



## Decarbonisation of Steelmaking

**For Prelims:** [Hydrogen, greenhouse gas emissions](#), Direct Reduction using Hydrogen (DR-H), [Greenhouse Gas Emissions](#).

**For Mains:** Significance of the Direct Reduction by Hydrogen in Steel Making.

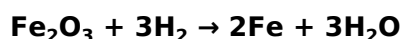
### Why in News?

[Hydrogen](#) is a crucial part of the world's plans to **greenify** its manufacturing and **automobile industries** as a fuel whose production and use **needn't emit carbon**.

- **Hydrogen** can also be used as a reducing agent instead of **carbon monoxide (CO)**, which would result in **much lower [greenhouse gas emissions](#)**.

### What is the Direct Reduction Process by Hydrogen in Steel Making?

- **Procedure:**
  - **Direct reduction by hydrogen (DR-H)** in steel making is a process that uses **hydrogen gas** to reduce **iron oxide (Fe<sub>2</sub>O<sub>3</sub>)** into **metallic iron (Fe)** without the use of a **blast furnace**.
    - This method is also known as the "**green route**" for steel production, as it significantly reduces the **carbon emissions** associated with traditional **steelmaking processes**.
  - The **Direct Reduction process** typically involves **mixing iron ore pellets or lumps with hydrogen gas** in a reactor vessel at temperatures ranging from **600 to 800°C**.
  - The **hydrogen reacts** with the **iron oxide** to form **metallic iron** and **water vapor**, as shown in the following chemical equation:



- **Significance:**
  - **Lower Carbon Emissions:** Using Hydrogen as a reducing agent produces only water vapor as a byproduct making it a much cleaner alternative to **coal/coke**.
    - This process has the potential to reduce **carbon emissions** by up to **97%**.
  - **Energy Efficiency:** The process is more efficient because it eliminates the need for heating and melting large quantities of iron ore in a **blast furnace**.
  - **Higher Quality Steel:** The direct reduction process produces **high-quality iron** that is purer and has lower levels of impurities, resulting in **higher-quality steel**.
  - **Flexibility:** Direct reduction by hydrogen can be used to produce steel from a wide range of iron ores, including those with **lower iron content**.
  - **Cost-Effectiveness:** The direct reduction process can be more **cost-effective** than traditional steelmaking methods, especially when **natural gas prices are high**.

### What is the Use of Hydrogen in Industries other than Steel Making?

- **Energy Production:** Hydrogen can be used as a fuel for power generation, either through combustion or fuel cells. In fact, [hydrogen fuel cells](#) are already used in some vehicles and are being explored as a [renewable energy](#) source for buildings.
- **Chemical Production:** Hydrogen is used as a **feedstock for the production of chemicals** like ammonia, methanol, and other hydrocarbons which are used in various industries (agriculture, transportation, and construction).
- **Electronics:** Hydrogen is used in the **manufacturing of electronic components, such as [semiconductors](#)**, and in the production of flat panel displays and [light-emitting diodes \(LEDs\)](#).
- **Food Processing:** Hydrogen is used in the food processing industry **as a reducing agent to preserve the quality and appearance** of food products.
- **Medical Applications:** Hydrogen is being **investigated as a potential medical gas with anti-inflammatory and antioxidant properties**. It is also used as a tracer gas in medical diagnostics.

## Note:

- The [National Green Hydrogen Mission](#) is a program to incentivise the commercial production of green hydrogen and make India a net exporter of the fuel.
- The [National Hydrogen Energy Mission \(NHEM\)](#) was announced in [Union Budget 2021-22](#) for promoting the **development and deployment of hydrogen energy technologies** in the country.

## What is the Status of Steel Production in India?

- **Production and Consumption:** India is **currently the world's 2<sup>nd</sup> largest producer** of crude steel (as of 2021) and also the **2<sup>nd</sup> largest consumer of finished steel in 2021** (preceded in both cases by China).
- **Important Steel-Producing Centers in India:** Bhilai (Chhattisgarh), Durgapur (West Bengal), Burnpur (West Bengal), Jamshedpur (Jharkhand), Rourkela (Odisha) and Bokaro (Jharkhand).
- **Export:** India is a **significant exporter of steel products**, with major export destinations including the US, the UAE, and Nepal.
- **Government Policies:** The [National Steel policy](#) was launched in 2017 which projects **crude steel capacity of 300 million tonnes (MT)**, production of **255 MT** and a robust finished steel per capita consumption of **158 Kgs by 2030-31**.
- **Steel Industry and GHG Emissions:**
  - According to the **International Energy Agency (IEA)**, the **steel industry** is responsible for around **7% of global CO2 emissions**, making it one of the largest industrial emitters of [greenhouse gases](#).
- **Pollutants from Steel Industries:**
  - [Particulate Matter \(PM2.5 and PM 10\)](#)
  - [Oxides of Sulphur](#)
  - [Oxides of Nitrogen](#)
  - [Carbon Monoxide \(CO\)](#)
  - [Carbon Dioxide \(CO<sub>2</sub>\)](#)
  - [Solid Waste](#)
- **Green Steel:**
  - The Ministry of Steel seeks to reduce CO2 in steel industry through promotion of [Green Steel \(manufacturing steel without using fossil fuels\)](#).
    - This can be done by using **low-carbon energy sources** such as **hydrogen, coal gasification, or electricity** instead of the traditional **carbon-intensive manufacturing route of coal-fired plants**.
  - It eventually lowers GHG emissions, cuts cost and improves the quality of steel.

