theIAShub

the IAS hub
Be Your Dream.

OCTOBER
20

CRUX 10

10 News. 10 Sources. One Place

THE HINDU
ET
BS
TOI
The Indian EXPRESS
livemint
pib
DownToEarth
FORTNIGHTLY ON POLITICS OF DEVELOPMENT, ENVIRONMENT AND HEALTH
Science Reporter
विज्ञान एवं प्रौद्योगिकी मन्त्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

Table of Contents

1. POSH Act
2. Regional Rapid Transit System
3. ONDC
4. Supercapacitors
5. Climate Teleconnections
6. Monsoon Arrival and Withdrawal
7. Loss and Damage Fund
8. Earthquakes
9. BT Cotton
10. Father of Green Revolution

THE HINDU

Page 16

POSH ACT

(Syllabus: GS Paper 2 – Polity)

SC asks States to appoint officers under POSH Act

Krishnadas Rajagopal
NEW DELHI

The Supreme Court on Thursday realised that women found protection under a law against sexual harassment at the workplace beyond their reach for the simple reason that there was no one to go to with their complaints.

The Sexual Harassment of Women At Workplace (Prevention, Prohibition and Redressal) Act, or POSH Act, of 2013 mandates the States to appoint an officer in every district.

In its 20-page judgment, a Bench headed by Justice S.R. Bhat found that many States had not bothered to notify District Officers.

"A District Officer is where the buck stops, so to say, in terms of coordination and accountability relating to the POSH Act," Justice Bhat underscored.

The court ordered the Principal Secretaries of the Women and Child Ministries in the States to ensure appointment of a district officer in each district within their jurisdiction within four weeks from the date of this judgment.

Context: A Supreme Court bench recently found that many States had not bothered to notify District Officers all these years as required under the Sections 5 and 6 of the **2013 POSH Act.**

Sexual Harassment of Women At Workplace (Prevention, Prohibition and Redressal) Act of 2013, or POSH Act

- **Origin:** The Supreme Court in a landmark judgment in the V**ishakha and others v State of Rajasthan 1997 case gave 'Vishakha guidelines'** to fill the statutory vacuum till a law could be enacted. These were to be "strictly observed in all workplaces" and were binding and enforceable in law.
- **About:** It is a legislation enacted by the Government of India in 2013 to address the issue of sexual harassment faced by women in the workplace.
- **Aim:** To create a safe and conducive work environment for women and provide protection against sexual harassment.
- **Key Provisions:**
  - **Prevention:** The Act places a legal obligation on employers to prevent and prohibit sexual harassment in the workplace.
  - **Internal Complaints Committee (ICC):** Employers are required to constitute an ICC at each workplace with 10 or more employees to receive and address complaints of sexual harassment. The Complaints Committees have the powers of civil courts for gathering evidence.
  - **Members of ICC:** It has to be headed by a woman, have at least two women employees, another employee, and, to pre-empt any undue pressure from senior levels, to include a third party such as an NGO worker with five years of experience, familiar with the challenges of sexual harassment.
  - **Duties of Employers:** Employers must undertake awareness programs, provide a safe working environment, and display information about the POSH Act at the workplace.
  - **Complaint Mechanism:** The Act lays down a procedure for filing complaints, conducting inquiries, and providing a fair opportunity to the parties involved.
  - **Penalties:** Non-compliance with the Act's provisions can result in penalties, including fines and cancellation of business licenses.

INDIAN EXPRESS Page 15

Regional Rapid Transit System (RRTS)

(Syllabus: GS Paper 3 – Infrastructure)

PM to flag off RRTS : How this latest mass transport system can benefit NCR

JATIN ANAND
NEW DELHI, OCTOBER 19

PRIME MINISTER Narendra Modi will inaugurate the first leg of the Regional Rapid Transit System (RRTS), India's first mass rapid system dedicated to regional connectivity, on Friday. Capable of running at speeds up to 180 km/hour, trains on the first section will eventually cut the travel time between Delhi and Meerut to less than an hour.

What is the RRTS project?

EXPLAINED INFRA

With semi high-speed rail connectivity at its core, the RRTS is an integrated, mass transit network which aims to ensure "balanced and sustainable urban development" through better connectivity and access across the NCR.

The idea of such a network lies in a study which the Indian Railways was commissioned to carry out in 1998-99. The study identified the possibility of an RRTS network to connect various locations in the NCR through fast commuter trains. The proposal was re-examined in 2006, with the extension of the Delhi Metro lines to some NCR towns such as Gurgaon, Noida, and Ghaziabad.

