



Annual Status of Education Report 2023

For Prelims: [Science, Technology, Engineering, and Mathematics \(STEM\), National Education Policy \(NEP\) 2020](#), Annual Status of Education Report 2023, Beyond Basics, NGO Pratham.

For Mains: Education Status in India, Annual Status of Education Report 2023.

[Source: TH](#)

Why in News?

Recently, the 18th [Annual Status of Education Report \(ASER\) 2023](#) titled '**Beyond Basics**' was released by NGO Pratham, discussing the activities students are engaged in, their basic and applied reading and maths abilities and digital awareness and skills.

What is the Annual Status of Education Report (ASER)?

- The ASER, **is an annual, citizen-led household survey** that aims to understand whether children in rural India are enrolled in school and whether they are learning.
- ASER has been **conducted every year since 2005 in all rural districts of India**. It is the **largest citizen-led survey in India**.
- ASER surveys provided representative estimates of the **enrolment status of children aged 3-16** and the basic reading and arithmetic levels of children aged 5-16 at the national, state and district level.

What are the Key Highlights of the ASER 2023?

- **Enrollment Rates:**
 - Overall, **86.8% of 14-18-year-olds** are enrolled in an educational institution.
 - However, there are notable differences visible by age, **with 3.9% of 14-year-olds and 32.6% of 18-year-olds not enrolled**.
 - Most students in the 14-18 age group are enrolled in the **Arts/Humanities streams, with more than half (55.7%)** in Class XI or higher studying in this stream.
 - There are gender differences, with fewer females (28.1%) enrolled in the [Science, Technology, Engineering, and Mathematics \(STEM\)](#) stream compared to males (36.3%).
- **Vocational Training:**
 - Only 5.6% are taking vocational training or related courses. Vocational training is **more prevalent among college-level** students (16.2%).
 - Most youth are taking short duration courses of six months or less.
- **Basic Abilities:**
 - About 25% of the youth **cannot read a Class II level text fluently** in their regional language.
 - **Over half struggle with division problems (3-digit by 1-digit)**, with only 43.3% of 14-18-year-olds able to solve such problems correctly.

- **Language and Arithmetic Skills:**
 - While females (76%) outperform males (70.9%) in reading a Standard II level text in their regional language, **males excel in arithmetic and English reading.**
 - Only **57.3% can read sentences in English**, and of those, almost three-quarters understand their meanings.
- **Digital Awareness and Skills:**
 - Close to 90% of all youth **have a smartphone in the household**, and 43.7% of males have their own smartphone compared to 19.8% of females.
 - Males **generally outperform females in digital tasks**, and performance on digital tasks improves with education level and basic reading proficiency.
- **Foundational Numeracy Skills:**
 - Over 50% of students **in the 14-18 age group face difficulties with elementary division problems**, and around 45% struggle with tasks such as calculating the number of hours a child slept based on bedtime and wake-up time.
 - Inadequate foundational numeracy skills hinder youth proficiency in **everyday calculations, including budget management**, applying discounts, and calculating interest rates or loan repayments.
- **Recommendations:**
 - Government efforts are needed to bridge the gap in foundational literacy and numeracy skills, with a focus on initiatives for the 14-18 age group.
 - The [National Education Policy \(NEP\) 2020](#) recognizes the need for 'catch-up' programs for students who have fallen behind academically.
 - There is a need for initiatives aimed at improving foundational literacy and numeracy skills among youth, not only for academic performance but also to meet their everyday requirements.
- **Digital Education:**
 - **High Smartphone Penetration:**
 - Almost **90% of Indian youth have access to a smartphone** in their household and know how to use it. This indicates widespread digital connectivity among this demographic.
 - **Gender Gaps in Digital Literacy:**
 - There is a significant gender disparity in digital literacy. Girls are **reported to be less likely to know how** to use a smartphone or computer compared to boys.
 - **Males (43.7%) were more than twice as likely as girls (19.8%) to own their own smartphone.**
 - There is a **notable gender gap in smartphone ownership**, with males being more than twice as likely as females to own their own smartphone.
 - Boys outperformed girls across various digital tasks.
 - **Online Safety Awareness:**
 - **Boys are more familiar with online safety settings compared to girls.** This suggests a need for targeted efforts to educate and empower girls in online safety practices.
 - **Smartphone Usage for Education:**
 - About two-thirds used smartphones for educational purposes, **such as watching online videos related to studies**, solving doubts, or exchanging notes.
 - **Limited Connectivity for Assessment:**
 - While the survey aimed to assess digital skills using smartphones, not all youth could bring a **smartphone with good connectivity**. Boys were more likely to bring smartphones for the assessment compared to girls, indicating discrepancies in access.
 - **Educational Activities Among Non-Enrolled Youth:**
 - A quarter of non-enrolled youth reported engaging in educational activities on their smartphones, **emphasizing the role of digital devices in supporting** learning outside formal educational settings.

What are the Issues Faced by Elementary Education in India?

