

**DAILY  
CURRENT  
AFFAIRS  
ANALYSIS**



LAKSHYA ACADEMY®

**25 NOVEMBER 2023**

# 1 – Electoral Bonds:

## GS II

### Election related issues

- **Context:**

- Following a three-day hearing, the Supreme Court postponed making a decision regarding the appeal of the government's Election Bonds Programme.

- **Important information:**

- The UPA government created the Electoral Trusts (ET) Scheme in 2013, which preceded the contentious Electoral Bonds (EB) Scheme that was implemented in 2018.
- The goal of both programmes was to make it easier for individuals and corporations to donate to political parties.
- Although the EB scheme aims to protect donor anonymity, under the former arrangement electoral trusts had to annually file a report to the Election Commission of India detailing contributions from individuals and corporations as well as their party donations.

- **Electoral trusts: What are they?**

- Any corporation registered under Section 25 of the Companies Act of 1956 may establish an electoral trust in accordance with the plan.

- **Who is eligible to give under the Income-tax Act of 1961 scheme?**

- any Indian national,
- An Indian corporation that is registered,
- a business or Undivided Hindu Family
- organisation of Indian residents.

- Every three fiscal years, electoral trusts are required to submit an application for renewal.

- They are required to give political parties recognised by the Representation of the People Act, 1951, ninety-five percent of the money they receive in a fiscal year.
- When making a contribution, the contributor must provide their PAN (if they are a resident) or passport number (if they are an NRI). passport number

- **What separates the EB plan from the ET system:**

- **The ET programme:**

- The process for contributors and beneficiaries of electoral trusts is open and transparent.
- The public can be certain of who is funding whom when a trust has only one contributor and one beneficiary.
- But in cases where donations are made by a number of people, it is impossible to identify which business is supporting which party.

- **The EB programme:**

- Conversely, electoral bonds are not subject to disclosure laws.
- Parties notify the ECI of the total amount donated through EBs, but they do not provide the contributors' personal information—something that is mandatory for donations exceeding Rs. 20,000 in cash, checks, or bank transactions.
- The government claims that in order to protect contributors' privacy, there is a lack of transparency in donations made through EBs.

- *Source → The Hindu*



## 2 - Electricity Transmission Fundamentals:

### GS III

#### Science and Technology related issues

- Power plants and smaller renewable energy facilities both produce electricity.
- Then, among other components, a dispersed network of stations, substations, switches, overhead and subterranean cables, and transformers is used to transport it.
- Ultimately, it is supplied to customers in a uniform manner that satisfies the requirements of diverse devices and uses.

- **Essentials of electrical gearbox:**

- An operator:
- The transmission efficiency of any conductor carrying electric current increases with increasing voltage and lower current.

- This is due to the fact that energy loss during gearbox rises as the current squares, yet the amount of voltage increase varies in direct proportion to the drop in current.
- In other words, if voltage is raised by five units, current will decrease by five units but energy loss will be decreased by twenty-five units.
- **Transformers' function:**
  - Before feeding into transmission lines, they raise the voltage and lower the current, and they do the opposite when receiving current to be delivered to consumers.
- **Cords:**
  - There is still resistance in the wires that carry the current, which causes some energy to be lost.
  - **The thickness of the cable can be changed to regulate the amount of loss:**
    - Less energy is lost the thicker it gets, but the price goes up.
- **Distance of transmission:**
  - The cost of gearbox decreases with increasing gearbox distance.
- **DC and AC:**
  - The usage of alternating current (AC) significantly complicates all these problems.
  - Compared to direct currents (DC), alternating current (AC) is more easily adjusted in transformers and has a higher transmission efficiency.
  - However, the more resistance the current faces in the material, the higher the AC frequency.
- **AC power: what is it?**
  - Three-phase AC is the most widely used electrical power transfer method.
  - The voltage in AC reverses polarity.
  - The opposite polarity forces the current to flow in the opposite direction from the one that one polarity is pushing.
  - The frequency at which the voltage flips is the same as the AC frequency.
- **How do grid systems function?**
  - Between production and distribution is where gearbox is located.
- **The national grid:**