It was soon taken up by the National Capital Region Planning Board (NCRPB), which identified and recommended eight RRTS corridors to connect NCR towns. For details of the complete project being implemented, see graphic.

Who built the Namo Bharat, which PM Modi will inaugurate?

The National Capital Region Transport Corporation (NCRTC), a joint venture of the Centre and the governments of Delhi, Haryana, Rajasthan and Uttar Pradesh, has built the RRTS also known Namo Bharat.

How is the RRTS different from metro, railways?

Compared with metros, the RRTS network is faster. It will cater to commuters who want to travel relatively longer distances across the NCR in a shorter time. Compared with the Indian Railways, though the RRTS train will cover smaller distances, it will do so at higher frequency and provide more comfort than the average Railways coach.

What is the objective behind RRTS?

The RRTS seeks to "unlock the entire potential" of the NCR in addition to enhancing multi-modal connectivity. One of the most significant aims of the project is to nudge commuters towards public transportation and relieve congestion on its roads as well as metro and railway networks.

In terms of the economy, the project aims to give a push to employment generation and the opening up of newer commercial hubs along the current contours of the NCR. Shorter travel times are expected to increase the overall economic productivity of the region and allow more economic activity in and around suburban locations in Uttar Pradesh, Rajasthan and Haryana.

How fast will it run?

RRTS trains will operate at 160 km/hour but are designed to be able to run at speeds up to 180 km/hour. Delhi Metro trains can operate at 100 km/hour to 120 km/hour, depending on the line. The fastest line, the Airport Express Line, operates at 120 km/hour.

By when will the entire project be operational?

PM Modi will inaugurate a 17-km stretch classified as the 'priority section' of the 82-km Delhi-Ghaziabad-Meerut RRTS corridor, which has 16 stations. Of these, the priority section has five: Sahibabad, Ghaziabad, Guldhar, Duhai and Duhai Depot. The entire corridor is expected to be operational by 2025.



Context: Recently, the Prime Minister of India inaugurated the first leg of the **Regional Rapid Transit System (RRTS),** India's first mass rapid system dedicated to regional connectivity.

Regional Rapid Transit System (RRTS)

- **About:** With semi high-speed rail connectivity at its core, the **RRTS (also known as Namo Bharat)** is an integrated, mass transit network which aims to ensure "balanced and sustainable urban development" through better connectivity and access across the NCR.
- **Objective:** To "unlock the entire potential" of the NCR in various ways in addition to enhancing multi-modal connectivity at the existing transportation hubs within it.
  - One of the most significant aims of the project is to nudge commuters towards public transportation and have a positive impact on relieving the congestion both on its road/highways as well as existing metro and railway networks.
- **Developed by:** National Capital Region Transport Corporation (NCRTC), which is a joint venture company of the Central government and the governments of Delhi, Haryana, Rajasthan and Uttar Pradesh.
- **Total number of corridors:** 8 corridors will be developed under the project, of which three are being constructed under phase I: the 82-km Delhi-Ghaziabad-Meerut, the 164-km Delhi-Gurugram-SNB-Alwar, and the 103-km Delhi-Panipat corridors.
- **Speed:** RRTS trains will travel significantly faster than metro trains. These will operate at a speed of 160 km/hour but are designed to be able to run at speeds up to 180 km/hour.

FINCANCIAL EXPRESS

Oct 17

Open Network for Digital Commerce (ONDC)

(Syllabus: GS Paper 3 – Economy)

Cloud to help farmers reap benefits of ONDC

NANDAGOPAL RAJAN
New Delhi, october 19

TO HELP FARMERS benefit from Open Network for Digital Commerce (ONDC), Google Cloud is partnering with Sign Catch to help farmers producers organisations (FPOs) build catalogues and reach out to merchants across the country. Farmer across the country will be able to use the power of Google Cloud's generative AI and language capabilities with just a few clicks and, for the first time, gain the ability to transact at scale, managing director Bikram Singh Bedi said.

As part of Google For India, the Google Cloud also announced it is working with Axis My India to "democratise information on citizens services" with a super app call the 'A App' that uses Google Cloud's scalable and secure infrastructure.

"We are looking to impact over 250 million Indian households, which really translates to impacting the lives of over a billion Indians and making sure they are able to have easier lives," Bedi said, underlining how this signals India moving forward as a society.

"Generative AI technology is now capable of two-way communication in 13 Indian languages, and will be a crucial bridge between the government and the corporate social services as well as citizens".

One of the use cases of the app will be to show the Ayushman Bharat hospital near a certain user. It will also curate information for similar queries that users might have.