## What are the Challenges Associated with Using Hydrogen in Steel Production?

- **High Capital Costs:** The initial capital costs of building and operating a direct reduction plant are

typically higher than traditional steel making methods. This can be a barrier to entry for smaller steel producers.

- **Availability of Hydrogen:** The availability and cost of hydrogen can be a challenge, especially if it is produced using fossil fuels. The development of low-cost, [green hydrogen production technologies](#) will be critical for the widespread adoption of this process.
- **Scale-up Challenges:** Scaling up the direct reduction process can be challenging, especially **when producing large volumes of steel** as it requires careful management of the reactor and the supply of hydrogen gas.
  - Also, it **requires a high degree of technical expertise** and process control to ensure the quality and consistency of the iron product.
- **Infrastructure Requirements:** The process requires specialized infrastructure, including storage and handling facilities for hydrogen gas. The development of this infrastructure can be costly and time-consuming.

## Way Forward

- **Better Investment:** Governments and the private sector should increase investment in R&D of green hydrogen production technologies to reduce the cost and increase the availability of hydrogen.
- **Encourage Collaboration:** Collaboration between steel producers, hydrogen producers, and other stakeholders can **help address technical challenges and promote the development of necessary infrastructure.**
- **Policy Support:** Governments can provide policy support through incentives such as **tax credits, grants, and loan guarantees** to encourage the adoption of this technology.
  - Also, **developing standards for the production/use of green hydrogen** can help **ensure the quality and consistency of the product, reduce costs, and promote market acceptance.**

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### Prelims:

**Q. In the 'Index of Eight Core Industries', which one of the following is given the highest weight? (2015)**

- (a) Coal production
- (b) Electricity generation
- (c) Fertilizer production
- (d) Steel production

**Ans: (b)**

**Q. In India, the steel production industry requires the import of (2015)**

- (a) saltpetre
- (b) rock phosphate
- (c) coking coal
- (d) All of the above

**Ans: (c)**

**Q. Which of the following are some important pollutants released by steel industry in India? (2014)**

1. Oxides of sulphur
2. Oxides of nitrogen

3. Carbon monoxide

4. Carbon dioxide

Select the correct answer using the code given below:

(a) 1, 3 and 4 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 1, 2, 3 and 4

**Ans: (d)**

**Q. Steel slag can be the material for which of the following? (2020)**

1. Construction of base road

2. Improvement of agricultural soil

3. Production of cement

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

**Ans: (d)**

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***Mains:***

**Q.** Account for the present location of iron and steel industries away from the source of raw material, by giving examples. **(2020)**

**Q.** Account for the change in the spatial pattern of the Iron and Steel industry in the world. **(2014)**

**Source: TH**

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## **Ludhiana Gas Leak Tragedy**

**For Prelims:** [National Green Tribunal \(NGT\)](#), Neurotoxic Gases, [Other Legal safeguards available in cases of chemical disasters](#).

**For Mains:** National Green Tribunal: powers; Safeguards against chemical disasters

**Why in News?**

The [National Green Tribunal \(NGT\)](#) has formed an eight-member fact-finding committee to look into the death of 11 people due to a recent gas leak in Ludhiana district of Punjab.

- The NGT took [suo motu cognisance](#) of the matter based on media reports.

## What happened in Ludhiana?

### ▪ Background:

- A gas leak has claimed the lives of 11 people in the Giaspur area of Ludhiana.
- The Police has suspected that a poisonous gas may have emanated from a partially open manhole in the locality and spread to the shops and houses nearby.
  - The inquiry for the cause of the leak is on.
- The autopsy reports suggested that the deaths were due to **“inhalation poisoning”**.
  - Forensic experts have suspected **Hydrogen Sulphide - a neurotoxic gas** - to be responsible for the tragedy.
  - According to an expert - Probably some acidic waste was thrown into sewer which reacted with methane, carbon monoxide and other sewerage gases to produce hydrogen sulphide.

### ▪ Neurotoxins:

- Neurotoxins are poisonous substances which can **directly affect the nervous system**.
  - These substances can disrupt or even kill neurons or nerve cells, which are important for transmitting and processing signals in the brain and other parts of the nervous system.
- **Neurotoxic Gases:**
  - **Methane, hydrogen sulphide, carbon monoxide and carbon dioxide** are common neurotoxic gases.
  - **Methane and carbon monoxide are odourless gases**, but **hydrogen sulphide has a pungent odour** and in higher concentration can be fatal for humans.
    - Hydrogen sulphide is so toxic that even one breath of it taken inside can kill a person.

