North India monsoon

- The onset of this season was delayed by unforeseen interactions between typhoons and cyclones.
- Cyclone Biparjoy was born after the onset and lingered for longer than normal to delay the arrival of monsoon over Mumbai by nearly two weeks.

Did climate change influence this monsoon?

- The impact of climate change has always been of great interest, but it is worth remembering that everything today happens in a warmer world that is also more humid.
- With global warming, a warm and humid atmosphere acts like a steroid for the weather.
- Every weather event now has some contribution from global warming
- While El Niño has been grabbing many headlines this year, it is not yet clear how much the current monsoon mayhem has had to do with El Niño.
- Additionally, wildfires thus far this year have burned over three times the normal area and have also emitted about three times as much carbon dioxide
- Excess rainfall over northwest India is consistent with the Arabian Sea and has warmed by about 1.5 degrees Celsius since January.
- Rainfall this pre-monsoon was above normal due to a combination of the warm Arabian Sea and an unusually high number of western disturbances
- The mystery is that, despite averaging rainfall over a month, a season, or even multiple seasons, rainfall distribution remains uneven.
- Disuniform terrain and heterogeneous land -use patterns are the likely culprits.
- The Atlantic Ocean and the upper atmospheric circulation also tinker with the monsoon.
- The entire Atlantic Ocean has been warmer than normal since March.
- While the so-called Atlantic Niño, with a warm tropical Atlantic, generally tends to suppress monsoon rainfall, it is not clear what the impacts are when the entire Atlantic is as warm as it has been this year.
- The strongest winds that occur in the upper atmosphere can spontaneously break into clockwise and anticlockwise patterns, especially when they run into mountainous terrain, such as the Himalayas.

- Strong clockwise winds, with air flowing out from the center, in the upper atmosphere demand an anticlockwise circulation near the surface, in order to feed the upper-level outflow.
- Such a convergence near the surface can drive excess rainfall.
- Finally, the warming over the Himalayas has not been uniform either.
- Some parts of the mountain chain are amplifying global warming, leading to rapid local warming

THE HINDU

PPVFRA and Farmer rights

- The Delhi High Court held that there was "no merit" in the appeal filed by PepsiCo over the patent rights for its 'unique potato' variety.
- The appeal was against an order passed by the Protection of Plant Varieties and Farmers Rights' Authority (PPVFRA), revoking PepsiCo's registration vis-a-vis the unique potato variety developed by it.

What was the case about?

- The PPVFRA revoked PepsiCo's registration with respect to its potato plant variety, 'FL 2027' (used in Lay's chips), on the grounds provided under Section 34 (grounds for revocation of registration) of the Protection of Plant Varieties and Farmers Rights Act, 2001 (PPV&FR).
- FL 2027 is a 'chipping potato' variety with low external defects, high dry matter/high solids content, and stable sugars, all of which make it highly suitable for the manufacture of chips.
- According to the appellant, it was developed in the U.S. by Robert W. Hopes, a plant breeder and a former employee of Frito-Lay Agricultural Research, a division of PepsiCo Inc.
- A certificate of registration for FL 2027 was granted to PepsiCo India on February 1, 2016, conferring it an exclusionary right to market, sell, import, export, or distribute FL 2027 for a period of six years

What is the PPV&FR Act?

- The Act provides an effective framework to conserve and encourage the development of various plant varieties.
- It established an effective system to safeguard and recognize the rights of breeders, researchers, and farmers to promote agricultural development in the country.
- Additionally, it also facilitates the mushrooming of the Indian seed industry to ensure the availability of high- quality seeds and planting materials to farmers

What are the grounds for revocation?

- According to Section 34 of the PPV&FR Act, the protection granted to a breeder may be revoked by the authority on the following grounds that the grant of a registration certificate is based on incorrect information furnished by the applicant;
- that the registration certificate was granted to an ineligible person;
- when the breeder does not provide the registrar with the required documents;
- a failure to provide an alternative denomination for variety registration in case the earlier variety provided is not permissible for registration;
- A failure of the breeder to provide the required seeds for compulsory license;
- Failure to comply with the acts, rules, regulations, and directions issued by the Authority;
- And if the grant of the registration certificate is against the public interest.