The company is also partnering with Bhashini and the ministry of electronics and tnformation technology to use generative AI and language models to make government services more "language responsive".

BIKRAM SINGH BEDI,
MD, Google Cloud India

THIS WILL REALLY ACCELERATE THE ADOPTION OF CITIZEN-CENTRIC SERVICES IN INDIC LANGUAGES. ALSO, THIS WILL SPEED UP THE DEVELOPMENT OF HOME-GROWN GEN AI TECHNOLOGIES.



Bedi said that Google Cloud is launching a centre of excellence on generative AI and language. Bhashini teams will essentially leverage Google Cloud Generative AI's secure data architectures, Gen AI app building tools, and our foundation models to essentially build responsible generative AI models that are trained on government of India data sets, and Bhashini's language translation technology.

"This will really accelerate the adoption and development of citizen-centric services in Indic languages and will speed up the development of home-grown gen AI technologies".

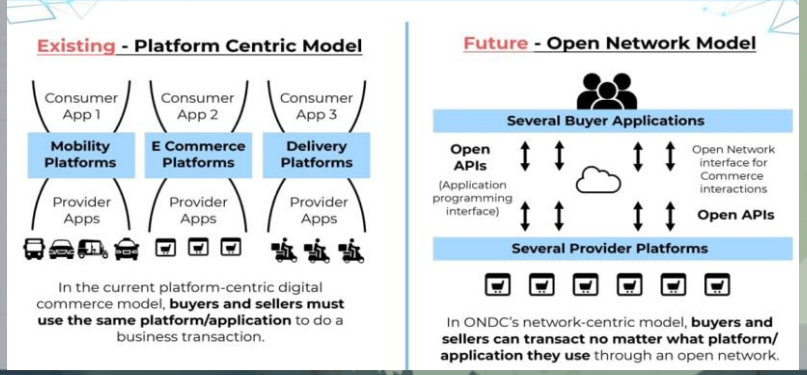
As a part of this initiative, Bedi said, Google Cloud will also be looking to "equip more than 1 million professionals and students with gen AI knowledge and skills".

Bedi explained that most of these new services will be powered by Vertex AI, Google's enterprise offering. "In the enterprise space, there are a few things that you need to be mindful of as a business. The first thing is my data is my data, which essentially means that my data should be used to create models, and then that model should be with me only. It can't be a model that my competition is also using." Bedi said then this model cannot hallucinate like consumer-facing generative AI offerings, and all results need to be authenticated.

"Now security is a big factor. How do you ensure that your app is as secure as any? Cost is also a big factor. You know, models come in all sizes. How do you ensure that you're using the right model for the right use case? You don't want to be using a 750,000 billion-parameter model for what could actually be done by a 30,000 model," Bedi said, adding how Vertex is a platform that helps you with all of these aspects.

In September, Bedi said, Google Cloud also inked a partnership with Cert-in to "significantly ramp up India's cybersecurity training and skilling". As part of this partnership, Google will train 1,000 government officials in cyber defence best practices, including using generative AI and conduct cyber security rounds led by experts. It will also provide 100,000 scholarships for Google cybersecurity certification to be taught by experts at Google.

CLOSED PLATFORMS VS OPEN PROTOCOLS



Context: To help farmers benefit from ONDC, Google Cloud will be partnering with Sign Catch to help Farmers Producers Organisations (FPOs) build catalogues and reach out to merchants across the country.

Open Network for Digital Commerce (ONDC)

- **About:** ONDC is **an initiative of the Department for Promotion of Industry and Internal Trade** under the ministry of commerce.
  - It is a network based on open protocol and will enable local commerce across segments, such as mobility, grocery, food order and delivery, hotel booking and travel, among others, to be discovered and engaged by any network-enabled application.
- **Aim:** To create an open, inclusive and competitive marketplace.
  - Currently, in the platform-centric model, marketplaces have end-to-end control, right from seller on-boarding, customer acquisition, order fulfilment, complaint redressal and managing payments.
  - ONDC will 'unbundle' this complex system into separate microservices that can be addressed separately.
- **Working:** ONDC **work on a format similar to that used in UPI**.
- **Feature:** Increased choice and competition, Lower prices, Discounts and promotions, Support for small businesses, Government-backed initiative, Customer support.

PIB

Oct 20

SUPERCAPACITORS

(Syllabus: GS Paper 3 – Science & Tech)

Flexible supercapacitors with efficient energy storage developed using conducting polymer & nanostructured inorganic oxide hybrids

Context: Recently, the Materials for Energy Storage and Optoelectronic Devices Group in the Department of Physics, Sanatana Dharma College, Alappuzha has developed a **hybrid electrode-based flexible symmetric supercapacitor that shows excellent electrochemical properties, cycle stability and high energy density**.