- Since a national grid consists of all the aforementioned elements, transmission must also take into consideration the specifics of power production at diverse sources, locations, and modes and locations of consumption.
- While renewable energy sources are sporadic, other sources—such as coal-fired or nuclear reactors—can produce electricity continually.
- **Distribution and storage:**
  - In order to store electrical energy during periods of excess supply and release it during periods of deficiency, grids also feature storage facilities.
  - They are also connected to sources such as automated systems that 'teach' sources to raise or reduce their production in response to variable consumer demand, and gas turbines, which may deliver power on short notice, for example, during emergencies.
- **Grids must additionally:**
  - react to network failures in several areas
  - stop them from transferring to other areas,
  - voltage adjustments in response to demand (as well as demand management),
  - regulate the frequency of the AC,
  - enhance the power factor, etc. (power drawn by a load compared to available power in a circuit).
- **Large-scale synchronous grid:**
  - If every generator linked to a grid is generating AC current at the same frequency, then the grid is said to be wide-area synchronous.
  - Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, and Russia are included in the largest such grid in the world.
  - With a linked capacity of 1,700 GW, the North Chinese State Grid is the most powerful grid in the world.
  - A wide-area synchronous grid is also the national grid of India.
  - Although these systems reduce electricity costs, precautions must be taken to avoid cascading power supply outages.
- *Source → The Hindu*

### 3 – Northern Lights:

## Geography related issues

- **Context:**

- The northern lights, or aurora borealis, appeared in the skies across a large portion of Bulgaria for the first time.

- **Concerning the Northern Lights:**

- One of the many astronomical phenomena known as the polar lights is the northern lights (aurora polaris).
- These are coloured light shafts or curtains that occasionally appear in the night sky.
- Both the northern and southern hemispheres are home to the natural phenomena known as the polar lights, or aurora polaris.
- The scientific term for the northern lights is also aurora borealis, while the southern lights are known as aurora australis.
- The aurora borealis was photographed in Ladakh earlier this year, marking the first time it was spotted in India.

- **How are they made?**

- The coronal mass ejection (CME), a cloud of gas released by solar activity, is where the aurora first appears on the surface of the sun.
- One of these collides with Earth's magnetic field if it makes it there.
- When an ejection collides with the magnetic field, the magnetic tail region undergoes intricate modifications.
- Charged particle currents are produced by these alterations and are subsequently carried into the Polar Regions along magnetic force lines.
- The Earth's upper atmosphere gives these particles an energy boost, which causes them to collide with nitrogen and oxygen atoms to produce brilliant auroral light.
- The particular gas molecules that these particles come into contact with in the atmosphere and the location of these interactions determine the distinct colours of the auroras.
- Green light is produced by emissions of oxygen, and red light is produced when nitrogen and oxygen come into contact.

- **Source** → *The Hindu*

### 4 - Extreme weather may be advantageous to invasive species:

## **Environmental Conservation related issues**

- **Context:**

- According to a new study, while extreme weather may be causing havoc on ecosystems worldwide, certain non-native plants and animals may be profiting from the catastrophes and putting already endangered indigenous species at risk.

- **Important information:**

- **Results of the investigation:**

- It is believed that invasive species, which are frequently brought here by human activity, are largely to blame for the alarming rates of global extinction and the devastating losses in biodiversity that endanger both human and environmental well-being.
- Extreme weather events like heatwaves, droughts, floods, and others that are exacerbated by global warming may be providing an unfavourable edge to invasive species that are frequently destructive.
- approximately twice as many harmful intruders as natives benefited from intense weather, or approximately 25% of the time.
- There was also a higher likelihood that local animals will have adverse effects from the weather catastrophes.
- Native and non-native species were only somewhat resistant to harsh weather when it came to marine animals.
- Heat waves can harm local corals and mollusks, though.