## What are the Safeguards Against Chemical Disasters in India?

- **Background:** Prior to the [Bhopal Gas tragedy](#), the **IPC 1860** was the only law providing safeguards against such disasters; however, soon after the tragedy, the government came with a series of legislations regulating the environment and prescribing and specifying safeguards and penalties. Some of the laws are:
  - **Bhopal Gas Leak (Processing of Claims) Act, 1985** gave powers to the central government to secure the claims arising out of or connected with the Bhopal gas tragedy.
    - Under the provisions of this Act, such claims are dealt with speedily and equitably.
  - The [Environment Protection Act \(EPA\), 1986](#) gives powers to the central government to undertake measures for improving the environment and set standards and inspect industrial units.
  - **The Public Liability Insurance Act, 1991** is an insurance meant to **provide relief to persons affected by accidents** that occur while handling hazardous substances.
  - Under the [Hazardous Waste \(Management Handling and Transboundary Movement\) Rules, 1989](#), **industries** are required to **identify major accident hazards, take preventive measures** and submit a report to the designated authorities.
  - Under the **Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989**, importers must furnish complete product safety information to the competent authority and must transport imported chemicals in accordance with the amended rules.
  - **Chemical Accidents (Emergency, Planning, Preparedness and Response) Rules, 1996** requires the central govt to **constitute a central crisis group for management of chemical accidents**; set up quick response mechanism termed as the crisis alert system.
    - Each state is required to set up a crisis group and report on its work.
  - **The National Environment Appellate Authority Act, 1997:** Under this Act, the National Environment Appellate Authority can hear appeals regarding the restriction of areas in which any industries, operations or processes or class of industries shall not be

carried out or shall be carried out subject to certain safeguards under the EPA1986.

## What is the National Green Tribunal?

### ▪ About:

- It is a **statutory body set up under the [National Green Tribunal \(NGT\) Act, 2010](#)** for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- With NGT, **India became the 3<sup>rd</sup> country in the world to set up a specialised environmental tribunal**, only **after Australia and New Zealand**, and the first developing country to do so.
- NGT is mandated to **make disposal of applications or appeals finally within 6 months** of filing of the same.
- The NGT has five places of sitting, New Delhi is the principal place of sitting and Bhopal, Pune, Kolkata and Chennai are the other four.

### ▪ Powers:

- The Tribunal has **jurisdiction over all civil cases involving substantial questions relating to the environment** (including enforcement of any legal right relating to environment).
- **It can take Suo Motu cognizance** of the environmental cases.
- Apart from original jurisdiction side on filing of an application, NGT also has **appellate jurisdiction** to hear appeal as a Court (Tribunal).
- NGT is not bound by the procedure laid down under the [CPC 1908](#) but shall be **guided by principles of 'natural justice'**.
- An order/decision/**award of Tribunal is executable as a decree of a civil court.**

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### Prelims:

**Q. How is the National Green Tribunal (NGT) different from the Central Pollution Control Board (CPCB)? (2018)**

1. The NGT has been established by an Act whereas the CPCB has been created by an executive order of the Government.
2. The NGT provides environmental justice and helps reduce the burden of litigation in the higher courts whereas the CPCB promotes cleanliness of streams and wells, and aims to improve the quality of air in the country.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**Ans: b**

**Source: IE**

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# Sedition Law

**For Prelims:** [Sedition, Section 124A, Supreme Court, IPC, Article 19.](#)

**For Mains:** Sedition Law - its significance and Issues.

## Why in News?

Recently, the government in the [Supreme Court \(SC\)](#) has said it has initiated the "**Process of Re-examination**" of [Section 124A \(sedition\)](#) of the [Indian Penal Code \(IPC\)](#) and consultations are in its "final stage".

- In May 2022, the court, in an interim order, had suspended the use of Section 124A, stalling pending criminal trials and court proceedings under Section 124A across the country.

## What is Sedition Law?

- **Historical Background:**
  - Sedition laws were enacted in **17<sup>th</sup> century England** when lawmakers believed that only good opinions of the government should survive, as **bad opinions were detrimental to the government and monarchy.**
    - The law was originally **drafted in 1837 by Thomas Macaulay**, the British historian-politician, but was inexplicably omitted when the IPC was enacted in 1860.
  - **Section 124A was inserted to IPC in 1870** by an amendment introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.
    - Today the Sedition is a crime under **Section 124A of the IPC.**
- **Current Scenario:**
  - **Section 124A IPC:**
    - It defines sedition as **an offence committed when** "any person by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India".
      - Disaffection includes **disloyalty and all feelings of enmity.** However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not **constitute an offence under this section.**
      - The SC in **Balwant Singh v. State of Punjab (1995)**, reiterated that the **real intent of the speech must be taken** into account before labelling it seditious.
  - **Punishment:**
    - It is a [Non-Bailable Offence](#). Punishment under Section 124A ranges from **imprisonment up to three years to a life term**, to which a **fine may be added.**
    - A person charged under this law is **barred from a government job.**
      - They have to live without **their passport and must produce themselves** in the court at all times as and when required.