What are Supercapacitors:

- **About: Supercapacitors,** also known as ultracapacitors, are energy storage devices that store energy through electrostatic rather than chemical means.
  - They bridge the gap between conventional capacitors and batteries in terms of energy storage capacity and power delivery.
- **Mechanism:** Supercapacitors **store energy via electrostatic charge separation in an electrolyte**, allowing for fast energy storage and release without chemical bonds breaking or forming.
- **Applications:** Used in quick charging, regenerative braking, power grid stabilization, backup power, consumer electronics, and renewable energy systems.

Battery Pros and Cons

Pros	Cons
Energy Density	Limited Service Life
Lower Self-Discharge	Surge Current Limitation
Constant Voltage Output	Long Charge and Discharge Times
	Temperature Sensitive

Flexible Supercapacitor Pros and Cons

Pros	Cons
Long Service Life	Low Energy Density
High Instantaneous Current	Linear Discharge Voltage
Short Charging Time	High Self-Discharge
Excellent Temperature Performance	
Mechanically Flexible	

DTE Oct 20

CLIMATE TELECONNECTIONS

(Syllabus: GS Paper 1 – Geography)

CLIMATE CHANGE

Links between global climate events getting stronger: Study

Climate teleconnections intensified over last 37 years; southern hemisphere more vulnerable

Context: According to a recent paper published in **Chaos**, an Interdisciplinary Journal of Nonlinear Science, **the links between weather phenomena at widely separated locations on earth, also called climate teleconnections, are increasingly getting stronger globally.** These teleconnections have affected the southern hemisphere more prominently over the last 37 years.

Climate Teleconnections:

- **Definition:** Climate teleconnections are statistical relationships that exist between climate anomalies in separate regions. They demonstrate how changes in atmospheric circulation patterns in one part of the world can influence weather and climate in another distant part.
- **Example: El Niño Southern Oscillation (ENSO)** is the most well-known teleconnection.
  - **Prominent Climate Teleconnections include** North Atlantic Oscillation (NAO), Pacific Decadal Oscillation (PDO), Arctic Oscillation (AO).
- **Significance: Climate Teleconnections** result from **changes in jet streams and ocean currents**, affecting regional climates by altering heat and moisture patterns.
  - They **offer predictive value for weather forecasting, including seasonality and extreme events**. Climate change may modify teleconnection patterns and strengths.
  - **These connections impact sectors like agriculture**, with events like El Niño guiding rainfall expectations for farmers.
- **Discovery:** Teleconnections were first noted by the British meteorologist Sir Gilbert Walker in the late 19th century, through computation of the correlation between time series of atmospheric pressure, temperature and rainfall.
- **Significance:** They served as a building block for the understanding of climate variability, by showing that the latter was not purely random.

TIMES OF INDIA

Page 6

MONSOON ARRIVAL AND WITHDRAWAL

(Syllabus: GS Paper 1 – Geography)

Monsoon withdraws four days after 'normal' date

Winter Rain Activity Likely To Start In South India In 72 Hours

TIMES NEWS NETWORK

New Delhi: The southwest (summer) monsoon withdrew completely from the country on Thursday, four days after the normal date of October 15 and the northeast (winter) monsoon rainfall activity is likely to commence over the southern peninsular region in the next 72 hours, the India Meteorological Department said.

The initial phase of the winter monsoon in general is, however, likely to be weak, added the Met department, even as it has already predicted overall 'normal' rainfall for winter monsoon in Peninsular India during October-December.

The summer monsoon hit the 'below normal' tag this year after reporting four consecutive years of good rainfall

Onset of summer monsoon over Kerala this year happened on June 8 against the normal date of June 1 whereas it had started withdrawing from northwest India on September 25, eight days after the normal date.

Due to prevailing El Nino conditions (warming of sea surface temperatures in the central and eastern tropical Pacific Ocean that negatively impacts monsoon), the four-month summer monsoon (June-September) this year reported 'below normal' rainfall at 94.4% of the long period average (LPA). It was, however, very close to being categorised as 'normal' (which figues between 96-104% of the LPA).

The summer monsoon hit the 'below normal' tag this year after reporting four consecutive years of good rainfall in either 'normal' or 'above normal' category during 2019-22.



