

Iraq's Orange Sky



❖ Context

- Over eight dust storms hit Iraq in the last six weeks, turning the skies orange and disrupting lives.

❖ Dust Storms

- They are **common in West Asia** which strike every summer and winter.
- However, their **intensity and frequency have increased** in recent years.
- The storms are usually driven by **Shamal or northwesterly winds**. The winds lift dust from the Tigris-Euphrates basin of Syria and Iraq and transport it to the Persian Gulf and Arabian Peninsula.
- Iraq, which sits at the top of the Persian Gulf, helps in channelling winds.
- These storms reduce visibility to one kilometre or less, increasing the risk of accidents.

❖ La-Nina

- It is the **crucial contributor** among other factors like climate change, behind the observed surge in intensity of dust storms.
- During La Nina, trade winds stronger than usual, push the warm eastern Pacific waters towards west causing upwelling of cold, nutrient rich water to the surface.

- During a La Niña year, **winter temperatures are warmer than normal in the South and cooler than normal in the North**.
- It impacts weather worldwide. It can influence hurricane season, increase the chance of drought in some regions and trigger intense dust storms over west Asia.
- According to experts, **La Niña has been around for the last two years and is expected to make it to the third year as well**.
- **Continuous La Nina will bring dry winters in West Asia** which will affect the dust season the following year.
- In drier conditions, **soil loses moisture** and dry sand gets easily lifted up in the air.

❖ Impact of Dust Storms on India

- Dust storms can travel over thousands of kilometres from west Asia and enter India either through land or the Arabian sea, **reaching upto Himalayas and Indo-Gangetic Plains**.
- It can impact India's weather system & people's health by **influencing monsoon, causing heat waves** during summers and **transporting a range of pollutants** from pesticides, heavy metals, PM 2.5 to pathogens and allergens.

BSL-3 Bus



❖ Context

- India plans to showcase a **bus with a high-tech testing lab** and state-of-the-art facilities for medical personnel at the **75th World Health Assembly in Geneva** later this month.

❖ Key Highlights

- It is **Asia's First Biosafety Level-3 (BSL3) laboratory bus**, developed by the Indian Council for Medical Research in collaboration with carmaker Mercedes Benz and laboratory manufacturer Klenzaid.
- The biggest advantage of the bus is that it can be **immediately deployed on the field, within 24 hours**, whenever there's a threat of an outbreak of zoonotic diseases.
- The bus **may be offered to South-east Asian countries** for tackling health emergencies with technical and maintenance support. BSL-3 mobile labs have all the equipment installed:
 - To create negative air pressure (to prevent germs from escaping into the environment).
 - Handle infectious samples such as Nipah virus.
 - Temporarily store them.
 - Sterilise the infectious waste before it is discharged into the environment.

- During the Nipah outbreak in Kerala in 2018, there was no BSL-3 facility in Kerala. All the samples were sent to the highest facility, BSL-4 at National Institute of Virology (NIV) Pune which ultimately led to the delay of 4 days in contact tracing of high risk contact which reached upto even 100 at times.

Biosafety Levels			
Biological Safety Levels	Description	Examples	CDC Classification
BSL-4	Microbes are dangerous and exotic, posing a high risk of aerosol-transmitted infections, which are frequently fatal without treatment or vaccines. Few labs are at this level.	Ebola and Marburg viruses	
BSL-3	Microbes are indigenous or exotic and cause serious or potentially lethal diseases through respiratory transmission.	<i>Mycobacterium tuberculosis</i>	
BSL-2	Microbes are typically indigenous and are associated with diseases of varying severity. They pose moderate risk to workers and the environment.	<i>Staphylococcus aureus</i>	
BSL-1	Microbes are not known to cause disease in healthy hosts and pose minimal risk to workers and the environment.	Nonpathogenic strains of <i>Escherichia coli</i>	