- **School Infrastructure and Amenities:**
 - Despite improvements in retention rates, there are **concerns about the availability of**

basic amenities in schools. While 95% of schools have drinking water and toilets, **over 10% lack electricity.**

- Additionally, there is a **lack of digitization, with more than 60% of schools lacking computers,** and 90% not having access to internet facilities.

▪ **Shift Towards Private Schools:**

- Over the years, there has been a **shift in momentum towards private schools.** Government data indicates a **decrease in the share of government schools in the elementary category from 87% in 2006 to 62% in March 2020.**

▪ **Teacher Shortage and Quality:**

- There is a **shortage of teachers in schools, and the student-teacher ratio is high.** The reliance on contractual teachers is noted, and there is **widespread teacher absenteeism.**
- The quality of education varies, with a visible divide between well-funded, formal schools and under-resourced, informal schools.

▪ **Social Divides:**

- There is the existence of social divides, including caste-class, rural-urban, religious, and gender divides, impacting the quality of education provided.

How Can India Enhance Basic Education?

▪ **Increased Funding and Resource Allocation:**

- The government should **allocate more funds to education,** moving towards the **recommended 6% of GDP, as outlined in the National Education Policy (NEP) 2020.**
- Prioritise funding for infrastructure development, teacher training, and the provision of necessary amenities in schools.

▪ **Teacher Recruitment and Training:**

- Recruit and train a sufficient number of qualified teachers to reduce the high student-teacher ratio.
- Implement programs for continuous professional development to enhance the quality of teaching.

▪ **Addressing Dropout Rates:**

- Identify and address the **root causes of student dropouts,** including socio-economic factors, lack of infrastructure, and quality of education.
- Implement targeted interventions, such as scholarship programs and mentorship initiatives, to encourage student retention.

▪ **Infrastructure Development:**

- Invest in the **development of school infrastructure,** ensuring that all schools have basic amenities such as electricity, clean drinking water, and proper sanitation facilities.
- Promote the integration of technology in education by providing schools with computers and internet access.

▪ **Focus on Quality of Education:**

- Emphasise the importance of quality education over rote memorization.
- Implement child-centered teaching methods and assessment strategies that encourage critical thinking and problem-solving skills.

▪ **Monitoring and Evaluation:**

- Establish **robust monitoring and evaluation mechanisms** to assess the effectiveness of education policies and interventions.
- Use data-driven insights to identify areas for improvement and adjust strategies accordingly.

What are the Government Initiatives Related to Education?

- [National Programme on Technology Enhanced Learning.](#)
- [Sarva Shiksha Abhiyan](#)
- [PRAGYATA](#)
- [Mid Day Meal Scheme](#)
- [Beti Bachao Beti Padhao](#)
- [PM SHRI Schools](#)

▪ **National Education Policy (NEP) 2020:**

- The NEP 2020 introduces changes to the education system, including the use of mother tongue or local language up to class 5, comprehensive education frameworks, and the introduction of exams at various levels. However, challenges persist in the implementation of these policies.
- The NEP 2020 emphasises the **need for increased public investment in education**, recommending a target of 6% of GDP.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which of the following provisions of the Constitution does India have a bearing on Education? (2012)

1. Directive Principles of State Policy
2. Rural and Urban Local Bodies
3. Fifth Schedule
4. Sixth Schedule
5. Seventh Schedule

Select the correct answer using the codes given below:

- (a) 1 and 2 only
(b) 3, 4 and 5 only
(c) 1, 2 and 5 only
(d) 1, 2, 3, 4 and 5

Ans- (d)

Mains

Q1. How have digital initiatives in India contributed to the functioning of the education system in the country? Elaborate on your answer. **(2020)**

Q2. Discuss the main objectives of Population Education and point out the measures to achieve them in India in detail. **(2021)**

Forest Fires in the Himalayas

For Prelims: [Himalayan Region](#), [Forest Survey of India \(FSI\)](#), [Precipitation](#).

For Mains: Forest Fires in the Himalayas, Government Policies and Interventions, Environment Pollution and Degradation

Why in News?

There have been several instances of [Forest Fires](#) in the [Himalayan Region](#) especially in **Himachal and Uttarakhand** this winter because of a lack of precipitation.

- As per the [Forest Survey of India \(FSI\)](#), there have been **2,050 incidents of forest fires** between 16th October 2023 and 16th January 2024, but there were **just 296 incidents of forest fires during the same period last year.**

What is Forest Fire?