DELAYED ARRIVAL, DELAYED EXIT: Onset of the summer monsoon over Kerala this year happened on June 8 against the normal date of June 1

Riding El Nino, this may be one of India's five hottest Octobers

Neha.Madaan@timesgroup.com

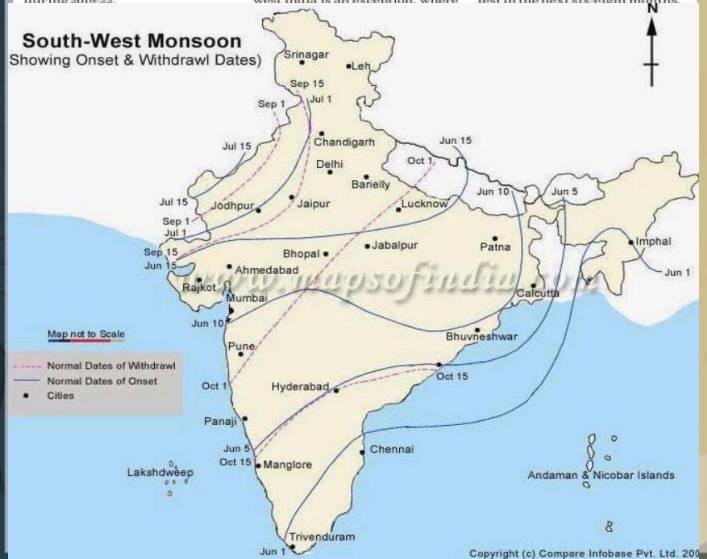
Pune: Post-monsoon heat is a known phenomenon in central and southern India but this year El Niño may have triggered a further 1-2 degrees Celsius surge across these regions, which is likely to make this month one of the five hottest Octobers in records going back to 1901, experts said.

India Meteorological Department (IMD) data released on Thursday show that barring some parts of northwest India (where there has been a drop in day temperatures recently), October has so far recorded day temperatures that have been 1-2 degrees Celsius above normal. Night temperatures in the country, including northwest India, are showing similar positive anomalies from October 1-19, data showed.

Weather expert Vineet Kumar Singh, said, "Maximum temperatures across a significant portion of the country in October have been consistently higher than normal, with increases ranging from 1-2 degrees Celsius above the typical averages. Northwest India is an exception, where temperatures have remained near normal or slightly below the usual levels. Meanwhile, the minimum temperatures across most of the country have followed suit, with increase of 1-2 degrees Celsius in several areas, and a slight uptick of approximately 1 degree Celsius in others."

On this October's possible record-breaking figures, Singh said, "For instance, in Vidarbha, maximum temperatures have surged 2-3 degrees Celsius above average this month. This trend aligns with the global scenario where temperatures have been consistently surging above normal for the past few months. Notably, July, August, and September marked record warm conditions on a global scale. This situation is partially attributed to the influence of El Niño, a climatic phenomenon known for contributing to warmer temperatures, even in winter."

He said that the atmospheric response to El Niño has only just begun, and the peak in atmospheric temperatures associated with El Niño is expected to manifest in the next six-eight months.



Context: The India Meteorological Department has said that **monsoon withdrew completely from the country four days after the normal date of October 15 and the northeast (winter) monsoon rainfall activity is likely to commence** over the southern peninsular region in the next 72 hours.

Monsoon Arrival

- The **Southwest monsoon usually marks its onset in Kerala around early June.** It then advances northwards, reaching the entire Indian subcontinent and covering it by mid-July.

Monsoon Withdrawal

- The **withdrawal process commences from northwest India around early September**. The retreat continues southwards and eastwards, with the monsoon completely exiting India by early November.

Recent Change

- In **recent years, there have been noticeable erratic patterns in the monsoon's behavior, likely attributed to climate change**. These shifts have led to variations in both the arrival and withdrawal dates of the monsoon.
- **Influence of El Niño:** El Niño, a periodic warming of sea surface temperatures in the central and eastern tropical Pacific, can weaken the monsoon.
    - During El Niño years, India often witnesses reduced rainfall, potentially leading to drought conditions. Conversely, La Niña, which is characterized by cooler sea surface temperatures in the same region, is typically associated with stronger monsoons and above-average rainfall in India.

HINDUSTAN TIMES Page 13

LOSS AND DAMAGE FUND

(Syllabus: GS Paper 3 – Env & Eco)

Fault lines over Loss and Damage fund deepen at key climate meet

Jayashree Nandi
letters@hindustantimes.com

NEW DELHI: Major disagreements have cropped up between rich and developing countries on the Loss and Damage fund at the fourth meeting of the Transitional Committee on the operationalization of the new funding arrangements for responding to loss and damage being held in Aswan, Egypt.