## What is the Significance of Sedition Law?

- **Reasonable Restrictions:**
  - The Constitution of India guarantees the freedom of speech and expression to its citizens.
    - However, this **right is not absolute**, and the **government can restrict it under certain circumstances** to ensure that it is not abused.



- These restrictions are considered reasonable and are **laid out in [Article 19\(2\)](#)** of the Constitution.
- **Maintaining Unity & Integrity:**
  - Sedition law helps the government in **combating anti-national, secessionist and terrorist elements.**
- **Maintaining Stability of State:**
  - It helps in protecting the elected government **from attempts to overthrow** the government with violence and illegal means.
  - The continued existence of the government **established by law is an essential condition of the stability** of the State.

## What are the Issues?

- **Reminiscence of Colonial Era:**
  - During British rule in India, sedition laws were used to imprison people who criticized British policies.
    - Many leaders of the Indian freedom movement, such as [Lokmanya Tilak](#), [Mahatma Gandhi](#), [Jawaharlal Nehru](#), [Bhagat Singh](#), etc were convicted and imprisoned for their speeches, writings, and activities.
- **Stand of Constituent Assembly:**
  - The Constituent Assembly did not agree to include sedition in the Constitution as the members **felt it would curtail freedom of speech and expression.**
  - They argued that the sedition law can be turned into a weapon to **suppress people's legitimate and constitutionally guaranteed right to protest.**
- **Repressing Democratic Values:**
  - Increasingly, India is being described as an elected autocracy **primarily because of the callous and calculated** use of sedition law.

## What are the Previous SC Rulings regarding Sedition?

- As early as 1950, the SC in **Romesh Thapar v State of Madras** held that “criticism of the government exciting disaffection or bad feelings towards it, is not to be regarded as a **justifying ground for restricting the freedom of expression** and of the press, unless it is such as to undermine the security of or tend to overthrow the state.”
- Subsequently, two high courts — the Punjab and Haryana High Court in **Tara Singh Gopi Chand v. The State (1951)**, and the Allahabad High Court in **Ram Nandan v. State of Uttar Pradesh (1959)** — declared that **Section 124A of the IPC was primarily a tool for colonial masters** to quell discontent in the country and declared the provision unconstitutional.
- In the **Kedarnath Singh v State of Bihar (1962)** ruling on sedition the SC overruled the earlier rulings of the high courts and **upheld the constitutional validity of IPC Section 124A.** However, the **court attempted to restrict its scope for misuse.**

## What are Recent Developments?

- **In February 2021**, the Supreme Court protected a political leader and six senior journalists from arrest, for allegedly tweeting and sharing unverified news, in multiple sedition FIRs registered against them.
- **In June 2021**, the SC while protecting two Telugu (language) news channels from coercive action by the Andhra Pradesh government **emphasized on defining the limits of sedition.**
- **In July 2021**, a petition was filed in the SC, that sought a relook into the Sedition Law,
  - The Court ruled that a law that criminalizes speech **based on vague and unconstitutional definitions of terms like 'disaffection towards Government'** is not a reasonable restriction on the fundamental right to free expression **guaranteed under Article 19(1)(a).**
  - Such a law creates a **chilling effect on speech**, that means people will **self-censor or refrain from expressing their opinions** out of fear of being punished by the government.



## Way Forward

- The court's intervention is **crucial because in case it strikes down the provision**, it will have to overrule the Kedar Nath ruling and uphold the earlier rulings that were liberal on free speech.
  - However, if the government decides to review the law, either by diluting the language or repealing it, **it could still bring back the provision** in a different form.
- The **higher judiciary should use its supervisory powers to sensitize the magistracy** and police to the constitutional provisions protecting free speech.
- The **definition of sedition should be narrowed down**, to include only the issues pertaining to the territorial integrity of India and sovereignty of the country.

[Source: TH](#)

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## One Year of India- UAE CEPA

**For Prelims:** CEPA, [India-UAE CEPA](#), [India-UAE trade relations](#)

**For Mains:** India and its Neighbourhood, Bilateral Groupings & Agreements, India-UAE Relations

### Why in News?

- Recently, the [India-UAE Comprehensive Economic Partnership Agreement \(CEPA\)](#) completed one year of implementation.

### What is CEPA?

- It is a kind of free trade pact that **covers negotiation on the trade in services and investment, and other areas of economic partnership.**
- It may even consider negotiation in areas such as **trade facilitation and customs cooperation, competition, and IPR.**
- Partnership agreements or cooperation agreements are more comprehensive than Free **Trade Agreements.**
- CEPA also looks into the regulatory aspect of trade and encompasses an agreement covering the regulatory issues.

