RIPTIDE

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DEPARTMENT OF GEOGRAPHY

KAMALA NEHRU COLLEGE

LETTERS FROM THE DESK

We live on a beautiful planet, full of enchanting features and processes, some pristine and others increasingly manipulated by human activities. This newsletter, compiled by budding geographers, gives a peep into the dynamism as well as vulnerability of our environment. It also offers the answers to some intriguing questions regarding natural and manmade calamities. I congratulate the contributors for their well researched news pieces, and editorial and design team and for intelligently and aesthetically weaving them together. I hope this zest for exploring and writing will continue to show in our all upcoming publications of the Department of Geography.

Dr. Ranjana A Gera
Faculty Advisor
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Dear Readers,
With a new semester comes a new start and of course a new newsletter. We are proud to present you with the 2nd edition of the RIPTIDE, the newsletter of the department of geography, Kamala Nehru College. Riptide means a strong current pulling towards the sea. Just like the definition, us geographers are pulled towards any happening on the surface of the Earth.

Riptide consists of news regarding geography that you might have missed. It's a product of team effort, well-researched and intriguing content brought together through aesthetically pleasing graphics under one letter. Riptide is not just a newsletter but also a way to show how geography as a discipline can be connected with any field. I hope through this your interest in geography deepens. There is geography everywhere, we just need to look.
Happy reading!

Kritika Katoch
Editor

INDIA'S SOLAR ENERGY CAPACITY ATTAINING NEW HEIGHTS

⟶ **Navoneela Chakraborty**

For a country like India, it is high time to shift from fossil fuels and use clean, limitless energy sources like the sun to obtain electricity to gain access to greater energy security. Government of India has set an ambitious target of achieving 100 GW solar energy capacity by 2022. To utilize the 4-7 kWh per sq. m of solar energy received per day and efficiently increase the energy generation capacity, successful schemes like Jawaharlal Nehru National Solar Mission, UDAY Scheme, Development of Solar Power Scheme, SECI Scheme, Rooftop Scheme etc. have been introduced by the government.

As of 2019, Karnataka tops as the state with highest installed solar power generation capacity followed by Telangana, Rajasthan, Andhra Pradesh, Tamil Nadu. Today, India ranks third in Asia and fourth in the world in terms of solar energy production and it has some of the biggest solar plants including Bhadla Solar Park, Ultra Mega Solar Park, etc. It's time for India to develop itself in using rooftop solar (RTS) power everywhere from industries to homes across the country. Now, everything is in our hands to make India the largest solar energy producer of the world!

INDIA'S GEOGRAPHY FAVOURS LOW COVID FATALITY

⟶ **Ridhima Ganotra**

Doctors from Tata Memorial Hospital, who have been treating cancer patients infected with Covid-19 have given an explaination for low mortality rates for Covid-19 in India. Their research suggested that studies from US, Europe and China have indicated venous thromboembolism; a condition in which blood clots are formed in deep veins of the leg, groin or arm and has been a crucial cause of death amongst Covid-19 patients. Researchers observed that venous thromboembolism is lower in warmer climates and higher latitudes. India being close to the equator experiences a warm climate thereby reducing the rate of venous thromboembolism as opposed to colder nations. It was also pointed out that seasonal and geographic variation in venous thromboembolism could be due to levels of naturally occurring antiphospholipid antibodies (aPL). Covid-19 induces levels of aPLs hence, magnifying the risk of a bleed and the chances of aPLs rising are relatively lower in warmer climates as opposed to colder climates.

SHRINKING COLORADO!

→ Navoneela Chakraborty

The Colorado River flowing through the US and northern Mexico is becoming vulnerable. The river supports the lives and economic activities of about 40 million Americans across the west and is facing acute water shortages and can even get dried up soon. The rise in temperatures, inadequate rainfall, increasing periods of droughts, excessive groundwater pumping will be responsible for this massive crisis. Lake Powell, a man-made reservoir in Colorado is facing a similar situation. Colorado's main source of water, the Rocky Mountains' snowpack is decreasing due to a rise in temperatures, resulting in less water reaching the river. According to a 2014 study by NASA and University of California, Colorado lost 15.6 cubic miles of freshwater in the last 10 years. As the climate is heating up, its water is evaporating away. As compared to last century, Colorado's average annual flow has declined by a rate of 20% which is making it difficult to fulfil the conditions of 1922 pact according to which Upper Basin states must supply an average of 8.25 million acre-feet of water to lower-basin states in 10 consecutive years. Hence, this is a high time that steps should be taken to reduce its water usage and maintain its sustainability for the future.