The agenda of the meeting is to finalise several issues related to how the fund will operate including the location of the fund, funding arrangements, who will contribute to the fund among others. One of the major contentions is that the rich countries led by the US are seeking to locate the fund under the World Bank and are not supportive of the proposal that the Fund be a "body under international law possessing international legal personality."

Operationalising the Loss and Damage fund is among the key deliverables at the upcoming UN Climate Conference (COP28) to be held in Dubai this December. The fourth and final transitional committee meeting is being held from October 17 to 20. But as on Thursday there was a logjam on the location of the fund, whether the fund would have an "independent legal personality", and who would benefit from the fund.

"A complete standstill halfway through the 4th Transitional Committee on #LossAndDamage (#TC4) meeting in Aswan. 1. Rich nations seem uninterested in operationalising the new Fund to respond to the #ClimateEmergency, for which they are most responsible. Developing nations are outraged by the proposals of developed countries. These proposals shift away from their #ClimateFinance obligations...Developed countries are adamant on the @WorldBank hosting the #LossAndDamage fund. Yet, sources reveal that yesterday, the #WorldBank couldn't assure that its policies would address concerns of access, independence, and accountability," tweeted Harjeet Singh, Head, Global Political Strategy, Climate Action Network International.



The 4th transitional panel meeting is being held from October 17 to 20. AP

"Rich countries, particularly the US, promoting the World Bank – which shares blame for the global climate crisis and inequality – as the host for the Loss and Damage Fund is absolutely unacceptable. This arrangement won't provide the new Fund with true independence, will obstruct direct access to vulnerable communities, and will lack full accountability to governments and those most affected by climate change," Singh explained.

During the plenary in Aswan several developing country negotiators explained that if the Loss and Damage Fund is located in the World Bank, it will not have a legal personality and hence will not enjoy as much independence in operating the fund. Another contention is that developed countries want only the least developed countries and small island developing states to be beneficiaries of the fund. "The rich countries are interpreting the language in a way that it limits the beneficiaries to only these two country groupings and not other vulnerable regions," said Liane Schalatek, Associate Director of the Heinrich-Böll-Stiftung Washington who is also in Aswan.

"Developed nations also seek to open the donors to all member parties who are in a position to contribute to the fund. But this does away with the mandate that developed countries contribute for impacts and mitigation as stipulated by the United Nations Framework Convention on Climate Change and also does away with the principle of differentiation as captured in the Paris Agreement," Schalatek added.

"The World Bank's funding is primarily focused on loans, while loss and damage funding must necessarily be grant-based and easy to access," said Tamanna Sengupta, Programme Officer, Climate Change, CSE.

What is "loss and damage"?

The phrase refers to costs already being incurred from climate-fuelled weather extremes or impacts, like rising sea levels

- **Climate funding so far has focused on cutting CO2 emissions, while a third of it went towards helping communities adapt to future impacts**
- **Loss and damage funding is expected to cover the cost of damage that countries cannot avoid or adapt to**
- **A report by 55 vulnerable countries estimated that their combined climate-linked losses in the last two decades totalled $525 billion, or 20% of their collective GDP. This could go upto $580 billion per year by 2030**
- **Vulnerable countries and campaigners argue that rich countries that caused the bulk of climate change with their historical greenhouse gas emissions should pay**



Context: Major disagreements have cropped up between rich and developing countries on the Loss and Damage fund at the fourth meeting of the Transitional Committee on the operationalization of the new funding arrangements for responding to loss and damage being held in Aswan, Egypt.

Loss and Damage Fund

- **About:** It refers to costs the rich and developed countries, who are majorly responsible for industrial emissions that pollute the environment, should pay to poorer nations that have made negligible contribution to pollution but are more vulnerable to extreme climate events.
- **History:** The demand for compensation for loss and damage from climate disasters is an extension of the universally acknowledged "Polluter Pays" principle.
  - The **Warsaw International Mechanism (WIM)** for Loss and Damages, set **up in 2013**, was the first formal acknowledgment of the need to compensate developing countries struck by climate disasters.
  - **COP27:** The United Nation's COP27 climate summit recently approved the creation of the "Loss and Damage" Fund to compensate economically vulnerable countries for the damages caused by climate-linked disasters.

THE HINDU Page 12

EARTHQUAKES
(Syllabus: GS Paper 1 – Geography)

Why are earthquakes frequent in Afghanistan?

How many earthquakes have hit Afghanistan over the recent past? What is the anatomy of an earthquake? What is the hypocentre and epicentre?

