

## Prelim Bits 16-03-2024 | UPSC Daily Current Affairs

### Electric Vehicle (EV) Policy

*India unveiled a new electric vehicle policy that would provide foreign EV makers with incentives to enter India's electric car market.*

- **Administered by** - Ministry of heavy industries (MHI).
- **Features** - Government will *lower import taxes* on certain [electric vehicles](#) for companies that commit *minimum investment of Rs 4150 crore (\$500 million)*.
- There is no upper threshold for investments from EV manufacturers.
- **Time Line** - For vehicles with a minimum CIF (Cost, Insurance, and Freight) value of \$35,000, a 15% customs duty will be levied for a duration of 5 years.
- This is subject to the manufacturer setting up manufacturing facilities in India within a 3-year period.
- Additionally, a maximum of 40,000 EVs, at a rate not exceeding 8,000 per year, will be allowed if the investment surpasses \$800 million.
- **DVA** - They must achieve a domestic value addition (DVA) of at least 50% within five years.
  - *Domestic Value Addition (DVA) refers to the percentage of localized components used in manufacturing.*
- A localization level of 25% by the 3<sup>rd</sup> year and 50% by the 5<sup>th</sup> year is mandated.
- In case of non-achievement of DVA and minimum investment criteria defined under the scheme guidelines, the bank guarantee will be invoked.

*India imposes import taxes ranging from 70% to 100% on imported cars, depending on their value.*

- **Back up** - The scheme requires companies to back their investment commitments with a bank guarantee, which will be enforced in case of non-compliance with DVA and minimum investment criteria.
- **OEMs** - The scheme will not be applicable to existing Original equipment manufacturers (OEMs) or European OEMs, unless they make a fresh investment of at least \$500 million in the next three years.
- Detailed guidelines for the scheme are yet to be released.
- The company applying to be eligible under the scheme will also have to meet a minimum global turnover requirement.

- **Power Source** - Solely powered by electricity from battery.
- **Energy Source** - Electricity stored in batteries.
- **Key features**
  - **Fuel Efficiency** - Driven for longer distances on single charge.
  - **Emissions** - Produce zero tailpipe emissions and are considered one of the cleanest forms of transportation.
  - **Recharge** - Must be plugged in for recharging.
  - **Maintenance** - Have fewer moving parts and generally require less maintenance.
  - **Cost** - It is decreasing as technology improves and production increases.

## References

1. [Live Mint - Centre greenlights new Electric Vehicle \(EV\) Policy](#)
2. [The Economic Times - India approves Electric Vehicle \(EV\) Policy](#)
3. [India Today - Tesla's India entry gets boost with new EV Policy](#)
4. [PIB - Government approves EV Policy to promote e-vehicles](#)

## Hemoglobin A1C (HbA1C) Test

*India is estimated to have 10.13 crore people with diabetes, and another 13.6 crore people who are pre-diabetic.*

## Diabetes mellitus

- A chronic metabolic disorder which is the most common pancreatic endocrine disorder (Non-Communicable Disease).
- **Characteristics** - Caused due to insufficient, deficient or failure of *insulin secretion*.
  1. **Hyperglycaemia** - Increase in blood sugar level
  2. **Glycosuria** - Excretion of excess glucose in the urine
  3. **Polyuria** - Frequent urination
  4. **Polydipsia** - Increased thirst
  5. **Polyphagia** - Increase in appetite
- **Types of Diabetes** - There are 3 main types of diabetes.
  1. **Type 1 diabetes** is thought to be caused by an autoimmune reaction that stops your body from making insulin.
  2. **Type 2 diabetes** is caused when your body does not use insulin well and can't keep blood sugar at normal levels.
  3. **Gestational diabetes** is caused by the insulin-blocking hormones that are produced during pregnancy

Factors	Type-1 (Insulin dependent diabetes)	Type-2 (Non-insulin dependent diabetes)
Prevalence	10-20%	80-90%
Age of onset	Juvenile onset (Less than 20 years)	Maturity onset (Greater than 30 years)
Body weight	Normal or underweight	Obese
Defect	Insulin deficiency due to destruction of $\beta$ -cells	Target cells do not respond to insulin
Treatment	Insulin administration is necessary	Can be controlled by diet, exercise and medicine.

- **HbA1C Test** - One of the most commonly-used tests to diagnose [pre-diabetes](#) and [diabetes](#) (both type 1 and type 2).
- Also known as glycated haemoglobin or glycosylated haemoglobin test.
- **Working** - Sugar which enters the blood stream from the food consumed attaches to the hemoglobin in the red blood cells (RBCs).

*o Haemoglobin is a protein that transports oxygen to all the cells of the body.*

- The HbA1C test measures the percentage of RBCs that have sugar-coated, or glycated, haemoglobin.
- An HbA1C below 5.7% (normal); between 5.7 and 6.4% (pre-diabetic); and 6.5% or higher (diabetic).
- The test's results may change under certain conditions, including kidney or liver failure, severe anaemia or a blood disorder such as thalassemia, for early or late pregnancy, etc.