- **About:**
 - Also called **bush or vegetation fire or wildfire**, it can be described as any **uncontrolled and non-prescribed combustion** or burning of plants in a natural setting such as a forest, grassland, brush land or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography).
 - There are three conditions that need to be present in order for a **wildfire to burn: Fuel, Oxygen, and a Heat source.**
- **Classification:**
 - **Surface Fire:** A forest fire may burn **primarily as a surface fire, spreading along the ground** as the surface litter (senescent leaves and twigs and dry grasses etc) on the forest floor and is engulfed by the spreading flames.
 - **Underground Fire:** The fires of low intensity, **consuming the organic matter** beneath and the surface litter of forest floor are sub-grouped as underground fire. In most of the **dense forests a thick mantle of organic matter** is found on top of the mineral soil.
 - These fires **usually spread entirely underground** and burn for some meters below the surface.
 - This fire spreads very slowly and in most of the cases it becomes very hard to detect and control such types of fires.
 - They may continue to burn for months and destroy vegetative cover of the soil.
 - **Ground Fire:** These fires are fires in the subsurface organic fuels, such as duff layers under **forest stands, Arctic tundra or taiga**, and organic soils of swamps or bogs.
 - There is **no clear distinction between underground and ground fires.**
 - The smoldering underground fires sometimes change into Ground fire.
 - This fire burns root and other material on or beneath the surface i.e., burns the herbaceous growth on forest floor together with the layer of organic matter in various stages of decay.
 - They are **more damaging than surface fires**, as they can destroy vegetation completely. Ground fires burn underneath the surface by smoldering combustion and are more often ignited by surface fires.

What Factors Contributed to Forest Fires in Himalayan Region?

- **Lack of Snowfall and Precipitation:**
 - The **absence of snowfall and rainfall** in the winter months **has left the region dry.** Snowfall and [Precipitation](#) are crucial for **maintaining soil moisture** and preventing the forest floor from becoming excessively dry.
- **Dry Conditions:**
 - The lack of moisture in the soil and vegetation **creates favorable conditions for forest fires.** Dry leaves, combined with dry soil, act as potential fuel for fires.
 - Rising temperatures, possibly linked to climate change, contribute to the drying of forests. Higher temperatures **increase evaporation rates, further depleting soil moisture.**
- **Human Activities:**
 - Human activities, **such as carelessly discarding cigarettes** or engaging in uncontrolled burning, can trigger forest fires.
 - Controlled burning by the forest department may also contribute to the issue if not properly

managed.

- **Vulnerable Tree Species:**

- Presence of fire-prone and flammable tree species like **Chir pine increases the risk of forest fires.**

- About 15% of Himachal's forest area is covered with chir pine.

- **Long Dry Spell:**

- Extended periods without rainfall or snowfall over several months create a long dry spell, making the region more susceptible to fires.

What are the Government Initiatives to Cope With Forest Fires?

- **National Action Plan for Forest Fires (NAPFF)**, was started in 2018 with the goal of reducing forest fires by informing, enabling, and empowering forest fringe communities and incentivizing them to collaborate with state forest departments.
- **The Forest Fire Prevention and Management Scheme (FPM)** is the only government-sponsored programme dedicated to assisting states in dealing with forest fires.

Way Forward

- There is a need to implement advanced **fire detection and monitoring systems**, including satellite-based technologies, to provide early warnings and enable rapid response to potential forest fires.
- Engage local communities in forest management and **fire prevention efforts**. Conduct awareness programs to **educate residents about responsible forest practices, fire safety, and the consequences of uncontrolled burning.**
- **Implement sustainable forest management practices that focus on maintaining biodiversity, promoting fire-resistant vegetation,** and reducing the presence of highly flammable tree species.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. Consider the following: (2019)

1. Carbon monoxide
2. Methane
3. Ozone
4. Sulphur dioxide

Which of the above are released into atmosphere due to the burning of crop/biomass residue?

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

Ans: (d)

- Biomass is organic material that comes from plants and animals, and it is a renewable source of energy. Biomass contains stored energy from the Sun. Plants absorb the Sun's energy in a process called photosynthesis. When biomass is burned, the chemical energy in biomass is released as heat.
- Crop residue and biomass burning (forest fires) is considered as a major source of Carbon Dioxide

(CO₂), Carbon Monoxide (CO), Methane (CH₄), volatile organic compounds (VOC), and Nitrogen Oxides (NOX). Burning of rice crop residue releases Suspended Particulate Matter, SO₂, NO₂ and O₃ in the atmosphere. **Therefore, option (d) is the correct answer**

Mains:

Q. Most of the unusual climatic happenings are explained as an outcome of the El-Nino effect. Do you agree? **(2014)**

Genetically Modified Mustard

For Prelims: [Genetically Modified \(GM\) crops](#), [Herbicide](#), [Resistance](#), [Drought](#), [Bt cotton](#), [Genetic Engineering Appraisal Committee \(GEAC\)](#), [Dhara Mustard Hybrid-11 \(DMH-11\)](#), [‘Early Heera-2’ mustard](#), [Bacillus amyloliquefaciens](#).

For Mains: Significance of Genetically Modified Crops in achieving Sustainable Development Goal 2: Zero Hunger.

Source: [TH](#)

Why in News?

Recently, the Government of India told the Supreme Court that [Genetically Modified \(GM\) crops](#) such as **mustard** will make quality edible oil cheaper for the common man and benefit national interest by reducing foreign dependency.

- The Genetic Engineering Appraisal Committee (GEAC) has approved the environmental release of Dhara Mustard Hybrid-11 (DMH-11), a genetically-engineered variant of mustard.
- If approved for commercial cultivation it would be the first genetically modified food crop available to Indian farmers.