### What is the India-UAE CEPA?

- **About:**
  - The India-UAE CEPA is a landmark [free trade agreement \(FTA\)](#) between the two countries. It covers **trade in goods, services, investment, and other areas of economic cooperation.**
  - The CEPA entered into force on **May 1, 2022** and is expected to increase the **total value of bilateral trade in goods to over USD 100 billion** and trade in services to over USD 15 billion **within five years.**
  - The **CEPA is the first deep and full-fledged FTA signed by India** with any country in

the past decade.

▪ **Salient Features:**

◦ **Trade in Goods:**

- The CEPA provides for preferential market access for over **80% of products traded between India and the UAE.**
- India will benefit from the **reduction or elimination of tariffs on its exports to the UAE**, especially in sectors such as gems and jewellery, textiles, leather, footwear, sports goods, plastics, furniture, agricultural and wood products, engineering products, medical devices and automobiles.

◦ **Trade in Services:**

- The CEPA covers **11 broad service sectors and more than 100 sub-sectors**, such as business services, communication services, construction and related engineering services, distribution services, educational services, environmental services, financial services, health related and social services, **tourism and travel related services, recreational cultural and sporting services and transport services.**
- Both countries have offered enhanced market access for each other's service providers across these sectors.

◦ **Investment:**

- The CEPA provides for a **liberal and non-discriminatory regime for cross-border investment between India and the UAE.**
- It also includes provisions on, dispute settlement and cooperation on investment facilitation.

◦ **Some Other Areas of Cooperation:**

- Protection and promotion of investments
- Technical barriers to trade (TBT)
- [Sanitary and phytosanitary \(SPS\) measures](#)
- Dispute settlement
- Movement of natural persons
- Pharmaceutical products
- [Intellectual property rights \(IPR\)](#)
- Digital trade

## How are India-UAE Trade Relations?

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- **Trade:**
  - **UAE is India's 3<sup>rd</sup> largest trading partner (after US, China).** Bilateral trade turnover between the two was US\$ 68.4 billion in 2021.
- **FDI:**
  - UAE is the **7<sup>th</sup> largest investor in India** with cumulative [FDI inflows](#) of US\$ 15,179 million from **April 2000 - September 2022.**
- **Exports:**
  - Major Indian exports to UAE are **petroleum products, gems and jewellery, machinery and instruments, chemicals, iron and steel, textiles and garments, cereals, meat and meat products,** etc.
- **Imports:**
  - Major Indian imports from UAE are **crude oil, gold, pearls and precious stones, metal ores and metal scrap, chemicals, electrical machinery,** etc.
- **Impact of India-UAE CEPA on Trade Ties:**
  - **Bilateral Trade:**
    - Bilateral trade between India and the UAE **reached historic highs during FY 2022-23;** increased from USD 72.9 billion (FY 22) to USD 84.5 billion (FY 23), **registering an increase of 16%.**
  - **Indian Exports to the UAE:**
    - Indian exports to the UAE increased from USD 28 bn to USD 31.3 bn (same period as above); **an 11.8% year-on-year growth in percentage terms.**
    - During the same period, growth in India's global exports was 5.3%, excluding the UAE, India's global exports grew at 4.8%.
  - **Sectors that Witnessed Significant Export Growth:**
    - Mineral Fuels
    - Electrical Machinery (particularly telephone equipment)
    - Gems & Jewellery
    - Automobiles (Transport vehicles segment)
    - Essential Oils/Perfumes/Cosmetics (Beauty/Skin care products)

- Other Machinery
- Cereals (Rice)
- Coffee/Tea/Spices
- Chemical Products

[Source: PIB](#)

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## Local Reservation in Jobs

**For Prelims: Local Reservation in Jobs, Article 14,16,19, [Haryana State Employment of Local Candidates Act, 2022](#), Freedom of Movement.**

**For Mains:** Local Reservation in Jobs and Implications.

### Why in News?

Due to Local Reservation Law in Jobs, the state has received fewer **new investment projects compared to previous years**, causing the state's share of new investment projects in the country to **drop to 1.06% in 2022-23 from 3 % previous year**, lowest in six years.

- Haryana enacted the [Haryana State Employment of Local Candidates Act, 2020](#) in early 2022, reserving 75% of private sector jobs with monthly salaries up to Rs 30,000 for locals.

### What is Haryana State Employment of Local Candidates Act, 2020?

- **About:**
  - It requires firms with **10 or more employees to reserve 75% of all jobs** offering a salary of less than Rs. 30,000 a month for eligible candidates of State domicile.
  - It will be mandatory **for all these employers to register all their employees** drawing gross monthly salary or wages not more than Rs 30,000 on the designated portal available on the official website of the Labour Department, Haryana.
- **Similar Attempts in other States:**
  - Job reservation Bills or laws for domiciles have also been announced in other States including **Andhra Pradesh, Madhya Pradesh and Jharkhand**.
  - The job quota Bill passed in the Andhra Pradesh Legislative Assembly in 2019, also reserving **three-fourths of private jobs for locals**.