THE HINDU

Giant AI and challenges

- ChatGPT and its ilk of 'giant artificial intelligence' (Bard, Chinchilla, PaLM, LaMDA, et al.), or gains, have been making several headlines. ChatGPT is a large language model (LLM).
- This is a type of (transformer-based) neural network that is great at predicting the next word in a sequence of words.
- ChatGPT uses GPT4 a model trained on a large amount of text on the internet, which its maker OpenAI could scrape and could justify as being safe and clean to train on.
- GPT4 has one trillion parameters now being applied in the service of, per the OpenAI website, ensuring the creation of "artificial general intelligence that serves all of humanity
- GAIs leave no room for democratic input: they are designed from the top down, with the premise that the model will acquire the smaller details on its own.
- Ideology, which falsely claims to have scientific foundations, often ignores local knowledge and lived experience, leading to disastrous consequences.
- He cites the example of mono-crop plantations, in contrast to multi-crop plantations, to show how top-down planning can fail to account for regional diversity in agriculture.
- The consequence of that failure is the destruction of soil and

livelihoods in the long-term.

- This is the same risk now facing knowledge-work in the face of gains.
- This is Why is high modernism a problem when designing AI

What do giant AIs abstract away?

- Like the death of local stores, the rise of gAIs could lead to the loss of languages, which will hurt the diversity of our very thoughts.
- The risk of such language loss is due to the bias induced by models trained only on the languages that already populate the Internet, which is mostly just English (~60%).
- There are other ways in which a model is likely to be biased, via religion (for example, more websites preach Christianity than they do other religions), sex, and race

THE HINDU

Chandrayaan 3

- Chandrayaan1 ISRO's first attempt was the Chandrayaan 1 ("Lunar Vehicle 1") mission, which began in October 2008 with the launch of the very successful Polar Satellite Launch Vehicle (PSLV).
- While descending to the moon, the impactor probe collected information on the chemical composition of the lunar atmosphere.
- Notably, this mission established the availability of water molecules on the moon, a discovery that may be crucial for future crewed missions.
- The probe also carved the national flag of India on the Moon, announcing the country's arrival
- The mission did not last two years as planned, possibly due to overheating issues in the orbiter, but it achieved most of its scientific objectives.

Chandrayaan 2

- The next such mission was Chandrayaan 2 in July 2019, which was launched by a Geosynchronous Satellite Launch Vehicle (GSLV).
- Its payload included a moon lander that carried a rover to release on the moon.
- The lander, unfortunately, crashed on the lunar surface due to a software glitch, and the rover did not detach from the lander, so further studies of the moon's surface were impossible
- ISRO is planning Chandrayaan-3 to demonstrate end-to-end capability for safe landing and roving on the lunar surface.
- The launch is scheduled for July 14 at 2.35 pm.
- The mission will be launched on board the Launch Vehicle Mark III (LVM 3, a.k.a. GSLV Mk III).

- The vehicle will carry a lander attached to a propulsion module. The latter will carry the former to a circular orbit around the moon, after which the lander will descend to the surface
- The lander module will carry a rover that it will deploy on the moon and a few other pieces of scientific equipment. The lander and the rover are expected to be operational for about two weeks
- The scientific mission will study the chemical composition of the lunar surface, local seismic activity, and plasma concentration, among other features.
- The propulsion module will have a payload called 'Spectro-polarimetry of Habitable Planet Earth' (SHAPE), which will track radiation from the earth to help identify the signatures of life, which future missions can use in turn to look for signs of life on habitable exoplanets.
- So Chandrayaan-3 is also to look beyond the Moon

Importance of the missions

- Missions like Chandrayaan are important because many countries participate in them.
- These missions are collaborative global efforts that strengthen scientific exchange and camaraderie between countries.
- There is scope for international collaboration in future missions to explore the south- polar region of the Moon.
- The craters here have locations that don't receive sunlight.
- These shadowed sites are cold and hold hydrogen, water, and ice.
- They could also host primordial material that could help us understand the origins of the Solar System.
- The biggest lunar crater is also in the South Polar Region.

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