annual average nitrogen dioxide amounts that are higher than what is considered safe.
- Drinking water contaminated with nitrate can also be harmful to health, especially to young children who are susceptible to methemoglobinemia, popularly known as "blue baby syndrome."
- Ozone Depletion: The stratospheric ozone layer, which shields the planet from damaging ultraviolet (UV) radiation, can be reduced by nitrous oxide (N₂O) emissions into the atmosphere.
- In addition to harming marine ecosystems and agricultural crops, ozone layer depletion can raise human risks for skin cancer, cataracts, and other health issues.
- In addition, it produces tropospheric ozone, which causes respiratory diseases.

- **Associated Government Programmes:**

- Bharat Stage (BS VI) Emission Standards: Tighter emission regulations for automobiles and businesses are meant to reduce the emissions of nitrogen oxides and particulates, which are precursors to pollution of the air and water.
- Nutrient-Based Subsidy (NBS): This strategy promotes more effective nutrient management by providing incentives for the use of controlled-release fertilisers.
- Soil Health Cards: Given to farmers, these cards offer personalised fertiliser recommendations and information on the soil's nutritional status, encouraging the application of nutrients in a balanced manner.
- Nano Urea is a fertiliser that has been certified by the government for commercial use. It is patented and distributed by the Indian Farmers Fertiliser Cooperative Limited (IFFCO).
- Crop productivity is increased with nano urea while the uneven and careless usage of conventional urea is decreased.

Source → The Hindu

3 – Leap Year:

GS I

Geography related issues

- **Context:**
- Leap Day, an extra day added to the calendar during leap years, falls on February 29th in 2024. Leap Year Day is an additional day that makes the year 366 days long.
- **Leap year: what is it?**
- Rather than having 365 days in a year, a leap year has 366 days. February 29, the shortest month of the year, is extended by one day to become February 29.
- A solar calendar represents one full rotation of the Sun by the Earth. A typical year is rounded to 365 days. To put it simply, the orbit of the Earth takes approximately 365 days, 5 hours, 48 minutes, and 46 seconds.
- Every fourth year, an additional 24 hours (one full day) are added to account for the extra time, rounded up to six hours.
- The calendar would eventually go out of sync with the seasons if there were no leap years.
- The extra day prevents the seasons and calendars from progressively getting out of sync, which could affect seasonal cycles such as planting, harvesting, and other activities.
- Over time, flaws in the Julian calendar's solar year approximation accumulated, mostly as a result of a small overcompensation.
- Reform was required because, by the 16th century, the calendar was around ten days ahead of the solar year.
- In order to bring the calendar into line with the solar year, Pope Gregory XIII instituted calendar reform in 1582 by eliminating ten days.
- The Gregorian calendar adopted an improved leap year regulation, eliminating three leap years every 400 years, to avoid mistakes in the future.
- Although a year that is a multiple of four is not always a leap year, leap years are always multiples of four, such as 2016, 2020, and 2024.
- With the exception of end-of-century years (those ending in "00"), which must be divisible by 400, the year number must be divisible by four according to the Gregorian leap year rule.
- This indicates that while 1900 was not a leap year, 2000 was. Leap years 2024, 2028, 2032, and 2036.

- The reason for this additional rule is because the addition of a leap day every four years effectively compensates for the small variation in the solar year. It turns out that the extra time gained by having a leap day every four years is roughly 44 minutes.
- To further align the calendar with the solar year and regulate the seasons, leap years are omitted for centuries that are not divisible by 400.

Source → The Hindu



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