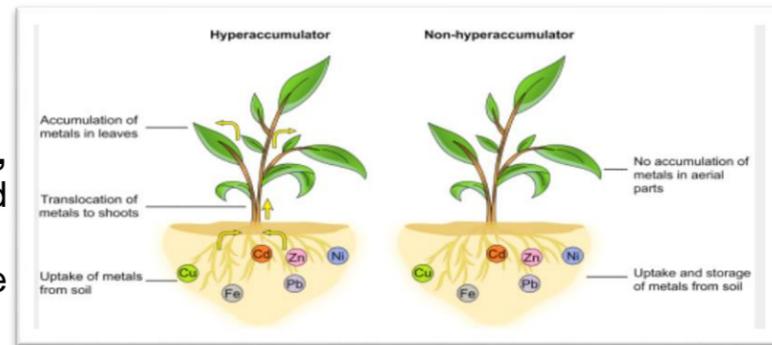
Face to Face Centres



Plants to Remove Toxic Metals From Soil

❖ Context:

- Scientists have developed methods of “**Phytoremediation**”, method that uses living organisms like plants, microalgae, and seaweeds to remove toxic heavy metals from the soil.
- They are using “**hyperaccumulator**” plants that absorb these substances from the soil.



❖ Hyperaccumulator Plants:

- Phytoremediation refers to the usage of “**hyperaccumulator**” plants to absorb the toxic materials present in the soil and accumulate in their living tissue.
- Even though most plants do sometimes accumulate toxic substances, hyperaccumulators have the unusual **ability to absorb hundreds or thousands of times greater** amounts of these substances than is normal for most plants.
- **Locations:** These **hyperaccumulator species** have been discovered in many parts of the world including the **Mediterranean region** (mainly plants of the genus **Alyssum**), **tropical outcrops in Brazil, Cuba, New Caledonia** (French territory) and **Southeast Asia** (mainly plants of the genus **Phyllanthus**).



❖ Removal of Toxic Metals from the Soil:

- Suitable plant species can be used to ‘**pick up**’ the pollutants from the soil through **their roots and transport them to their stem, leaves and other parts**.
- After this, these plants can be **harvested and either disposed** or even used to extract these toxic metals from the plant.
- This process can be used to remove metals like **silver, cadmium, cobalt, chromium, copper, mercury, manganese, molybdenum, nickel, lead and zinc**; metalloids such as arsenic and selenium; some **radionuclides**; and **non-metallic components** such as boron.

- But it cannot be used to remove organic pollutants from the ground due to metabolic breakdown.

❖ Advantages of Phytoremediation with Hyperaccumulators:

- **Cost-Effective:** One of the primary advantages of phytoremediation is the fact that it is quite **cost-effective in comparison with other remediation methods**.
- **Enriches the soil with organic substances:** Another important advantage of this method is that it **enriches the soil with organic substances** and microorganisms which can protect its chemical and biological qualities.

❖ Disadvantages of Phytoremediation with Hyperaccumulators:

- **Slow and Time-consuming process:** It is a very slow and time-consuming process. The restoration of an area with this process can take up to 10 years or more.
- **May Upset the Ecological Balance:** The plants to conduct this rehabilitation must be carefully selected based on a large number of characteristics or they could act as an invasive species, growing out of control and upsetting the delicate ecological balance.
- Due to this reason, scientists only propose using species that are native to the region where the phytoremediation project is undertaken.

News in Between the Lines

Mozambique Confirms First Wild Poliovirus Case in 30 Years



❖ Context

- Recently Mozambique identified its first case of wild poliovirus Type 1 in 30 years after a child contracted the disease.

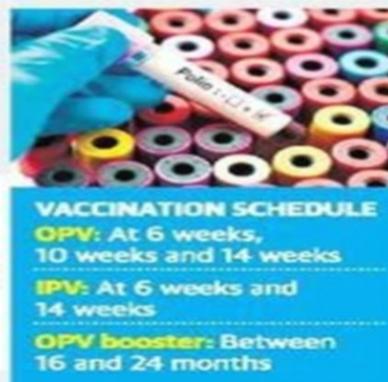
❖ What is Polio?