*India accounts for 17% of all diabetes patients in the world.*

**Traditional Testing**

**HbA1C**

<ul style="list-style-type: none"> <li>• Fasting, post-prandial or post-meal blood sugar tests give blood sugar levels within a specific time frame.</li> <li>• The traditional blood sugar tests may fluctuate depending on items in the person's latest meal and when they last consumed it.</li> </ul>	<ul style="list-style-type: none"> <li>• The HbA1C test reflects average blood glucose levels over the last 2 to 3 months.</li> <li>• The HbA1C test is independent of these variables, making it more reliable and can be taken irrespective of when the latest meal was consumed.</li> </ul>
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## References

1. [The Hindu - What is the HbA1C test?](#)
2. [Diabetes UK - What is hba1c?](#)

## Haiti

*Haiti's top gang leader threatens politicians as fires break out in capital.*

- Hayti means "***land of the mountains***" in the indigenous Taíno language.
- **Location** - Located between the ***Caribbean Sea*** and the North Atlantic Ocean.
- Haiti occupies the western one-third of the island of ***Hispaniola*** (eastern portion of Hispaniola is occupied by the Dominican Republic).
- **Bordering country** - The Dominican Republic: **Capital** - Port-au-Prince.



- **Geographic features** - Haiti has a warm, humid tropical climate.
- It is located on the leeward side of the island, which means that the influence of humid trade winds is not as great.
- **Highest peak** - Pic la Selle.

***Windward Passage*** - Between Hispaniola and Cuba

- **Political setup-** [Haiti](#) won independence from France in 1804, making it the second country in the Americas, after the United States, to free itself from the colonial rule.
- Haiti's government is a ***semi-presidential republic***, with a President acting as the country's leader and a Prime Minister reporting to the president.

*Haiti became the world's 1<sup>st</sup> black-led republic and the 1<sup>st</sup> independent Caribbean*

state when it threw off French colonial control and slavery in the early 19<sup>th</sup> century.

- **Ethnic Groups** - Nearly all of Haiti's population are of African origin.
- A small minority of people of mixed European and African descent (called mulattoes) constitute a wealthier elite.

## References

1. [The Hindu - Haiti's latest gang violence crisis](#)
2. [Reuters - Haiti's top gang leader threatens politicians](#)
3. [CNN - Inside Haiti](#)
4. [Britannica - Haiti](#)

## Ethanol 100

India commenced the sale of Ethanol 100 across 183 Indian Oil outlets in Maharashtra, Karnataka, Uttar Pradesh, New Delhi, and Tamil Nadu.

### Ethanol

- Ethyl alcohol or [Ethanol](#) ( $C_2H_5OH$ ) is a biofuel that is naturally made by fermenting sugar.
- It is basically *99.9% pure alcohol* that can be blended with petrol.
- While it is mostly derived from sugarcane, other organic matter like food grains can also be used for their production.
- Most of the ethanol production in India comes from B Heavy Molasses.

- **Significance** - Ethanol 100 stands as a cleaner, greener alternative to gasoline.
- Ethanol 100 has lower emissions of greenhouse gases and pollutants, thus aiding in combating climate change and enhancing air quality in our communities.
- With its **high-octane rating**, typically between 100-105, it proves ideal for high-performance engines, ensuring improved efficiency and power output all while minimizing environmental impact.
- **Applications** - [Ethanol](#) 100 can be used in a wide array of vehicles, including flex-fuel vehicles (FFVs) designed to run on gasoline, ethanol, or any blend of the two.

[Ethanol 20 \(E20\) programme](#) aims to achieve 20% ethanol blending in petrol by 2025. Currently, 8.5% of ethanol is blended with petrol in India.

## References

1. [PIB - Ethanol 100 Fuel](#)
2. [Economic Times - Ethanol 100](#)
3. [Zee Business - Petroleum Minister launches Ethanol 100](#)

## Ghost Particles (Neutrinos)

Astronomers detect seven potential 'ghost particles' that passed through planet Earth.

- **Neutrinos** are ***weakly interacting subatomic particles*** that can travel astronomical distances undisturbed.
- They are a ***type of electron*** but, like neutrons, they do ***not have any charge***.
- They are among the most abundant and tiniest particles in the universe.
- Neutrinos come from all kinds of different sources and have a ***very small mass***.

*Neutrinos belong to the family of particles known as leptons which consists of electrons, muons and tau particles.*

Lepton (particle)	Anti-lepton (anti-particle)
$e^-$ electron	$e^+$ positron
$\mu^-$ muon-minus	$\mu^+$ muon-plus
$\tau^-$ tau-minus	$\tau^+$ tau-plus
$\nu_e$ electron neutrino	$\bar{\nu}_e$ electron anti-neutrino
$\nu_\mu$ muon neutrino	$\bar{\nu}_\mu$ muon anti-neutrino
$\nu_\tau$ tau neutrino	$\bar{\nu}_\tau$ tau anti-neutrino

- Neutrinos' weak charge and almost nonexistent mass have made them notoriously difficult for scientists to observe. They can only be "seen" when they interact with other particles.
- The rarity of interactions with other particles makes them almost impossible to track and hence they are ***called ghost particles***.
- Currently, the largest neutrino-detecting telescope is the University of Madison-Wisconsin's ***"IceCube"*** telescope situated in the ***Antarctic***.

