

## 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>	

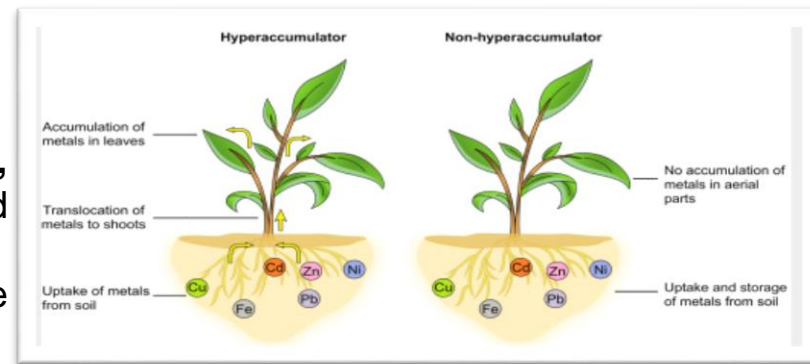
## Face to Face Centres



## 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.

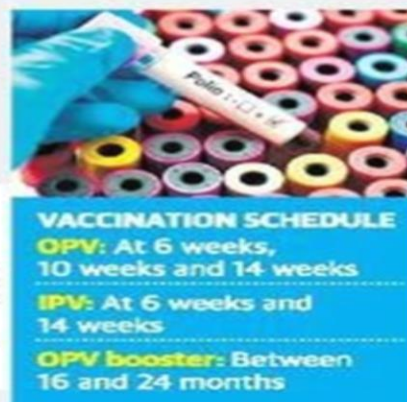
### ❖ What is Polio?

#### 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).

### Face to Face Centres



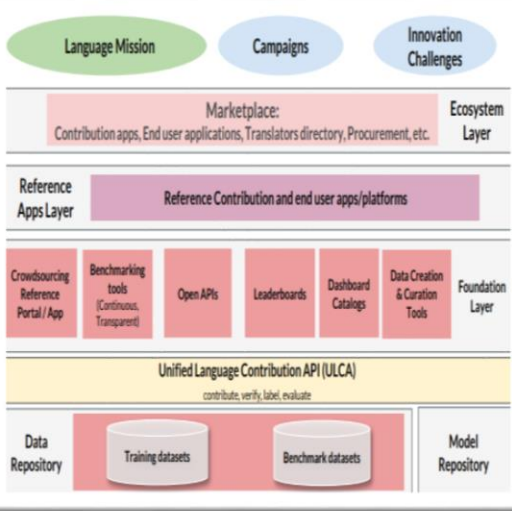
### ❖ Symptoms

- 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.

## Face to Face Centres



## RBI Panel For Customer Services



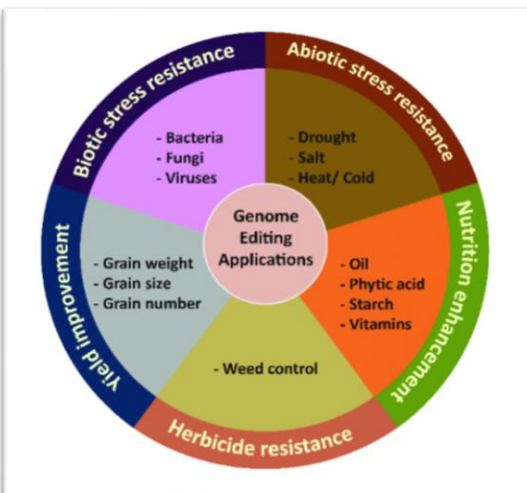
### ❖ Context

➤ 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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