What is polio

- Poliomyelitis (polio) is a highly infectious viral disease, mainly affecting children
- According to WHO, the virus is transmitted from person-to-person, mainly through the faecal-oral route

STRAINS

- There are three types of polio virus strains — P1, P2 and P3
- P2 was eradicated globally in 1999
- India attained a polio free status in 2014 after successfully eliminating the wild P1 and P3 strains



VACCINATION SCHEDULE
OPV: At 6 weeks, 10 weeks and 14 weeks
IPV: At 6 weeks and 14 weeks
OPV booster: Between 16 and 24 months

- Polio, or poliomyelitis, is a disabling and life-threatening disease caused by the poliovirus.
- The virus spreads from person to person and can infect a person’s spinal cord, causing paralysis (can’t move parts of the body).

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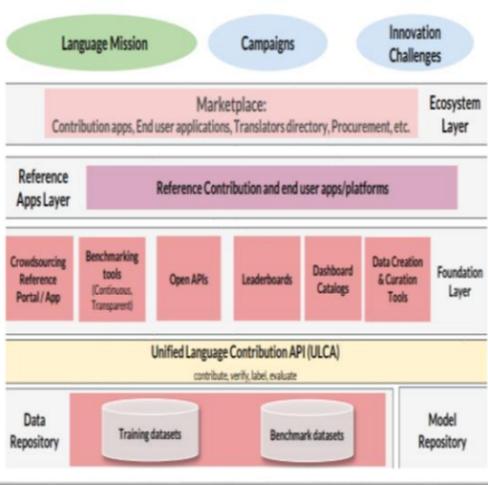
❖ **Symptoms**

- Most people who get infected with poliovirus (about 72 out of 100) will not have any visible symptoms.
- About 1 out of 4 people (or 25 out of 100) with poliovirus infection will have flu-like symptoms that may include:
 - Sore throat
 - Fever
 - Tiredness
 - Nausea
 - Headache
 - Stomach pain

❖ **Polio cases in India**

- India was declared polio-free in **January 2014**, after three years of zero cases, an achievement that is **widely believed to have been spurred** by the successful Pulse Polio campaign.
- The last case due to wild poliovirus in the country was detected **on January 13, 2011**. The WHO on February 24, 2012, removed India from the **list of countries with active endemic wild poliovirus transmission**.
- India launched the **Pulse Polio immunisation programme in 1995**, after a resolution for a global initiative of polio eradication was adopted by the **World Health Assembly (WHA) in 1988**. Under the **Pulse Polio programme**, all states and Union Territories have developed **Rapid Response Teams (RRT)** to respond to any polio outbreak in the country.

BHASHINI



❖ **Context**

- MeitY held brainstorming sessions with researchers & startups to shape strategy for Mission Digital India **BHASHINI (BHASHa Interface for India)**.

❖ **Key Highlights**

- The mission is also known as the **National Language Translation Mission**.
- BHASHINI is **India's AI led language translation platform**.
- It aims to build a **National Public Digital Platform** - a unified architecture, underpinned by principles of **open data and open source software** - to bring contributions from all stakeholders into an open repository.
- At the core of BHASHINI architecture is the **Unified Language Contribution API (ULCA)** which is a standard API and open scalable data platform (supporting various types of datasets) for Indian language datasets and models.

❖ **Benefits**

- It will make AI and **Natural Language Processing (NLP)** resources available in the public domain. It will allow MSMEs & startups to develop innovative solutions & products that can cater to all Indian citizens irrespective of the language.
- It will ensure citizens consume the internet and digital government service in their own languages.

Indian Navy's Hospital Ship



❖ **Context**

- The government has issued a **Request for Information (RFI)** for a **national hospital ship (NHS)** for the Navy.

❖ **Key Highlights**

WHAT IS A HOSPITAL SHIP?

- Built, converted, or equipped to assist, treat, transport the wounded, sick, and shipwrecked.
- It may not be attacked or captured.
- Distinctive sign for protection is the emblem of the red cross, red crescent or red crystal on a white ground.

- It will be **the first for the Indian Navy**.
- The ship will act as a floating **250-bed hospital** in the high seas.
- Capacity to carry **600 personnel** on board, including the crew, doctors and patients.
- It will also be supported with **aerial evacuation (helicopter) and boat ambulance facilities**.

Profiting From Pain : Oxfam Report



❖ **Context:**

- According to the report by Oxfam billionaire's wealth has soared during the COVID-19 pandemic as companies in the food, pharma, energy, and tech sectors have cashed in.