### What are the Pros and Cons of Local Reservation in Jobs?

- **Pros:**
  - **Constitutionally Valid:** Article 16 of the constitution of India **doesn't prohibit reservation based on the domicile** and the residence. It seems constitutionally valid to provide first opportunities to the locals in local jobs because **these people wear all the negative externalities generated by job** creating establishments.
  - **Equality:** Reservation in local jobs provides **equality among the weakest section of the society**, because reservation is only confined to low strata jobs, and it is as per the spirit of the Equal Protection of Law as per Article 14 of the constitution of India.

- **Suitable Solution for Unemployment:** Reservation in local jobs seems a suitable solution **amid unemployment and stagnant job creation.**
    - In the constitution of India, there are **special provisions for jobs and education for states of Andhra Pradesh and** Telangana under the article 371 D and E, due to their special circumstances. So, the reservation in local **jobs amid the unemployment situation seems justified and as per the special provisions** of the constitution of India.
  - **Boost Local Economy:** When companies hire local people, they **tend to spend their earnings in the local economy**, which can help to create jobs and generate economic growth.
    - Hiring local people means companies do not have to **bear the relocation costs of employees.** This can help to **reduce their operational costs**, which can be passed on to customers in the form of lower prices.
  - **Improve Productivity:** Local employees are **more likely to be familiar with the local language**, culture, and business environment, which can help to improve their productivity and efficiency.
- **Cons:**
- **Can Trigger Exodus of Investors:** It could trigger an exodus of large domestic and **multinational investors across sectors** such as auto, IT that rely on highly skilled manpower.
    - In the case of **Haryana**, investment fell 30% in 2022 to Rs 39,000-odd crore from nearly Rs 56,000 crore in 2021-22, pushing it from the **ninth-best State in terms of new investment projects to the 13th rank in 2022-23** because of local reservation law.
  - **Affect Existing Industries:** Raising the son of the soil issue and preventing free movement of manpower resources in the **State from other regions can have an adverse effect** on the existing industries in the State.
    - This may force those tech giants and other industries to shift their base from Haryana to other States and drain out the State's monetary resources to that extent.
  - **Can Cause Extreme Talent Crunch:** Imposing the reservations on gig and platform **companies could create a crippling talent crunch.**
  - **Against the Constitution:** The Constitution of India guarantees **freedom of movement and consequently employment within India** through several provisions.
    - Article 14 provides for equality before law irrespective of place of birth.
    - Article 15 guards against discrimination based on place of birth.
    - Article 16 guarantees no birthplace-based discrimination in public employment.
    - Article 19 ensures that citizens can move freely throughout the territory of India.

## Way Forward

- The reservation policy could be implemented in a way that **does not hamper the free movement of manpower** resources in the Country.
- The reservation policy could be **revisited periodically to assess its impact on the economy** and industries in the state.
- It is important to ensure that any policy decision taken is in compliance with the Constitution of India and **does not violate the fundamental rights of citizens.**
- The best way to grow out of Job for Locals Legislations (JRFL) attempts of various state governments is to ensure economic recovery and provide enough job opportunities for youths with skill training and proper education as key focus areas, enabling the masses to compete in the free market.

[Source: TH](#)

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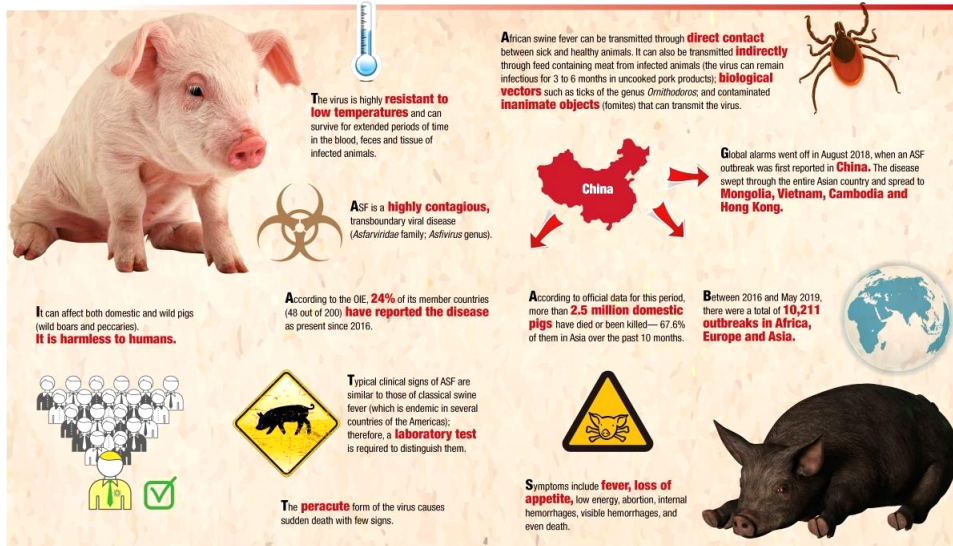
# African Swine Fever and Pygmy Hogs

## Why in News?

According to an article published in the journal 'Science', the [African Swine Fever](#) could fatally affect the population of [pygmy hogs](#), the world's rarest and smallest pigs.