**IceCube Neutrino Observatory**

- It is the first detector of its kind, designed to observe the cosmos from deep within the South Pole ice in ***Antarctica***.
- Approximately 300 physicists from 59 institutions in 14 countries make up the IceCube Collaboration.
- ***The National Science Foundation (NSF)*** provides the primary funding for the IceCube Neutrino Observatory, with assistance from partner funding agencies around the world.
- ***The University of Wisconsin-Madison*** is the lead institution, responsible for the maintenance and operations of the detector.
- They provide information to probe the most violent astrophysical sources - events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars.
- IceCube has been using a string of golden globes, known as digital optical modules (DOMs), which are embedded in ice for detecting neutrinos which pass through the Earth.

## References

1. [The Indian Express - Astronomers detect 7 potential 'ghost particles'](#)
2. [Space.com - Scientists may have caught 7 exotic 'ghost particles'](#)
3. [WION - Seven 'ghost particles' pierce through Earth](#)
4. [IceCube - About IceCube Observatory](#)

## Other Important Topics

### JanSamarth Portal

*Department of Fisheries recently inaugurates the integration of the Kisan Credit Card Fisheries scheme onto the JanSamarth Portal.*

- Jan Samarth is a unique digital portal linking ***15 credit linked government schemes*** with 7 loan categories on a single platform
- It aims to ease of access to all the beneficiaries and related stakeholders.

### SIMA (Scalable Instructable Multiworld Agent)

- Google DeepMind recently revealed its latest AI gaming agent Scalable Instructable Multiworld Agent (SIMA) to perform tasks across video game environments.

### Gulf of Tonkin



- The Gulf of Tonkin is a crescent-shaped body of water in the northwestern part of the **South China Sea**.
- The gulf is bordered by **Vietnam in the west and northwest** and by **China in the north** and **Leizhou Peninsula and Hainan Island in the east**.
- Many rivers empty into the Gulf of Tonkin, with the Red River (Yuan River in Chinese) supplying the major riverine discharge.
- Hainan Strait separates the principal shipping route between **Hainan Island and China's Leizhou Peninsula**.



## **Nausena Bhawan**

- *Nausena Bhawan, the headquarters of Indian Navy, located at Delhi Cantonment was formally inaugurated by Union Defence Minister.*

## **Fair share for health and care**

- Fair share for health and care is a new report by the **World Health Organization**, addressed the gender gap in global healthcare.

### **Findings**

- Women comprises 67% of the global health and social care workforce but facing an average pay gap of 24% compared to men.
- Globally, 90% of women's earnings were directed towards their families' well-being, compared to only 30-40% of men's earnings.
- Women made up 25% to 60% of doctors, but between 30% and 100% of nursing staff across 35 countries.
- Unpaid health work adds value to health contributions, and 76% of unpaid care activities are performed by women.
- In India, women spent around 73% of their total daily working time on unpaid work, compared to men who spent around only 11% of their daily working time on unpaid work.



## AVGC-XR policy

*Kerala's cabinet has approved a new Animation, Visual Effects, Gaming, Comics and Extended Reality (AVGC-XR) sector policy.*

- The policy aims at driving the inception and expansion of 250 such companies and creation of 50,000 new jobs in the sector by 2029.
- Through this, the State also expects to account for 10% of India's export revenues in the AVGC-XR industry.

## Bannerghatta Biological Park

*The water crisis in Bengaluru is unlikely to have an impact on the Bannerghatta Biological Park (BBP), which is located in the outskirts of the city.*

- Bannerghatta Biological Park is a sanctuary located in **Bengaluru, Karnataka**.
- It is established in 1971 and declared as a biological reserve in **2002**.
- It is the **1<sup>st</sup> biological park in India** to have a fenced forested elephant sanctuary.
- In 2006, **India's first butterfly enclosure** was inaugurated at the park.
- **The Suvarnamukhi stream** runs through the national park.

## Mathikettan Shola National Park

- Mathikettan Shola National Park is a national park in **Kerala established in 2003**.
- It shares an interstate boundary with **Kerala and Tamil Nadu**.
- It is originally a part of the **Cardamom Hill Reserve (CHR)**, serve as perennial water sources for several tributaries of the **Panniyar river**.
- Mathikettan Shola National Park is known for its **pristine shola forests**, unique montane evergreen forests found in the Western Ghats.

## Bharat Pashudhan

- Bharat Pashudhan is a **digital database for livestock animals in India**, part of India's Digital Public Infrastructure.
- The app allows users to register the births and deaths of animals, and to create animal identification using the unique ID number or Pashu Aadhaar.
- **Pashupalak App** empowers the farmers to be able to access all free and paid livestock related schemes/services.