India's Demand for Edible oil

- The total edible oil demand of India was **24.6 million tonnes (2020-21)** with domestic availability of **11.1 million tonnes (2020-21)**.
- In **2020-21**, 13.45 million tonnes (**54%**) of the total edible oil demand was met through **import worth about ₹1,15,000 crore**, which included **palm oil (57%), soybean oil (22%), sunflower oil (15%)** and small quantity of canola quality mustard oil.
- In **2022-23**, **155.33 lakh tonnes (55.76%)** of the total edible oil demand was met through import.
- India is the **biggest importer** of palm oil, which makes up **40%** of its vegetable oil consumption.
- India meets half of its annual need for **8.3 MT of palm oil** from **Indonesia**.
- In 2021, India unveiled the [National Mission on Edible Oil-Oil Palm](#) to boost India's domestic palm oil production.

What are Genetically Modified (GM) Crops?

- **GM crops** are derived from plants whose genes are artificially modified, usually by inserting genetic material from another organism, in order to give it new properties, such as increased yield, tolerance to a [herbicide](#), [resistance](#) to disease or [drought](#), or improved nutritional value.
 - Earlier, India approved the commercial cultivation of only one GM crop, **Bt cotton**, but [Genetic Engineering Appraisal Committee \(GEAC\)](#) has recommended GM Mustard for commercial use.

//



Genetically Modified Crops

About

- Genetic modification of plants involves **adding a specific stretch of DNA into the plant's genome**, giving it new or different characteristics
- Also called **Transgenic crops**

Global Cultivation

- Top 5 GM growing countries - **USA, Brazil, Argentina, India and Canada**
- Major GM Crops - **Soybean, maize, cotton and canola**

Concerns

- Manipulation of GM Seed Cost
- Seeds don't create viable offsprings
- Insect-resistant plants harm non-targeted species too
- Intermixing violates natural plants' intrinsic values

Objective

- Increase yield
- Increase tolerance to herbicides
- Improve nutritional value
- Provide resistance to disease/drought

GM Crops in India

- **Bt cotton** - **only one GM crop approved**, (90% of India's total cotton acreage) (resistance against pink bollworm)
- **Ht Bt cotton** - resistance against **glyphosate** (herbicide)
- **DMH-11 mustard** - **recommended for commercial use** (high yield)
- **Golden rice** - probably the best variety of GM rice (**Vitamin A**)



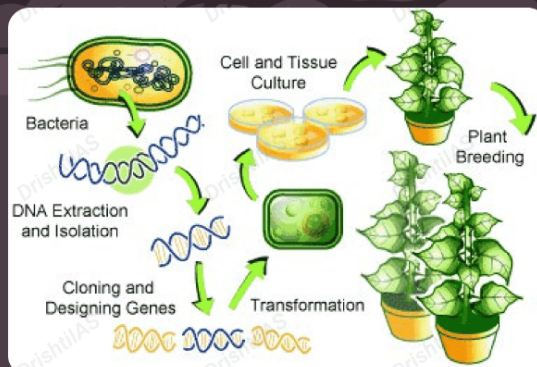
GM Crop Regulation

• Statutory Provision:

- Rules for Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms (HM) Genetically Engineered Organisms or Cells, 1989 under the Environment Protection Act (1986).

• Statutory Bodies:

- Genetic Engineering Appraisal Committee (GEAC) (under MoEF&CC) - **administers commercial release** of GMC
- Recombinant DNA Advisory Committee (RDAC)
- Institutional Biosafety Committee (IBSC)
- Review Committee on Genetic Manipulation (RCGM)
- State Biotechnology Coordination Committee (SBCC)



Cartagena Protocol on Biosafety (2000)

- It seeks to protect biological diversity from the potential risks posed by **Living Modified Organisms** resulting from modern biotechnology.
- India is a signatory to this protocol.

What is GM Mustard?

- **Dhara Mustard Hybrid-11 (DMH-11)** is an indigenously developed transgenic mustard. It is a genetically modified variant of **Herbicide Tolerant (HT) mustard**.
- **DMH-11** is a result of a cross between **Indian mustard** variety '**Varuna**' and **East European 'Early Heera-2' mustard**.
- It contains two **alien genes ('barnase' and 'barstar')** isolated from a **soil bacterium** called **Bacillus amyloliquefaciens** that enable breeding of high-yielding commercial mustard hybrids.
- **DMH-11** has shown approximately **28%** more yield than the national check and **37 %** more than the zonal checks and its use has been claimed and approved by the **GEAC**.
 - "Bar gene" maintains the genetic purity of hybrid seed.

What is the Genetic Engineering Appraisal Committee (GEAC)?