Priyali Prakash

The story so far:

An earthquake of magnitude 6.3 struck western Afghanistan on October 15, barely a few days after multiple earthquakes of similar strength killed at least a thousand people in the Herat province. Multiple earthquakes have destroyed entire villages in the country. Afghanistan's Taliban-run government has put out conflicting numbers on the death toll from the October 11 quake, *Reuters* reported. On October 13, the disaster management Ministry revised downwards the death toll from the earthquakes to around 1,000 from an earlier figure of over 2,400. The UN's humanitarian office had said earlier that around 1,300 people died, the report added.

Is this the first time?

Afghanistan has faced widespread destruction from intense earthquakes over the years. In June 2022, more than 1,000 people were killed when an earthquake of magnitude 6.1 struck Khost and Paktika provinces. In 2015, a major earthquake that struck the country's northeast killed over 200 people in Afghanistan and neighbouring northern Pakistan. A 6.1-magnitude earthquake in 2002 killed about 1,000 people in northern Afghanistan. In 1998, another earthquake and subsequent tremors in northeast Afghanistan killed at least 4,500 people.

How do earthquakes occur?

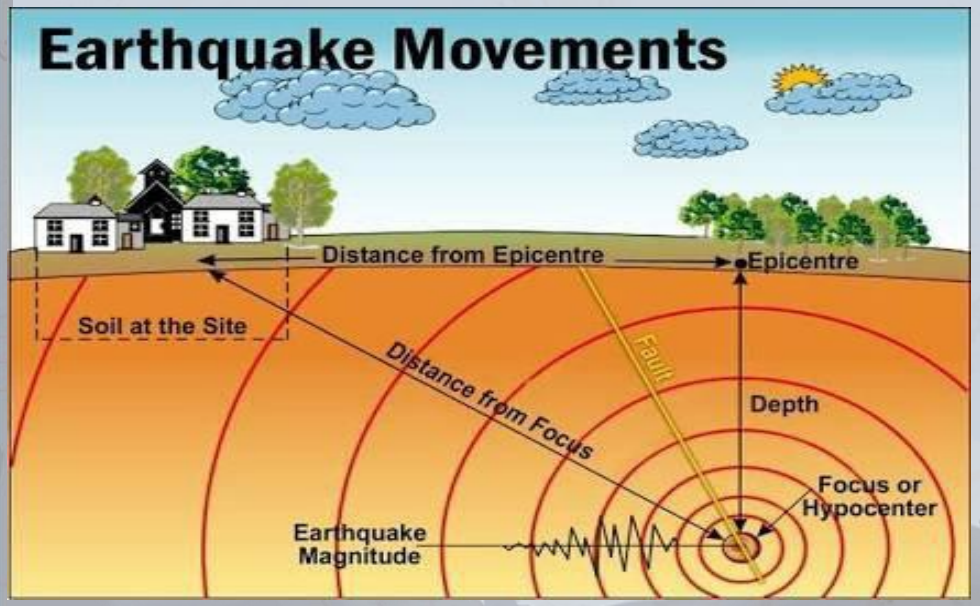
The earth is made up of chunks of solid rocks called tectonic plates. Discontinuities in these rock masses, along which they have moved, are called fault lines. These fractures are a result of tectonic forces and stress that builds up in the earth's lithosphere, causing the rocks to break and slip. An earthquake occurs when blocks of lithosphere suddenly slip past one another, releasing energy and sending seismic waves through the ground.

The surface where the lithosphere chunks slip becomes a fault plane. The point within the earth where the fault rupture starts and produces an earthquake is called the focus or the hypocentre. The point on the surface of the earth directly above it is called the epicentre.

Tectonic plates are slow moving but are always in motion, mostly due to the heat energy generated inside the earth. The edges of these plates are called plate boundaries and consist of faults– this is where most earthquakes occur.

Why do frequent earthquakes occur in Afghanistan?

Afghanistan is located over multiple fault lines in the region where the Indian and the Eurasian tectonic plates meet. These



Context: An earthquake of magnitude 6.3 struck western Afghanistan on October 15, barely a few days after multiple earthquakes of similar strength killed at least a thous and people in the Herat province.

Earthquakes

- **What?** An earthquake is **the shaking of the earth's crust.**
  - It is caused due to the **energy release**, which triggers waves that travel in all directions.
- **Earth's Structure**: Made up of **chunks of solid rocks** called **tectonic plates**.
  - **Discontinuities** in these rock masses, along which they have moved, are called **fault lines**.
- **Hypocentre:** Point within the earth where an **earthquake originates.**
- **Epicentre:** The point on the earth's surface vertically above the focus of an earthquake.
- **Tectonic Plates:** Slow moving but are always in motion, mostly due to the heat energy generated inside the earth.
  - The edges of these plates are called plate boundaries and consist of faults— this is where most earthquakes occur.