❖ **Key Highlights:**

- Millions of people around the world are facing a **cost-of-living crisis due to the continuing** effects of the pandemic and the rapidly rising costs of essentials, including food and energy.
- Inequality, already extreme before COVID-19, has reached new levels.
- There is an **urgent need for governments** to implement highly **progressive taxation** measures that in turn must be used to **invest in powerful and proven measures** to reduce inequalities.

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RBI Panel For Customer Services



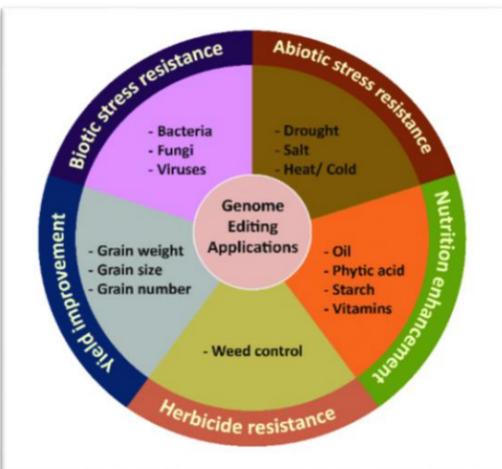
❖ Context

➤ The RBI has set up a committee to evaluate the efficacy, adequacy and quality of customer service in banks, NBFCs, and other entities regulated by it.

❖ Background

- The **six-member committee** headed by former RBI deputy governor **B P Kanungo**.
- It will also: Review the emerging and evolving needs of the customer service landscape, especially in the context of evolving **digital/ electronic financial products** and suggest suitable regulatory measures.
 - Identify the best practices, adopted globally and domestically, in **customer service and grievance redressal, especially** for retail and small customers, including **pensioners and senior citizens**.
 - Suggesting measures to leverage technology for enhancing customer service efficiencies and strengthening the overall consumer protection framework of RBI.

Guidelines For Safety Assessment of Genome Edited Plants, 2022



❖ Context

- The **Department of Biotechnology (DBT)** has issued guidelines easing norms for research into **Genetically Modified (GM) crops** and **circumventing challenges** of using **foreign genes** to change crops profile.
- Earlier, the Government has allowed **genome-edited plants** without the **cumbersome GMO (Genetically Modified Organisms) regulation** at the **Genetic Engineering Appraisal Committee (GEAC)**.

❖ Genome Editing

- Genome editing enables modification of plants' **owned genes, without insertion of external genes**, as with GM crops. Genome-edited varieties possess **no foreign DNA** and are indistinguishable from crops developed through conventional plant-breeding methods, or using **naturally occurring mutations**.
- **The Environment Ministry** in March 2022 exempted **SDN 1 and SDN 2** genomes from **Rules 7-11 of the Environment Protection Act**.
- **Conventional breeding technique** takes **8- 10 years** for development of new crop varieties; genome-editing can do this faster.
- Genome editing is being used in **25 countries** in **40 crops** for which partial or complete genome sequence is available.

❖ Global Developments

- Genome editing is being used in most **crop plants** for which **partial or complete genome sequence** is available and is being applied in around **40 crops across 25 countries**.
- The **US and China** are leaders in usage of this technology for **developing crop varieties** like **rice, maize, soybean, canola and tomato** which **withstand biotic and abiotic stresses** arising out of **climate change**.

❖ Impact On Domestic Crop Development

- The **Indian Council for Agricultural Research** has said the technology has **great promise** and **emphasis** is needed on **improving oilseed and pulse crop varieties resistant to diseases, insects or pests, and tolerant to drought, salinity and heat stresses**. Last year, a group of scientists wrote to the PM, for ease of release of the technology.

❖ Faster Development Of Crop Varieties

- **Conventional breeding technique** takes **8 to 10 years** to develop agricultural crop varieties, while through genome editing, it can be done in two to three years. Experts say the technology has capacity to **reduce import dependence on oilseeds and pulses** through faster **development of varieties resistant to diseases, pests, and with tolerance to drought, salinity and heat stresses**.

❖ Relaxation in Rules

- **SDN1 and SDN 2** genome editing is being used in Indian labs to breed crops imparting traits like resistance to diseases, drought and salinity stresses.

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