- **The ways in which severe weather helps invasive species:**

- Extreme weather events, or EWEs, may contribute to the emergence and/or dispersal of non-native species.
- Under ongoing global change, these two processes could combine to pose serious challenges to biodiversity.
- Storms and heat waves were the only events that may harm invasive species.

- **Impact on indigenous species:**

- However, a number of causes negatively affected native creatures both on land and in freshwater, including:
  - rates of survival
  - reproduction as well as
  - body dimensions

- All extreme weather, with the exception of cold snaps in freshwater, had a deleterious effect on the native population.
- **Why do invading and native species react differently?**
- **Native Americans dying:**
  - Variations in how different species react to unexpected weather may be caused by native species dying during extreme weather events, which creates an opening for invasive species to take advantage of.
  - For instance, during severe droughts, the salinity of the water rises, killing fish and invertebrates in the area but allowing more salt-tolerant species to colonise.
- **Rapid expansion of invasive species:**
  - Rapid growth rates and a stronger competitive advantage are two more characteristics of invasive species that may help them recolonize more quickly.
- *Source → The Hindu*



LAKSHYA ACADEMY®

## 4 - India's ban on firecrackers:

### GS II

#### Government Policies and Interventions

- **Context:**
  - The Supreme Court made it clear that the entire nation, not only the National Capital Region, is subject to its order prohibiting the use of barium and other prohibited compounds in firecrackers.
- **What firecracker regulations does the SC have?**
  - The manufacture and distribution of all crackers, with the exception of "green crackers" and those with lower emissions (better crackers), were outlawed by the supreme court in 2018.



- It further stated that pyrotechnics should have noise levels within acceptable bounds and outlawed the use of barium salts in their production. "Joined crackers" are long rows of crackers connected together.
- The National Green Tribunal declared in 2020 that only cities and towns with moderate or bad air quality would be allowed to use green firecrackers, and that the sale and usage of all other types would be prohibited in the National Capital Region.

- **What materials make up a firecracker?**

- Usually, firecrackers are made of four main ingredients:

- **An oxidant:**

- The cracker needs an oxidizer in order to catch fire.

- **Energy:**

- The fuel keeps the fire going.

- **Agents for colouring:**

- Its colours and sparkles are added by colouring chemicals.
- A cracker's white hue comes from the metals titanium, magnesium, and aluminium.
- Orange is the hue of iron or carbon.

- Sodium compounds are considered yellow agents.

- Red and blue are strontium carbonates and copper compounds, respectively.
- Barium nitrate, barium chlorate, or barium mono chloride salts are the green agent.

- **Organiser:**

- This mixture is held in place by the binder until the cracker has burned through.
- Colourants such as barium were outlawed due to their detrimental effects on human health, including respiratory tract irritation, skin allergies, breathing problems, and even cancer.

- **Green crackers: what are they?**

- The reason green crackers got their moniker is since they don't contain any dangerous substances that could contaminate the air.
- Firecracker parts are swapped out for ones that are "less harmful" and "less dangerous" to the atmosphere.
- These crackers release water vapour, which suppresses dust, along with less toxic compounds.

- **These crackers fall under three general categories:**
- **SWAS:**
  - The term "safe water releaser" (SWAS) refers to a cracker that has a tiny water pocket that bursts and releases vapour.
  - Dust is suppressed as a result.
- **SAFAL:**
  - SAFAL stands for safe minimal aluminium, which uses magnesium in place of aluminium as much as possible.
  - As opposed to conventional crackers, this makes less noise.
- **STAR:**
  - The safe thermite cracker, or STAR, releases less particulate matter at a lower sound intensity and is free of potassium nitrate and sulphur.

• *Source* → *The Hindu*

लक्ष्म्या अकादमी®