- The **Genetic Engineering Appraisal Committee (GEAC)** functions in the **Ministry of Environment, Forest and Climate Change (MoEF&CC)**.
- It is responsible for **appraisal of activities involving large scale use of hazardous microorganisms** and recombinants in research and industrial production from the environmental angle.
- The committee is also **responsible for appraisal of proposals relating to release of genetically engineered (GE) organisms** and products into the environment including experimental field trials.
- **GEAC is chaired by the Special Secretary/Additional Secretary of MoEF&CC** and co-chaired by a representative from the Department of Biotechnology (DBT).
 - Presently, it has 24 members and meets every month to review the applications in the areas indicated above.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q1. Other than resistance to pests, what are the prospects for which genetically engineered plants have been created? (2012)

1. To enable them to withstand drought
2. To increase the nutritive value of the produce
3. To enable them to grow and do photosynthesis in spaceships and space stations
4. To increase their shelf life

Select the correct answer using the codes given below:

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

Ans: (c)

- Genetically modified crops (GM crops or biotech crops) are plants used in agriculture, the DNA of which has been modified using genetic engineering methods. In most cases, the aim is to introduce a new trait to the plant which does not occur naturally in the species. Examples of traits in food crops include resistance to certain pests, diseases, environmental conditions, reduction of spoilage, resistance to chemical treatments (e.g., resistance to a herbicide), or improving the nutrient profile of the crop.
- Some potential applications of GM crop technology are:
 - Nutritional enhancement - Higher vitamin content, more healthful fatty acid profiles, Hence, 2 is correct.

- Stress Tolerance – Tolerance to high and low temperatures, salinity, and drought, Hence, 1 is correct.
- There is no such prospect that enables GM crops to grow and do photosynthesis in spaceships and space stations. Hence, 3 is not correct.
- Scientists have been able to create certain genetically modified crops which stay fresh for a month longer than usual. Hence, 4 is correct. Therefore, option (c) is the correct answer.

Mains:

Q. What are the present challenges before crop diversification? How do emerging technologies provide an opportunity for crop diversification? **(2021)**

Q. What are the research and developmental achievements in applied biotechnology? How will these achievements help to uplift the poorer sections of the society? **(2021)**

Q. How is science interwoven deeply with our lives? What are the striking changes in agriculture triggered off by science-based technologies? **(2020)**

Q. How was India benefited from the contributions of Sir M. Visvesvaraya and Dr. M.S. Swaminathan in the fields of water engineering and agricultural science respectively? **(2019)**

Bangla for Classical Language, GangaSagar Mela for National Status

For Prelims: [Classical language](#), Gangasagar Mela, [Makar Sankranti](#), Kumbh Mela, Kapil Muni temple, Hemis Gompa Fair, [University Grants Commission](#)

For Mains: Benefits of Classical Language Status, Major Melas in India.

Source: [IE](#), [TH](#)

Why in News?

Recently, West Bengal's Chief Minister made headlines with two distinct pursuits: **advocating for [classical language](#) status for Bangla**, which is the **world's 7th most spoken language** and **seeking national fair status for the Gangasagar Mela**.

What is Gangasagar Mela?

▪ About:

- **Gangasagar Mela**, which takes place during [Makar Sankranti](#) (mid-January), is said to be India's **second largest pilgrimage gathering after the Kumbh Mela**.
- This annual pilgrimage draws millions to **Sagar Island at the confluence of the Ganges and [Bay of Bengal](#)** and commemorates the legendary **King Bhagirath's descent of the Ganges to Earth**.

▪ Benefits of National Status:

- Elevating the Mela to national status would **bring increased central funding and infrastructure development**, potentially boosting tourism and economic activity in West Bengal.

▪ Other Major Melas in India:

- **Kumbh Mela**: It is celebrated four times every **12 years**, the site of the observation rotating **between four pilgrimages on the four sacred rivers at Allahabad, Haridwar, Ujjain and Nashik.**
 - **Ardha (half) Kumbh Mela** is held at only two places, Haridwar and Allahabad, **every sixth year.**
 - And a **Maha Kumbh** is held after every **144 years.**
- **Pushkar Mela**: Pushkar Mela is an **annual five day camel and livestock fair** held in the town of **Pushkar, Rajasthan.**
 - **It is one of the world's largest cattle fairs.**
- **Hemis Gompa Fair** : In the northernmost corner of India, the chilly deserts of **Ladakh** celebrate a **300-year-old annual fair** known as the Hemis Gompa Fair.
 - The Hemis Monastery commemorates the fair on the birth anniversary of **Guru Padmasambhava.**

Note

Ganga Sagar Mela has recently faced challenges due to **rising sea levels and beach erosion** near the **Kapil Muni temple on Sagar Island.** Despite dredging and **tetrapods to counter erosion**, the situation remains uncertain.

What are Classical Languages?

▪ About:

- In **2004**, the Government of India decided to create a new category of languages called **“classical languages”.**
- In 2006, it laid down the criteria for conferring classical language status. So far, the **6 languages are granted classical language status.**

Sl. No.	Languages	Year of Declaration
1.	Tamil	2004
2.	Sanskrit	2005
3.	Telugu	2008
4.	Kannada	2008
5.	Malayalam	2013
6.	Odia	2014

▪ Criteria:

- High antiquity of **early texts/recorded history** spanning 1,500–2,000 years.
- Possession of a body of ancient literature/texts considered **valuable heritage by generations.**
- Presence of an original literary tradition **not borrowed from another speech community.**
- The classical language and literature being distinct from modern, there may also be a **discontinuity between the classical language and its later forms** or its offshoots.