- The disease has already decimated porcine (related to pigs) populations across Asia since its advent in China in 2018.

## African swine fever (ASF)



## Note:

- ASF was first detected in Africa in the 1920s; however, the disease has been reported across Africa, Asia and Europe, in both domestic and wild pigs.
- The mortality rate is close to 95% - 100% and since the fever has no cure, the only way to stop its spread is by culling the animals.
- ASF is a disease listed in the [World Organisation for Animal Health \(OIE\)'s Terrestrial Animal Health Code](#).

## What are the Characteristics of Pygmy Hog?

- **Scientific Name:**
  - *Porcula Salvania*
- **Features:**
  - It is **one of the very few mammals that build its own home**, or nest, complete with a 'roof'.
  - It is also an **indicator species**. Its presence reflects the health of its primary habitat, the tall, wet grasslands of the region.
- **Habitat:**
  - It thrives in wet grassland.
  - Once, it used to be found along a narrow strip of tall and wet grassland plains on the Himalayan foothills - from UP to Assam, through Nepal's terai areas, Bhutan and Bengal's duars.
    - **Today, it is found only in India (Assam)**
- **Protection Status:**
  - [IUCN Red List](#): Endangered

- [CITES: Appendix I](#)
- [Wildlife \(Protection\) Act, 1972: Schedule I](#)
- **Threats:**
  - Habitat (grassland) loss and degradation
  - Illegal hunting
- **Conservation Effort - Pygmy Hog Conservation Programme 1995:**
  - Once thought to be extinct, it was **rediscovered in 1971**. The Durrell Wildlife Conservation Trust, UK, initiated the Pygmy Hog Conservation Programme in 1995 in collaboration with **IUCN, Assam Forest Department and MoEF&CC**.
    - It is currently being implemented by NGOs - Aaranyak and EcoSystems India.
  - Between 2008 and 2022, 152 of them were reintroduced into four [protected areas \(PAs\) in Assam](#), including the recent release of 36 individuals in **Manas National Park**.
    - Between 2011 and 2015 animals were reintroduced into the **Orang National Park**.
    - By 2025, the PHCP plans to release 60 pygmy hogs in **Manas NP**.

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### Prelims:

**Q. Consider the following: (2013)**

1. Star tortoise
2. Monitor lizard
3. Pygmy hog
4. Spider monkey

**Which of the above are naturally found in India?**

- (a) 1, 2 and 3 only  
(b) 2 and 3 only  
(c) 1 and 4 only  
(d) 1, 2, 3 and 4

**Ans: (a)**

[Source: DTE](#)

## Psychedelic Substances

**For Prelims:** Psychedelic Substances, [Psychiatry](#), [NDPS Act 1985](#), [Depression](#), [Drug Trafficking](#).

**For Mains:** Psychedelic Substances and their implications.

### Why in News?

In recent years, there has been renewed interest in the use of **Psychedelics** in the clinical and research domain of [Psychiatry](#).



- In India, the [Narcotic Drugs and Psychotropic Substances Act 1985](#) prohibits the use of psychedelic substances.

## What are Psychedelics?

- **About:**
  - Psychedelics are a group of drugs that **alter perception, mood, and thought processing** while a person is still clearly conscious. Usually, the person's insight also **remains unimpaired**.
  - Psychedelics are **non-addictive and non-toxic**. Compared to illicit drugs, psychedelics **cause much less harm to the end user**.
    - The two most commonly used psychedelics are **d-lysergic acid diethylamide (LSD) and psilocybin**.
    - Less common ones include **mescaline**, found in the North American **peyote cactus** (*Lophophora williamsii*), and **N,N-dimethyltryptamine**, the principal component of the South American ceremonial sacrament ayahuasca.
- **Impact on Body after Consumption:** Users of psychedelic substances report **changes in perception, somatic experience, mood, thought processing, and entheogenic experiences**:
  - **Perceptual distortions** most commonly include the **visual domain**.
    - An intriguing phenomenon called **synaesthesia** may occur, where the sensory modalities cross and the user may **'hear colour' or 'see sounds'**.
  - Somatic experiences may include the **visceral, tactile, and interoceptive (body's internal state) domains**.
  - Mood changes may include **elation, euphoria, anxiety, and paranoia**.
  - Entheogenic experiences include **transcendental spiritual experiences**.
- **Issues:**
  - An overdose requires **cardiac monitoring and supportive management** in a low-stimulus and reassuring environment.
  - Synthetic psychedelics (such as 25I-NBOMe) have been associated with **acute cardiac, central nervous system**, and limb ischaemia, as well as serotonin syndrome.
    - There have also been reports of death attributed directly to synthetic psychedelic use.
- **Treating Depression:**
  - In November 2022, the results from a **phase II psilocybin trial** were published in the New England Journal of Medicine. The trial found that a **single 25-mg dose of psilocybin reduced Depression scores** over three weeks in people with treatment-resistant depression.
  - These findings were more recently replicated in a **phase IIB trial, which found that a single dose of 25 mg psilocybin** improved measures of depression severity, anxiety, and functioning.