HARYANA'S DISAPPEARING LAKES

→ Jyoti Pant

Damdama and Badkhal, two famous tourist spots of the 70s and 90s situated at the fringes of Aravallis in Haryana have now turned into a patch of desolate land.
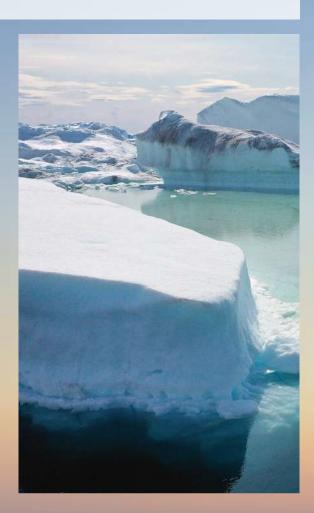
Illicit quarrying and mining in the area has not only obstructed the flow of rainwater to the lakes but has also damaged the aquifers. Deforestation and rampant borewell digging have further aggravated the problem, leaving the lake beds dry except for a few puddles during the rainy season.

To deal with the issue, the Government of Haryana in consultation with IIT-Roorkee has introduced a rejuvenation plan which involves clearing Badkhal's lake bed of invasive trees species and shrubs and compacting it with clay to obstruct groundwater recharge. Further, a Sewage Treatment Plant has also been proposed to supply the lake with treated water. Similar plans for the revival of Damdama Lake are under process.

However, citing the rejuvenation as merely a renovation plan, environmentalists are suggesting to inculcate tough measures. They seek to ban illegal mining to conserve the ecology of the region.

GREENLAND ICE MELT

→ **Jyoti Pant**

Have you ever thought if ice dissolves from icy masses what will be its aftermath? No doubt water all over the place. Greenland covers 79% of ice and is the second biggest ice body on the planet after Antarctica. There has been an unexpected thawing of ice at Greenland since 2000, while today the ice sheet is losing its mass around multiple times quicker than what it was before. Ice softening would hurt the indigenous networks whose vocations relies upon the presence of permafrost. The purposes behind this are environmental change, a worldwide temperature alteration and ozone layer consumption. On the off chance that this liquefying proceeds with it is the assessed ascent of water in tropics that can go to flood, essentially the sea level will increase and there are odds of land lowered. To defeat at some degree it is important to diminish the degree of contamination, deforestation and other natural hurting exercises.

MARINE HEAT WAVES ARE HUMAN-MADE

→ **Kritika Katoch**

A marine heatwave (sea heatwave) is an all-inclusive timeframe during which the water temperature during a specific sea district is anomalous high. As of late, heatwaves of this type have made extensive changes to the biological systems within the vast oceans and at the coast. Their rundown of negative impacts is long: Marine heatwaves can prompt expanded mortality among flying creatures, fish and marine warm-blooded animals, they will trigger unsafe algal blossoms, and enormously decrease the gracefully of supplements within the sea. Heatwaves likewise result in coral dying, trigger developments of fish networks to colder waters, and will augment the sharp decrease of the polar ice caps.

Analysts driven by Bern-based sea life researcher, Charlotte Laufkötter are exploring the topic of how anthropogenic environmental change has been influencing significant marine heatwaves in late decades. The researcher zeroed in on seven considerably archived marine heatwaves from the previous decade. for every piece, they determined the relative probabilities that a comparative occasion could have happened with and without human impact. They found that human exercises such as ozone harming substance outflows made the heat waves considerably more at risk of happening. Furthermore, at 2-3℃ of warming, heatwaves would happen each decade or perhaps every year. Huge stretches of the ocean may exist in never-ending heatwave conditions, they found. As per Laufkötter, the sea's response to those warmth waves could be the foremost precise review accessible for what a worldwide temperature alteration will resemble.

Maanya Chaudhary

The 20 odd earthquakes since April 2020 have had Delhiites worried about the fate of the city. Are these earthquakes signals of an impending temblor? Reports say otherwise.

The Indian subcontinent has had a tumultuous history of Earthquakes rocking the country. This high frequency and intensity of Earthquakes is because the Indian plate is driving into Asia at a rate of approximately 47 mm/year. The latest version of the Seismic Zoning Map of India given in the Earthquake Resistant Design Code of India [IS 1893 (Part 1) 2002] assigns four levels of seismicity for India in terms of zone factors:

→ Zone 2: Low damage risk
→ Zone 3: Moderate damage risk
→ Zone 4: High damage risk
→ Zone 5: Highest damage risk

Delhi-NCR is in Zone 4, which is the second-highest seismic hazard zone. Several reasons & explanations have been given by seismologists:
➢ Shifting in fault lines in the region (Mathura fault, Moradabad fault, Delhi Haridwar ridge, Delhi Sargoda fault, Mahendergarh and Dehradun fault): Vulnerability to earthquakes can be understood from past seismicity, calculation of strain and mapping of active faults.
➢ Proximity to the Himalayas: There are many faults, ridges and lineaments transverse to the Himalayan arcs. However, experts describe earthquakes in the mountains and those in Delhi as "non-linear" i.e., these events are not connected on a timeline. National Centre of Seismology (NCS) said the several mild earthquakes in a very short period could be attributed to "minor adjustments" of the tectonic plates.