▪ Benefits:

- Once a language is declared classical, it gets **financial assistance for setting up a center of excellence** for the study of that language and also opens up an **avenue for two major awards for scholars of eminence.**
- Besides, the **University Grants Commission** can be requested to create - to **begin with**

at least in **Central Universities**, a certain number of professional chairs for classical languages for scholars of eminence in the language.

Note

8th Schedule of Indian Constitution lists the official languages of the **Republic of India** that currently includes **22 languages** namely: Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims:

Q. Which one of the following was given classical language status recently? (2015)

- (a) Odia
- (b) Konkani
- (c) Bhojpuri
- (d) Assamese

Ans: (a)

Q. Under which one of the following Constitution Amendment Acts, four languages were added to the languages under the Eighth Schedule of the Constitution of India, thereby raising their number to 22? (2008)

- (a) Constitution (Ninetieth Amendment) Act
- (b) Constitution (Ninety-first Amendment) Act
- (c) Constitution (Ninety-second Amendment) Act
- (d) Constitution (Ninety-third Amendment) Act

Ans: (c)

Multiple Sclerosis

Source: TH

Why in News?

Deoxyribonucleic Acid (DNA) obtained from the bones and teeth of ancient Europeans who lived up to **34,000 years** ago provides insight into the origin of the often-disabling neurological disease **Multiple Sclerosis**.

- The findings stemmed from research involving ancient DNA sequenced from **1,664 people** from various sites across **Western Europe** and **Asia**.

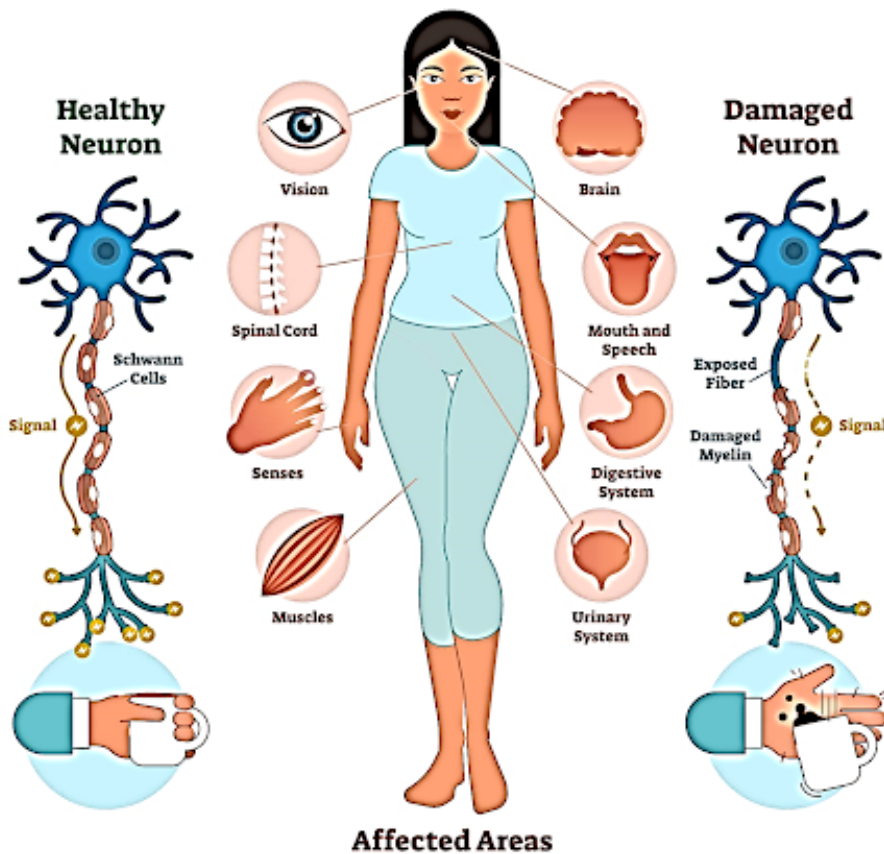
What are the Key Observations?

- These ancient genomes were then compared with modern DNA from the UK Biobank, comprising about 410,000 self-identified "white-British" people, and more than 24,000 others born outside the United Kingdom.
- One striking discovery related to **Multiple Sclerosis**, a chronic disease of the brain and spinal cord that is considered an autoimmune disorder.
- The researchers identified a pivotal migration event about 5,000 years ago at the start of the Bronze Age when livestock herders called the Yamnaya people moved into Western Europe from an area that includes modern Ukraine and southern Russia.
- They carried genetic traits that at the time were beneficial, and protective against infections that could arise from their sheep and cattle.
- As sanitary conditions improved over the millennia, these same variants increased Multiple Sclerosis risk.

What is Multiple Sclerosis?