## What is Narcotic Drugs and Psychotropic Substances Act 1985?

- It was enacted in 1985 and deals **with drugs and their trafficking** in the country.
  - The act has since been amended thrice in 1988, 2001, and 2014.
- The Act prohibits the production, manufacture, sale, purchase, transportation & consumption of many **narcotic drugs or psychotropic substances**, including cannabis, heroin, opium etc. The law,
  - However **Bhang** is not prohibited under the Act.
- **Section 20** of the NDPS Act lays out the punishment for the **production, manufacture, sale, purchase, import and inter-state export of cannabis**, as defined in the Act. The prescribed punishment is based on the number of drugs seized.
- It also provides for the death penalty in some cases **where a person is a repeat offender**.

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## Rapid Fire Current Affairs

### Successful Test Launch of StarBerrySense

The [Indian Space Research Organisation \(ISRO\)](#) recently launched a Low-cost star sensor called [StarBerrySense](#), mounted on the [PSLV Orbital Experimental Module \(POEM\)](#), which has **performed well during its first-ever space test**. StarBerrySense is a low-cost sensor designed to quickly **calculate the orientation of a spacecraft by identifying stars in its field of view**. Developed by the Space Payloads Group at the [Indian Institute of Astrophysics \(IIA\)](#), StarBerrySense is built around the [Raspberry Pi](#) minicomputer and is cost-effective and simple to build.

POEM is a unique initiative by ISRO that utilizes the **spent 4<sup>th</sup> stage of the PSLV** as an orbital platform for carrying out scientific experiments. The initial **results of the StarBerrySense test indicate that it withstood the harsh conditions in space and is functioning as expected, with the imaging equipment and onboard software capable of accurately calculating the pointing direction**.

**Read more:** [StarBerrySense](#)

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### Uganda Passes Anti-LGBTQ

The Ugandan parliament has passed one of the world's strictest anti-LGBTQ bills, retaining most of the harshest measures despite international condemnation. The legislation includes provisions for the death penalty for so-called "aggravated homosexuality" and a 20-year sentence for promoting homosexuality, which human rights activists say could criminalize any advocacy for [LGBTQ citizens](#). The bill also includes measures to "rehabilitate" gay people. The legislation was amended to stipulate that merely identifying as LGBTQ is not a crime and that people are only obliged to report homosexual activity when a child is involved. However, activists have dismissed the amendments as "useless". The bill now awaits the approval of the President.

**Read more:** [LGBTQIA+ Rights and Acceptance in India](#)

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### National Manufacturing Innovation Survey

Karnataka has emerged as the most innovative state in India according to the National Manufacturing Innovation Survey (NMIS) 2021-22, conducted jointly by the Department of Science and Technology and the [United Nations Industrial Development Organization](#). Survey found that Telangana, Karnataka, and Tamil Nadu had the highest share of innovative firms, while Odisha, Bihar, and Jharkhand had the lowest share. The survey examined the innovation processes, outcomes, and barriers in manufacturing firms, and also studied the innovation ecosystem that affects innovation outcomes in these firms. The study showed that nearly three-fourths of the firms surveyed did not make any innovative product or business process innovation during the survey period of financial year 2017-2020. The most frequent barriers to innovation were a lack of internal funds, high innovation costs, and a lack of financing from external sources.

**Read more:** [Global Innovation Index 2022](#)

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### Bihan Mela

Bihan Mela is the **seed festival** celebrated by the [Khond Tribe in Odisha](#). Preparations for this festival begin as soon as farmers have harvested [Kharif crops](#), which include both hybrid and indigenous varieties of paddy, millets, maize and sorghum.

Women, who are at the helm of this festival, carefully collect seeds of the indigenous varieties and store them in earthen pots. Then, on a designated day in December, they decorate the pots with red and white

motifs, place them in a bamboo basket and carry it on its head to the village where the fair is being organized. Along the way, they are accompanied by men beating drums and other traditional instruments.

Since the [Green Revolution](#), farmers in the region have abandoned native crops and varieties that are naturally resistant to pests and better suited to the region's climate, the seed festival was thus introduced to help farmers return to their traditional ways of farming like [mixed cropping](#).

To facilitate access to indigenous seeds, a seed bank was also set up. The bank works on a simple premise: collect and preserve indigenous seeds from across Kondh villages and lend those out to farmers. The bank is open to all Khond farmers.

The **Khonds are the largest tribal group in the state of Odisha (Scheduled Tribe)**. They are known for their rich cultural heritage, valourous martial traditions, and indigenous values which centre on harmony with nature. Khonds speak the Kui language and write it in the Odia script.

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