DOWN TO EARTH Oct 19

BT Cotton
(Syllabus: GS Paper 3 – Agriculture)

Cotton Curse: Bt Cotton losses by pink bollworm pushing farmers to brink of suicide



Context: Cotton crops across **North Indian states, Punjab, Haryana and Rajasthan**, are reporting a **severe pink bollworm** (Pectinophora gossypiella) attack and even the genetically modified pest-resistant variety called **Bt Cotton (Bollgard II seed)** is falling prey to the pest it was created to resist.

Genetically Modified Crops:

- **Genetic modification (GM) technology:** It allows the transfer of genes for **specific traits** between species. It embeds a new trait which does not occur naturally in the species using laboratory techniques.
- **In India:** GEAC cleared the cultivation of **BT cotton in 2002**. This is the **only GM crop** approved for cultivation in India till date.
- **Approval:** In India, the Genetic Engineering Appraisal Committee (GEAC) is the apex body that allows for the commercial release of GM crops.

- **BT cotton:** It is **insect-resistant cotton variety**, designed to combat the bollworm.
  - Microbial protein of the bacterium **Bacillus thuringiensis** was used to produce BT cotton.
  - It a joint venture between Monsanto and Mahyco.
- **GM mustard Dhara Mustard Hybrid 11 (DMH 11):**
  - **Developed by:** Delhi University.
  - **It uses:** Soil bacterium, Bacillus amyloliquefaciens,).
  - It is Herbicide Tolerant (HT) crop.
- **BT Brinjal:**
  - **Created by**: Inserting a crystal protein gene from the soil bacterium Bacillus thuringiensis.
  - GEAC cleared BT brinjal for commercialization in 2009.
  - However, following concerns raised by activists, the GOI has imposed a moratorium on its commercial use (not a permanent ban).

Pink Bollworm

- **About**: **Pest of Cottons.**
- **Scientific Name**: Pectinophora gossypiella
- **Origin**: India in 1842

FATHER OF GREEN REVOLUTION: M.S. SWAMINATHAN
(Syllabus: GS Paper 1 – Personality)

Remembering Professor MS Swaminathan

Context: Dr. M.S. Swaminathan, the revered agricultural scientist renowned as the "Father of the Green Revolution" in India, passed away at the age of 98.

Dr. M.S. Swaminathan

- **About**: Dr. Mankombu Sambasivan Swaminathan often referred to as the **"Father of Green Revolution in India,"** was a prominent Indian agricultural scientist and humanitarian who has made significant contributions to the field of **agriculture, food security, and sustainable development**.
- **Key Contributions:**
  - **Led India out of 'Hunger Trap':** Played a major role in introducing the Green Revolution in India, significantly increasing food production and ensuring food security.
  - **Enhanced crop productivity:** Conducted research on transferring genes for fertilizer response from Japonica varieties to Indica varieties, enhancing crop productivity.
  - **Dwarf variety of Wheat:** Collaborated with Norman Borlaug to develop high-yielding dwarf wheat varieties suitable for Indian conditions.
  - **Developing high-yielding Basmati rice** varieties, innovative use of mutation technology for various crops.
  - **Launched program "lab to land".**
  - Served as the head of the **National Commission on Farmers** and recommended fair minimum support prices for farmers' crops.
  - Focus on nutrition, biofortification, funding for agriculture, precision farming, and promoting women in agriculture

Secure Top Rank with theIAShub Courses

Prelims 2023 Courses

01 Prelims Crash Course Score Enhancement Program (SEP)

02 INA Current Affairs (Prelims)

03 TACKLE - Prelims Test Series

04 Geography - Prelims Crash Course

Quality Enrichment Courses (Mains 2023)

01 Quality Enrichment Program (QEP)

02 Science of Answer Writing (SAW)

Prelim Cum Mains 2024 Courses

01 NEEV GS Foundation 2024/25

02 INA Current Affairs Pre Cum Mains - 2024

FREE Download PDF

Login to theiashub.com

- Aaj Ka Quality Enrichment (Toppers' Favourite PDF)
- News-CRUX-10 (10 News. 10 Sources. One Place)
- Monthly Editorials (The Hindu & Indian Express)
- Daily Quiz (Prelims)
- Government Schemes & Ministry Wise Year End Review
- Free Enrichment PDFs (Tailor Made Crisp Study Material)



Log On To Our Unique
Free Answer Writing Sessions with Toppers (FAST) Portal
& Start Practicing!

SCAN HERE

9560082909

t.me/theiashub

/mkyadav

www.theiashub.com

www.theiashub.com