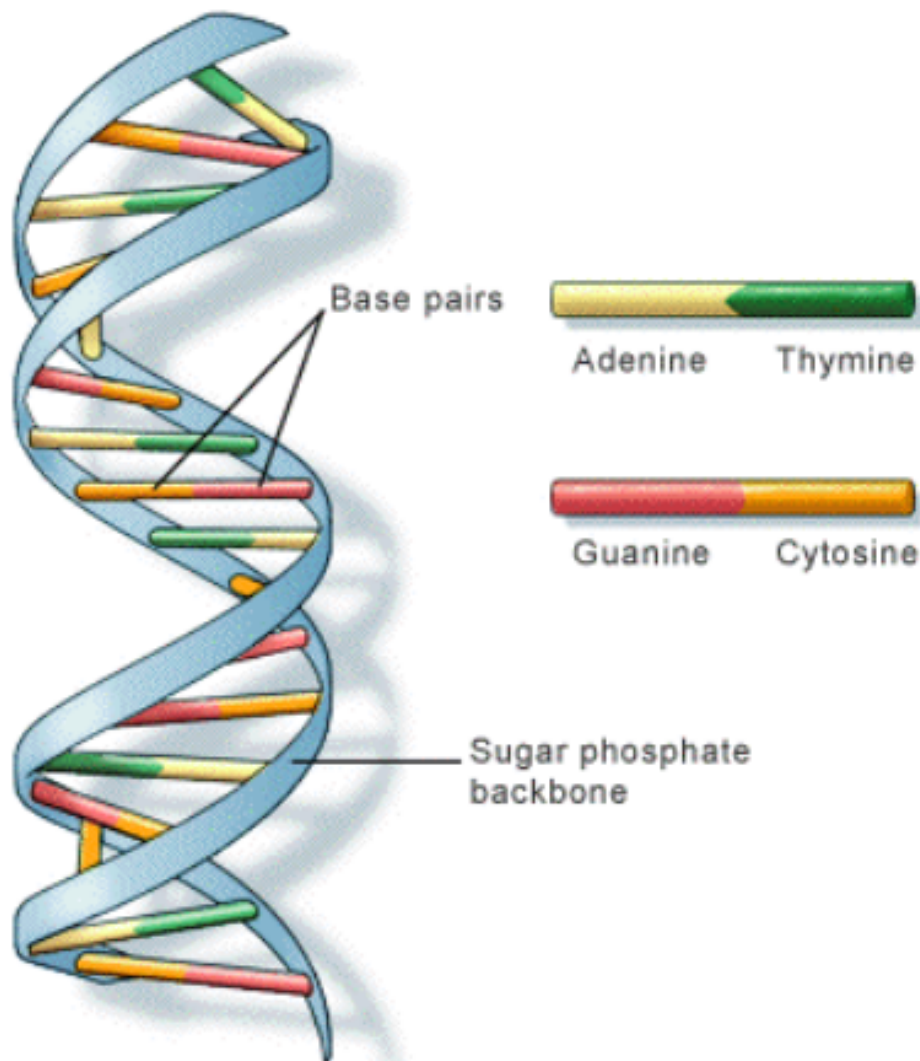
- **About:**
 - **Multiple Sclerosis (MS)** is a chronic autoimmune disease, a condition in which the body attacks itself by mistake. It affects the [central nervous system \(CNS\)](#).
 - In **MS**, the immune system attacks and damages the **myelin sheath**, a protective covering that surrounds the **nerve fibres** in the brain and [spinal cord](#), causing a range of symptoms.
- **Symptoms:**
 - Muscle weakness and Numbness
 - A person may have difficulty emptying their bladder or need to urinate frequently or suddenly
 - Bowel problems, Fatigue, Dizziness, and damaged nerve fibers in the spinal cord.
 - Since symptoms are common, people don't often recognise the disease early and often it takes many years for someone to be diagnosed, as it is impossible to determine a specific cause or trigger.
- **Causes:**
 - The exact cause of the disease is unknown, but it could be a combination of:
 - Genetic factors may pass down in the genes
 - Smoking and Stress
 - Vitamin D and B12 deficiency

MULTIPLE SCLEROSIS



What is Deoxyribonucleic Acid (DNA)?

- **Deoxyribonucleic acid (DNA)** is an organic molecule with a complex molecular structure.
 - DNA molecule's strands are made up of a **long chain of monomer nucleotides**. It is arranged in a double helix structure.
- **James Watson** and **Francis Crick** discovered that DNA is a **double-helix polymer** in **1953**.
- It is essential for the transfer of the genetic characteristic of the living being from one generation to the other generation.
- The majority of DNA is found in the **cell nucleus** so it is called nuclear DNA.



UPSC Civil Services Examination Previous Year Question

Q. Consider the following statements:

1. Genetic changes can be introduced in the cells that produce eggs or sperms of a prospective parent.
2. A person's genome can be edited before birth at the early embryonic stage.
3. Human induced pluripotent stem cells can be injected into the embryo of a pig.

Which of the statements given above is/are correct?

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

Ans: (d)

Exp:

- Germline gene therapy is the replacement of genes in egg or sperm cells with which an offspring inherits a new trait. It allows for the correction of disease-causing gene variants that are certain to be passed down from generation to generation. Hence, statement 1 is correct.

- CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) technology is employed to modify human embryos before they are transferred into women's uterus. Recently, researchers had successfully created the world's first genetically edited baby. By using CRISPR technology, the genomes of embryos were edited to disable a gene, CCR5, which allows HIV to infect cells. Hence, statement 2 is correct.
- Due to certain anatomical and physiological features shared with humans, the pig is considered an important animal model of human diseases with unique advantages in surgery and xenotransplantation studies. Hence, statement 3 is correct.

Therefore, option (d) is the correct answer.

Operation Sarvashakti: Intensive Anti-Terror Drive in J&K

The **Indian Army** launched **Operation Sarvashakti**, a strategic initiative aimed at eliminating terrorists responsible for a series of ambushes on Indian troops in the **Rajouri and Poonch regions of Jammu and Kashmir**.

- The **Chinar Corps in Srinagar and the White Knight Corps in Nagrota** will conduct simultaneous operations as part of this initiative.
- The operation is on the lines of **Operation Sarpvinaash of 2003**, which was launched against terrorists south of the **Pir Panjal range**, which lasted three months and resulted in the elimination of nearly 100 terrorists.

Read more: [Re-energizing Counter Terrorism Agenda](#)

India-Argentina Agreement for Lithium Blocks

Recently, India through **Khanij Bidesh India Limited (KABIL)** has signed an agreement with **Argentina's State-owned CAMYEN** for exploration and development of five **lithium brine blocks in Argentina**.

- The agreement will allow **KABIL to evaluate, prospect, explore**. Upon subsequent discovery of **lithium minerals**, exploitation rights for commercial production have also been granted.
 - This is the **first-ever lithium exploration and mining project** undertaken by a government company in India.
- **Lithium**, often called '**white gold**', forms the cornerstone of the country's transition to [green energy options](#).
 - It is used across various categories, including **energy storage solutions, batteries for mobile phones**, and in [Electric Vehicles \(EVs\)](#).
- Argentina is part of the world's "**Lithium Triangle**", along with **Chile** and **Bolivia**.
 - The three nations together have **more than half of the world's total lithium resources**.
 - Argentina also has the distinction of having the **2nd-largest lithium resources**, **3rd-largest lithium reserves** and **4th-largest lithium production** in the world.

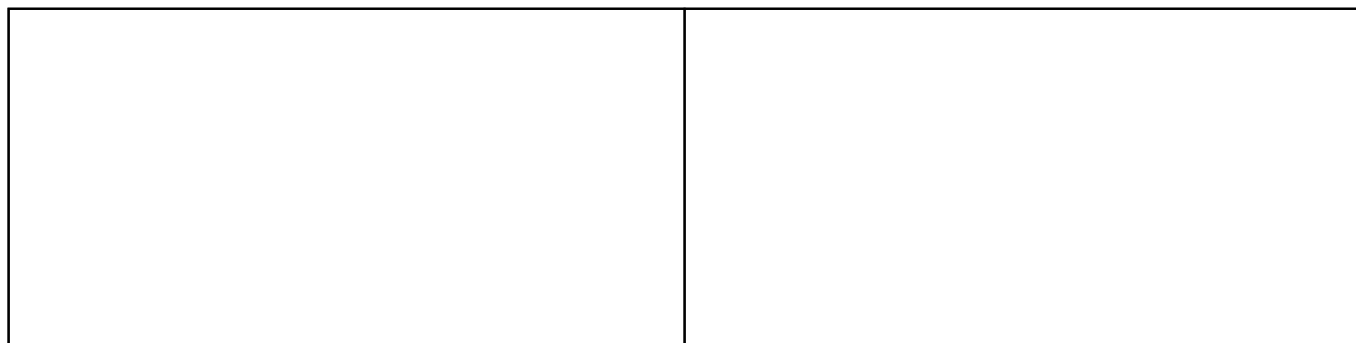
Read More: [GSI Discovers Lithium Resources in J&K](#)

India's Signs MoU/MoI with Dominican Republic, Ecuador and Netherlands



The **Union Cabinet** recently approved separate memorandum with the **Netherlands, Dominican Republic and Ecuador** on cooperation in the field of **medical products regulation**.

- The **Memorandum of Intent (MoI)** or **Letter of Intent (LOI)** with the Netherlands was signed on 7th November, 2023.
- The **Memorandum of Understanding (MoU)** with the Dominican Republic was signed on 4th October, 2023.
 - Also, a separate MoU with Ecuador was signed on 7th November, 2023.
- The primary difference between the Letter of Intent and Memorandum of Understanding two is that a **LOI is generally less specific, focusing on the main principles and preliminary intent to collaborate** and **MOU is usually more detailed, outlining the scope of the collaboration, responsibilities of each party, timelines, and potential outcomes.**





Read more: [India's Pharmaceutical Industry](#), [India and Netherlands Relations](#)

PDF Reference URL: <https://www.drishtiias.com/current-affairs-news-analysis-editorials/news-analysis/20-01-2024/print>