A report on seismic hazard micro zonation of Delhi reveals the dark truth about rampant urbanization and thoughtless construction within Delhi and in its fringe towns.
→ Very Low Hazard Zone: Jawaharlal Nehru University (JNU), AIIMS, Chhatarpur, Naraina
→ Low Hazard Zone: Hauz Khas, Vasant Kunj
→ High-Risk Zone: IGI Airport, Hauz Khas, Burari, Najafgarh
→ Very High-Risk Zone: DU north campus, Sarita Vihar, Gita Colony, Shakarpur, Paschim Vihar, Wazirabad, Rithala, Rohini, Jahangirpuri, Bawana, Karol Bagh, Janakpuri (some patches in Yamuna floodplain)

Most buildings in Delhi NCR are not earthquake resistant and may be severely damaged in case a strong tremor occurs. Delhiites must ensure compliance of building bye-laws to make upcoming structures earthquake resilient and to avoid the addition of vulnerable building stock. States must identify vulnerable structures including lifeline buildings and retrofit them to reduce their vulnerability.

There is no need to panic. Instead, it is vital to undertake preparedness and to take precautionary and mitigation measures because that is all one can do in terms of this unpredictable disaster. After all, it takes us an Earthquake to remind us that we walk on the crust of an unfinished planet.

CONFRONTING THE GLOBAL WASTE CRISIS

⟶ Navoneela Chakraborty

Are we fully aware of the enormous global waste crisis the planet is going through? Well, the situation is alarming. "Out of 53.6 million tonnes of e-waste dumped last year, only 17% was recycled", says the Global E-waste Monitor 2020 report. Moreover, Covid-19 pandemic has led to the collapse of the waste management chain, therefore resulting in overflow and unsustainable management of medical, domestic and electronic waste.

The capabilities of wastes vary from spoiling landscape to creating environmental problems thereby affecting the health of man, animals and plants. "What a Waste 2.0" report of 2018 estimated a 70% rise in global waste generation by 2050 and with the present status of waste management, it is horrific to imagine what the future has set to offer.

United Nations 2030 Agenda for Sustainable Development has been put forward to countries as the Sustainable Development Goals regarding attainment of safe, clean, healthy and sustainable environments (SDG 6, 12, 11,14) which call for the confrontation of global waste crisis to conserve the environment and its ecosystems.

The already exacerbated problem needs immediate redressal through avoidance of open dumping and incineration of wastes. Emphasis should be placed on reuse and recycle of waste and even elimination of the utilization of unsustainable materials like plastic on the first place which is responsible for the destruction of marine ecosystems (world generates approximately 242 million tons of plastics per annum of which 90% is ocean debris which results in indigestion, suffocation and entanglement of many marine species). All in all, every segment of waste management i.e. generation, collection, recycle and disposal must be regulated to save earth from the escalating crisis.

FOES OF FOLIAGE?

Maanya Chaudhary

One of the world's most polluted cities also happens to the Greenest capital. Is this irony or an opportunity to self-reflect?

The foundation of the new capital was arranged on December 12, 1911, by Kind King George V of England throughout the urban centre room. It took Brits ten years to shift their body luggage & baggage to the city, which they determined to populate the city with trees to match the bailiwick grandeur of the new town. Jamun & mythical being had another advantage of being evergreen, guaranteeing the streets remained leafy all year; in Spring, the Amaltas drenched the city in yellow (but they were deliberately not planted in corridors of power as a result of leaves shed in early summer would gift Associate in Nursing 'unsightly sight' in English imagination).

Over the subsequent century, the urban centre would become one in all India's inexperienced cities with seven-membered of its region beneath green cowl. The tree-lined roads became thus entrenched among the culture of an urban centre, they have been sapiently chronicled and many even given a heritage tag, including:

•Salvadora close to Qutub musjid   •Banyan at Bhikaji cama Place   •Mango tree at Lodhi Garden
•Arjuna & Ashokas at rule steps Memorial   •Pilkhan at ruminant Park in Hauz Khas.

However over the last decade, urban centre has conjointly lost tens of thousands of trees. Between 2014 & 2017, 15,000 were hewn for numerous development comes. Then, to execute 3 phases of the urban centre tube, nearly 46,000 trees were cut throughout 2004-2018, to keep with a petition among the urban centre assembly. In an exceeding town whose air quality is among the worst among the planet, with pollution levels ofttimes breaching the 'severe' class, losing trees would defy logic, replanting & conversion schemes square measure introduced (although badly implemented). wherever trees square measure planted, ecologists say they are rare trees native to urban centre – usually, they are decorative palms. Sometimes, terribly water-intensive trees square measure chosen, impacting groundwater resources. Delhi's trees, however, have Associate in Nursing enemy older than the bulldozer: a ligneous plant, the 'vilayati' kikar.

However, that is a story for a later day!

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